AUTHORIZED DOCUMENTATION

Administration Guide

Novell® iFolder®

3.7

April 2009

www.novell.com

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Contents

About This Guide

This guide describes how to install, configure, and manage the Novell® iFolder® 3.7 enterprise server, the iFolder 3.7 Web Access server, the iFolder 3.7 Web Admin server, and the iFolder™ client. This guide is divided into the following sections:

Audience

This guide is intended for system administrators.

Feedback

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

Documentation Updates

For the most recent version of the *Novell iFolder 3.7 Administration Guide*, visit the Novell iFolder 3.*x* documentation Web site (http://www.novell.com/documentation/ifolderos/index.html).

Additional Documentation

For information, see the following:

- *Novell iFolder 3.x Security Administrator Guide* (http://www.novell.com/documentation/ifolderos/index.html)
- *iFolder User Guide for Novell iFolder 3.7* (http://www.novell.com/documentation/ifolderos/index.html).
- Novell iFolder 3.*x* documentation (http://www.novell.com/documentation/ifolderos/index.html)

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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.

Overview of Novell iFolder 3.7

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Novell® iFolder® 3.7 is the next generation of iFolder, supporting multiple iFolders per user, user-controlled sharing, and a centralized network server for secured file storage and distribution. With iFolder, users' local files automatically follow them everywhere—online, offline, all the time—across computers. Users can share files in multiple iFolders, and share each iFolder with a different group of users. Users control who can participate in an iFolder and their access rights to the files in it. Users can also participate in iFolders that others share with them.

This section familiarizes you with the various benefits and features of iFolder and its main components:

1.1 Benefits of iFolder for the Enterprise

Benefits of iFolder to the enterprise include the following:

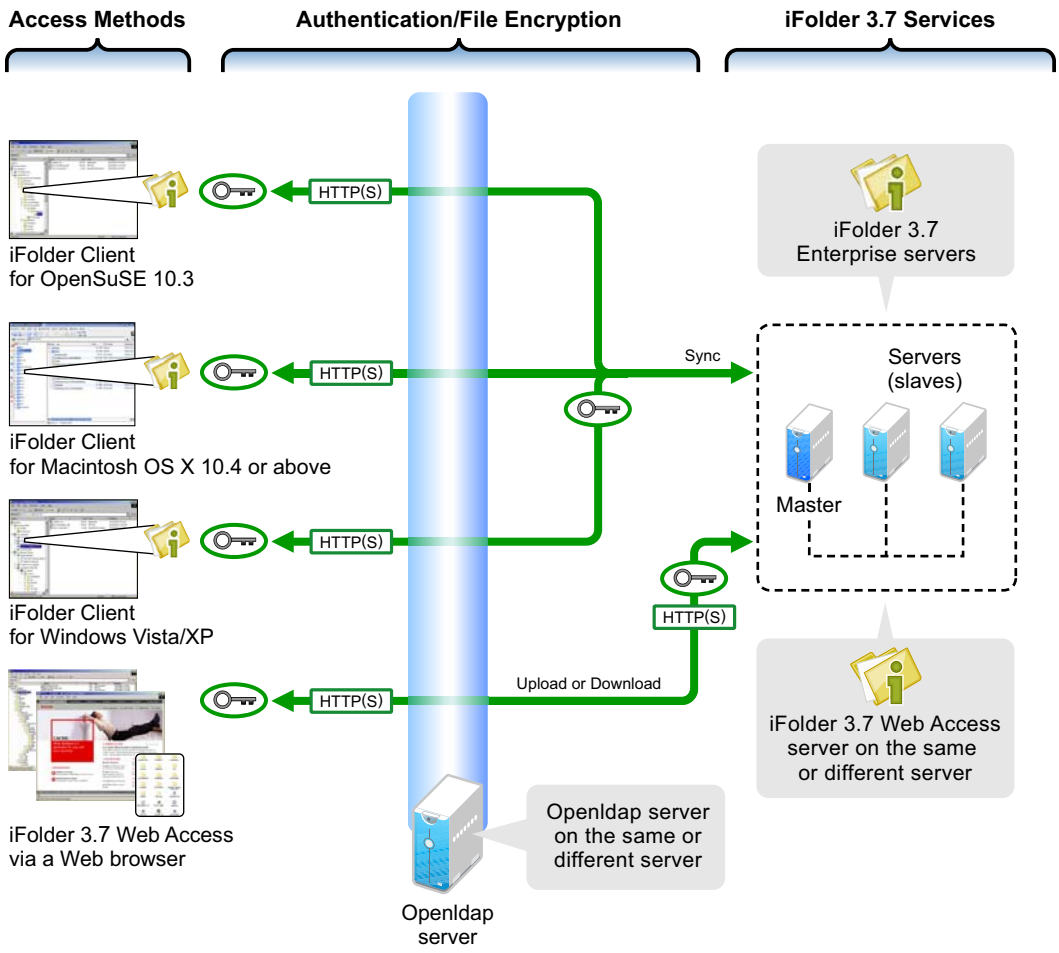
1.1.1 Seamless Data Access

Novell iFolder greatly simplifies the IT department's ability to keep users productive. It empowers users by enabling their data to follow them wherever they go.

The days of users e-mailing themselves project files so they can work on them from home are gone, along with the frustration associated with sorting through different versions of the same file on different machines. iFolder stores and synchronizes users' work in such a way that no matter what

client or what location they log in from, their files are available and in the condition that they expect them to be. Users can access the most up-to-date version of their documents from any computer by using the iFolder client or by using Web Access.

Figure 1-1 *Novell iFolder 3.7 Access Methods*



1.1.2 Data Safeguards and Data Recovery

With Novell iFolder, data stored on the server can be easily safeguarded from system crashes and disasters that can result in data loss. When a user saves a file to an iFolder on a local machine, the iFolder client can automatically update the data on the iFolder server, where it immediately becomes available for an organization's regular network backup operations. iFolder makes it easier for IT managers to ensure that all of an organization's critical data is protected.

1.1.3 Reliable Data Security

With Novell iFolder, LDAP-based authentication for access to stored data helps prevent unauthorized network access.

1.1.4 Encryption Support

In a corporate environment, enterprise-level data is generally accessible to the IT department, which in turn can lead to intentional or unintentional access by unauthorized personnel. Because of this, executives have been hesitant to store some confidential documents on the network.

With encryption support, iFolder ensures higher security for users' confidential documents by encrypting them at the client side before transferring them to the server. Data is thus stored encrypted on the server, and is retrievable only by the user who created that iFolder.

iFolder makes it easier for IT managers to ensure that all of an organization's critical data is protected on the iFolder servers without involving any significant risks. iFolder also gives Internet Service Providers (ISPs) the ability to offer a user-trusted backup solution for their customers' critical business or personal data.

1.1.5 Productive Mobile Users

A Novell iFolder solution makes it significantly easier to support mobile users. VPN connections are no longer needed to deliver secure data access to mobile users. Authentication and data transfer use Secure Sockets Layer (SSL) technology to protect data on the wire.

Users do not need to learn or perform any special procedures to access their files when working from home or on the road. iFolder does away with version inconsistency, making it simple for users to access the most up-to-date version of their documents from any connected desktop, laptop, Web browser, or handheld device.

In preparation to travel or work from home, users no longer need to copy essential data to their laptop from various desktop and network locations. The iFolder client can automatically update a user's local computer with the most current file versions. Even when a personal computer is not available, users can access all their files via Web Access on any computer connected to the Internet.

1.1.6 Cross-Platform Client Support

The iFolder client is available for Linux,Macintosh and Windows desktops. The Novell iFolder 3.7 Web Access server provides a Web interface that allows users to access their files on the enterprise server through a Web browser on any computer with an active network or Internet connection.

1.1.7 Scalable Deployment

iFolder easily scales from small to large environments. You can install iFolder on multiple servers, allowing your iFolder environment to grow with your business. A single iFolder enterprise server handles unlimited user accounts, depending on the amount of memory and storage available. Users in an LDAP context can be concurrently provisioned for iFolder services simply by assigning the context to an iFolder server.

1.1.8 Multi-Server Support

Handling large amount of data and provisioning multiple enterprise users in a corporate environment is a major task for any administrator. iFolder simplifies these tasks with multi-server configuration. Multi-server support is designed exclusively for meeting your enterprise requirements. It serves the purpose of provisioning many users and hosting large amount of data on

your iFolder domain. You can scale up the domain across servers to meet enterprise-level user requirements by adding multiple servers to a single domain. This will allow you to leverage under-utilized servers in an iFolder domain. With multi-server deployment, thus, Enterprise level provisioning can be effectively managed and Enterprise level data can be scaled up.

1.1.9 Multi-Volume Support

One of the key features of iFolder is its storage scalability. With multi-volume support, Internet service providers and enterprise data centers can manage large amounts of data above the file system restrictions per volume. This facilitates moving data between the volumes, based on file size and storage space availability.

1.1.10 Enhanced Web Administration

Management of all iFolder enterprise servers is centralized through the enhanced iFolder Web Admin Console. Administrators can perform server management and maintenance activities from any location, using a standard Web browser. iFolder also frees IT departments from routine maintenance tasks by providing secure, automatic synchronization of local files to the server.

1.1.11 No Training Requirements

IT personnel no longer need to condition or train users to perform special tasks to ensure the consistency of data stored locally and on the network. With Novell iFolder, users simply store their files in the local iFolder directory. Their files are automatically updated to the iFolder server and any other workstations that share the iFolder. iFolder works seamlessly behind the scenes to ensure that data is protected and synchronized.

1.1.12 LDAPGroup Support

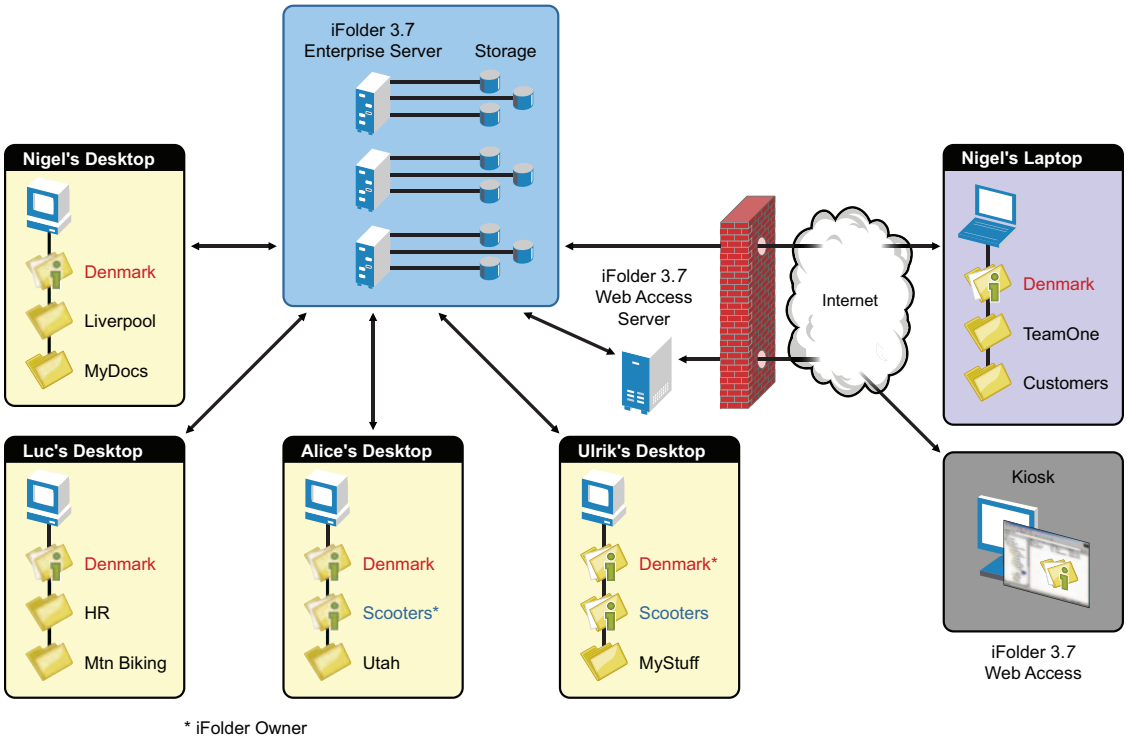
Provisioning and de-provisioning users separately is a task in itself when the total number of users are more. Even while sharing a particular file with 10 or 20 members of a same team, you need to select all members separately and then share. With the LDAPGroups feature, all the above problems are resolved. You can use the group facility for provisioning and de-provisioning, for setting same policy for a set of users. The users can share the iFolders with multiple users using groups.

1.2 Benefits of iFolder for Users

Typically, when users work in multiple locations or in collaboration with others, they must conscientiously manage file versions. With iFolder, the most recent version of a user's files can follow the user to any computer where the iFolder client is installed and a shared iFolder is set up. iFolder also allows users to share multiple iFolders and their separate content with other users of the iFolder system. Users decide who participates in each shared iFolder, and also controls their level of access. Similarly, users can participate in shared iFolders that are owned by others in the collaboration environment.

In the following example, Ulrik owns an iFolder named Denmark and shares it via his iFolder enterprise account with Nigel, Luc, and Alice. Nigel travels frequently, so he also sets up the iFolder on his laptop. Any iFolder member can upload and download files from the Denmark iFolder from anywhere, using the iFolder Web Access server. In addition, Alice shares a non-work iFolder named Scooters with her friend Ulrik.

Figure 1-2 *Collaboration and Sharing with iFolder*



With an enterprise server, the iFolders are stored centrally for all iFolder members. The iFolder server synchronizes the most recent version of documents to all authorized users of the shared iFolder. All that the iFolder owner and iFolder members need is an active network connection and the iFolder client.

Novell iFolder provides the following benefits:

- Guards against local data loss by automatically backing up local files to the iFolder server and multiple workstations
- Prevent unauthorized network access to sensitive iFolder files.
- Allows multiple servers to participate in a single iFolder domain, to allow scaling up the number of users and data transfer bandwidth.
- Transparently updates a user's iFolder files to the iFolder enterprise server and multiple member workstations with the iFolder client
- Tracks and logs changes made to iFolder files while users work offline, and synchronizes those changes when they go online.
- Provides access to user files on the iFolder server from any workstation without the iFolder client, using a Web browser and an active Internet or network connection.
- With SSL encryption enabled, protects data as it travels across the wire.
- Makes files on the iFolder server available for regularly scheduled data backup.

1.3 Enterprise Server Sharing

The iFolder client included in this release supports synchronization across multiple computers through a central Novell iFolder 3.7 enterprise server.

- Users can share files across computers.
- Users can share files with other users or groups.
- Each user can own multiple iFolders.
- User are allowed to set the encryption policy for their individual iFolder files.
- Each user can participate in multiple iFolders owned by other users.
- Files can be synchronized via the central server at any time and with improved availability, reliability, and performance.
- Data is transferred encrypted over the wire.
- Users are autoprovisioned for iFolder services based on their assignment to administrator-specified LDAP containers and groups. If there are multiple servers participating in a single domain, its users are balanced across the servers.
- A list of iFolder users is synchronized at regular intervals with the LDAP directory services.
- Local files are automatically backed up to the server at regular intervals and on demand.
- iFolder data on the server can be backed up to backup media and restored.
- Administrators can manage the iFolder system, user accounts, and user iFolders using the Novell iFolder 3 Web Admin.

1.4 Key Features of iFolder

1.4.1 iFolder Enterprise Server

The iFolder enterprise server is a central repository for storing iFolders and synchronizing files for enterprise users.

1.4.2 Novell iFolder 3.7 Web Admin Console

The Novell iFolder 3.7 Web Admin is an administrative tool used to manage the iFolder system, user accounts, and user iFolders and data.

1.4.3 iFolder Web Access Console

The iFolder 3.7 Web Access console provides the users an interface for remote access to iFolders on iFolder enterprise server.

1.4.4 The iFolder Client

The iFolder client integrates with the user's operating system to provide iFolder services in a native desktop environment. It supports the following client operating systems:

- openSUSE 10.3
- SUSE® Linux Enterprise Desktop (SLED) 10 SP1
- SUSE® Linux Enterprise Desktop (SLED) 11
- openSUSE 11.1
- Windows Vista SP1/XP SP2
- Apple Macintosh 10.4

An iFolder session begins when the user logs in to an iFolder services account and ends when the user logs out of the account or exits the iFolder client. The iFolders synchronize files with the enterprise server only when a session is active and the computer has an active connection to the network or Internet. Users can access data in their local iFolders at any time; it does not matter if they are logged in to their server accounts or if they are connected to the network or Internet.

The iFolder client allows users to create and manage their iFolders. For information, see the *Novell iFolder 3.7 Cross-Platform User Guide*.

1.4.5 Multi Server Support

Hosting large amounts of data as well as provisioning multiple users is necessary in any enterprise environment. In earlier versions of iFolder, the iFolder domain was dedicated to a single server, which limits the number of users and the hosting bandwidth. With multi-server support, iFolder 3.7 overcame these major limitations.

Multi-server support expands an iFolder domain across servers, so that the enterprise-level user provisioning can be effectively managed and enterprise-level data can be scaled up accordingly.

1.4.6 Encryption

Encryption support offers full security to iFolder 3.7 users for their sensitive iFolder documents. Users can back up and encrypt their confidential files on the server without fear of losing it or having it exposed or falling into the wrong hands.

1.4.7 Shared iFolders

An iFolder is a local directory that the user selectively shares with other users in a collaboration environment. The iFolder files are accessible to all members of the iFolder and can be changed by those with the rights to do so. Users can share iFolders across multiple workstations and with others.

Because the iFolder client is integrated into the operating environment, users can work with iFolders directly in a file manager or in the My iFolders window. Within the iFolder, users can set up any subdirectory structure that suits their personal or corporate work habits. The subdirectory structure is constant across all member iFolders. Each workstation can specify a different parent directory for the shared iFolder.

1.4.8 iFolder Access Rights

The iFolder client provides four levels of access for members of an iFolder:

- **Owner:** Only one user serves as the owner. This is typically the user who created the iFolder. The owner or an iFolder Administrator can transfer ownership status from the owner to another user.

  The owner of an iFolder has the Full Control right. This user has Read/Write access to the iFolder, manages membership and access rights for member users, and can remove the Full Control right for any member. With an enterprise server, the disk space used by the owner's iFolders count against the owner's user disk quotas on the enterprise server.

  If a user is deleted from the iFolder system, the iFolders owned by the user are orphaned. Orphaned iFolders are assigned temporarily to the iFolder Admin user, who becomes the owner of the iFolder. Membership and synchronization continues while the iFolder Admin user determines whether an orphaned iFolder should be deleted or assigned to a new owner.
- **Full Control:** A member of the shared iFolder, with the Full Control access right. The user with the Full Control right has Read/Write access to the iFolder and manages membership and access rights for all users except the owner.
- **Read/Write:** A member of the shared iFolder, with the Read/Write access right to directories and files in the iFolder.
- **Read Only:** A member of the shared iFolder, with the Read Only access right to directories and files in the iFolder. This member can copy an iFolder file to another location and modify it outside the iFolder.

When used with an enterprise server account, the server hosts every iFolder created for that account. Users create an iFolder and the enterprise server makes it available to the specified list of users. A user can have a separate account on each enterprise server. A user's level of membership in each shared iFolder can differ.

1.4.9 Account Setup for Enterprise Servers

The iFolder client allows you to set up multiple accounts, with one each allowed per enterprise server. Users specify the server address, username, and password to uniquely identify an account. On his or her computer, a user sets up accounts while logged in as the local identity he or she plans to use to access that account and its iFolders. Under the local login, the user can set up multiple iFolder accounts, but each account must belong to a different iFolder enterprise server.

1.4.10 Access Authentication

Whenever iFolder connects to an enterprise server to synchronize files, it connects with HTTP BASIC and SSL connections to the server, and the server authenticates the user against the LDAP directory service.

1.4.11 File Synchronization and Data Management

When you set up an iFolder account, you can enable Remember Password so that iFolder can synchronize iFolder invitations and files in the background as you work. The iFolder client runs automatically each time you log in to your computer's desktop environment. The session runs in the background as you work with files in your local iFolders, tracking and logging any changes you make. With an enterprise server, you can synchronize the files at specified intervals or on demand.

1.4.12 Synchronization Log

The log displays a log of your iFolder background activity.

1.5 What's Next

Before you install iFolder, review the following sections:

- "Planning iFolder Services" on page 25
- "Prerequisites and Guidelines" on page 43

When you are done, install and configure your iFolder enterprise server and Web Access server. For information, see Chapter 6, "Installing and Configuring iFolder Services," on page 47.

Planning iFolder Services

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This section discusses the planning considerations for providing Novell® iFolder® 3.7 services.

2.1 Security Considerations

For information about planning security for your iFolder 3.*x* system, see the *Novell iFolder 3.7 Security Administration Guide*.

2.2 Server Workload Considerations

The iFolder 3.7 enterprise server supports a complex usage model where each user can own multiple iFolders and participate in iFolders owned by other users. Instead of a single user working from different workstations at different times, multiple users can be concurrently modifying files and synchronizing them. Whenever a user adds a new member to an iFolder, the workload on the server can increase almost as much as if you added another user to the system.

iFolder 3.7 provides you multi-server and multi-volume support to enhance the storage capability of it’s servers. Multi-Volume feature is exempt from the single iFolder per-volume restriction, so it enables you to move the data across multiple volume available on a single server. With the Web Admin console, you can add multiple mount points to a single server to increase the effective space available. The iFolder server also has the capability to configure the volume on which a particular iFolder needs to be created through the Web Admin console.

Multi-server support is another key feature in iFolder 3.7 that makes server workload management significantly easier for administrators. In the past, an iFolder domain was dedicated to a single server that limited the number of users and data transfer bandwidth. With multi-server support, iFolder 3.7 has the capability to add more than one server to a single iFolder domain, so enterprise provisioning is effectively managed and hosting enterprise data is scaled up.

You can even set user account quotas to control the maximum storage space consumed by a user’s iFolders on the server. The actual bandwidth usage for each iFolder depends on the following:

- The number of members subscribed to the iFolder.
- The number of computers actively sharing the iFolder.
- How much data is stored in the iFolder.
- The actual and average size of files in the iFolder.
- The number of files in the iFolder.

- How frequently files change in the file.
- How much data actually changes.
- How frequently files are synchronized.
- The available bandwidth and throughput of network connections.

We recommend that you set up a pilot program to assess your operational needs and performance based on your equipment and collaboration environment, then design your system accordingly.

The following is a suggested baseline configuration for an iFolder 3.7 server with a workload similar to a typical iFolder 2.1*x* server. It is based on an example workload of about 12.5 GB of data throughput (up and down) each 24 hours, including all Ethernet traffic and protocol overhead. Your actual performance might differ.

Table 2-1 *Suggested Baseline Configuration for an iFolder Enterprise Server*

Component	Example System Configuration
Hardware	1.8 GHz Single processor
	2 GB RAM
	300 GB hard drive
iFolder Services	500 users per server (multi-server configuration)
	500 MB user account quota per user
	1 iFolder per user that is not shared with other users
	5% change in each user's data per 24-hour period

2.3 Naming Conventions for Usernames and Passwords

- Section 2.3.1, "LDAP Naming Requirement," on page 26
- Section 2.3.2, "Multilingual Considerations," on page 26

2.3.1 LDAP Naming Requirement

Usernames and passwords must comply with the constraints set by your LDAP service.

2.3.2 Multilingual Considerations

If you have workstations running in different languages, you might want to limit User object names to characters that are viewable on all the workstations. For example, a name entered in Japanese cannot contain characters that are not viewable in Western languages.

2.4 Admin User Considerations

During the iFolder install, iFolder creates two Administrator users, the iFolder Admin user and the iFolder Proxy user. After the install, you can also configure other users with the iFolder Admin right to make them equivalent to the iFolder Admin user.

2.4.1 iFolder Admin User and Equivalent Users

The iFolder Admin user is the primary administrator of the iFolder enterprise server. Whenever iFolders are orphaned, ownership is transferred to the iFolder Admin user for reassignment to another user or for deletion. You initially specify the iFolder Admin user during the iFolder enterprise server configuration.

The iFolder Admin user must be provisioned to enable the iFolder Admin to perform management tasks. iFolder tracks this user by the LDAP object GUID, allowing it to belong to any LDAP container or group in the tree, even those that are not identified as LDAP Search contexts.

The iFolder Admin right can be assigned to other users so that they can also manage iFolder services for the selected server. Use the Web Admin console to add or remove the iFolder Admin right for users. Only users who are in one of the contexts specified in the LDAP Search contexts are eligible to be equivalent to the iFolder Admin user.

If you assign the iFolder Admin right to other users, those users are governed by the roster and LDAP Search DN relationship. The user is removed from the roster and stripped of the iFolder Admin right if you delete the user, remove the user’s DN from the list of LDAP Search contexts, or move the user to a context that is not in the LDAP Search contexts.

2.4.2 iFolder Proxy User

The iFolder Proxy user is the identity used to access the LDAP server to retrieve lists of users in the specified containers, groups, or users that are defined in the iFolder LDAP settings. This identity must have the Read right to the LDAP directory container configured during iFolder enterprise server setup. The iFolder Proxy user is created during the iFolder install and appropriate access rights are provided. You probably never need to modify this value. You can modify the Proxy user using the Web Admin console. For more information, see Step 7b on page 146 in the “Accessing and Viewing the Server Details Page” on page 144.

IMPORTANT: If you do modify the iFolder Proxy user, make sure that the identity you specify is different than the iFolder Admin user or other system users because the iFolder Proxy user password is stored in reversible encrypted form in the Simias database on the iFolder server. After you change the iFolder Proxy user, ensure that you restart Apache.

When you initially configure the iFolder enterprise server, iFolder autogenerates a password for the iFolder proxy user.

Table 2-2 *Encryption Method for the iFolder Proxy User Password*

iFolder Version	Encryption Method	iFolder Proxy User Password
iFolder 3.7	iFolder encryption method	Generates an alphanumeric, 21-digit mixed-case password.
iFolder 3.6	iFolder encryption method	Generates an alphanumeric, 21-digit mixed-case password.
iFolder 3.2	iFolder encryption method	Generates an alphanumeric, 13-digit, mixed-case password.
iFolder 3.0 and 3.1	BASH random number generator	Generates a number between `0` and `10,000` and appends it to iFolderProxy. For example, `iFolderProxy1234`.

Initially, the password for the iFolder Proxy user is stored in clear text in the `/datapath/simias/.local.ppf` file. At the end of the configuration process, the system reboots Apache 2 and starts iFolder. When iFolder runs this for the first time after configuration, the iFolder process encrypts the password and stores it in the Simias database and remove the entry from the `.local.ppf` file.

2.5 iFolder User Account Considerations

This section describes iFolder user account considerations.

2.5.1 Preventing the Propagation of Viruses

Because iFolder is a cross platform, distributed solution there is a possibility of virus infection on Windows machines when migrating data across the iFolder server to other platforms, and vice versa. You should enforce server-based virus scanning to prevent viruses from entering the corporate network.

You should also enforce client-based virus scanning. For information, see “Configuring Local Virus Scanner Settings for iFolder Traffic” in the *Novell iFolder 3.7 Cross-Platform User Guide*.

2.5.2 Synchronizing User Accounts with LDAP

You can specify any existing containers and groups in the *Search DNs* field of the iFolder LDAP settings. Based on the Search DNs, users are automatically provisioned with accounts for iFolder services.

The list of iFolder users is updated periodically when the LDAP synchronization occurs. New users are added to the list of iFolder users. Deleted users are removed from the list of iFolder users. (This might create orphaned iFolders if the deleted user owned any iFolders). If by mistake user is deleted

from the LDAP, you can create that user again with the same FDN within the *Delete member grace interval* so that you can recover the user's iFolders. For more information on this, see Step 7 on page 145 in the "Accessing and Viewing the Server Details Page" on page 144.

IMPORTANT: Whenever you move a user between contexts and you want to provide continuous service for the user, make sure to add the target context to the list of LDAP Search DNs before you move the User object in eDirectory.

The LDAP synchronization tracks a user object's eDirectory™ GUID to identify the user in multiple contexts. It tracks as you add, move, or relocate user objects, or as you add and remove contexts as Search DNs.

The following guidelines apply:

- If the user is added to an LDAP container, group, or user that is in the Search DN, the user is added automatically to the iFolder user list.
- If a user is moved to a different container, and the new container is also in the Search DN, the user remains in the iFolder user list.

  If you intend to keep the user as an iFolder user without interruption of service and loss of memberships and data, the new container must be added as a Search DN before the user is moved.

  If the user is moved to a different container that is not specified as a Search DN before the user is moved, the user is removed from the iFolder user list. The user's iFolders are orphaned and the user is removed as a member of iFolders owned by others. If the new container is later added as a Search DN, the user is treated as a new user, with no association with previous iFolders and memberships.
- If the user appears in multiple defined Search DNs, and if one or more DNs are removed from the LDAP settings, the user remains in the iFolder user list if at least one DN containing the user remains.
- If the user is deleted from LDAP or moved from all defined Search DNs, the user is removed as an iFolder user. The user's iFolders are orphaned and the user is removed as a member of iFolders owned by others.
- The iFolder Admin user and iFolder Proxy user are tracked by their GUIDs, whether their user objects are in a context in the Search DN or not.

2.5.3 Synchronizing LDAPGroup Accounts with LDAP

You can specify any existing containers and groups in the Search DNs field of the iFolder LDAP settings. Based on the Search DNs, LDAPGroups are automatically provisioned with accounts for iFolder services.

The list of LDAPGroup is updated periodically when the LDAP synchronization occurs. New LDAPGroups are added to the list of iFolder users. Deleted LDAPGroups are removed from the list of iFolder users. (This might create orphaned iFolders if the deleted LDAPGroup owned any iFolders). If by mistake LDAPGroup is deleted from the LDAP, you can create that LDAPGroup again with the same FDN within the *Delete member grace interval* so that you can recover the user's iFolders. For more information on this, see Step 7 on page 145 in the "Accessing and Viewing the Server Details Page" on page 144.

IMPORTANT: Whenever you move a LDAPGroup between contexts and you want to provide continuous service for the LDAPGroup, make sure to add the target context to the list of LDAP Search DNs before you move the LDAPGroup object in eDirectory.

The LDAP synchronization tracks a LDAPGroup object's eDirectory™ GUID to identify the LDAPGroup in multiple contexts. It tracks as you add, move, or relocate LDAPGroup objects, or as you add and remove contexts as Search DNs.

The following guidelines apply:

- If the LDAPGroup is added to an LDAP container, group, or LDAPGroup that is in the Search DN, the LDAPGroup is added automatically to the iFolder LDAPGroup list.
- Any changes to the LDAPGroup member list are automatically synchronized during next synchronization cycle.
- If an LDAPGroup is moved to a different container, and the new container is also in the Search DN, the LDAPGroup remains in the iFolder LDAPGroup list.

  If you intend to keep the LDAPGroup as an iFolder LDAPGroup without interruption of service and loss of memberships and data, the new container must be added as a Search DN before the LDAPGroup is moved.

  If the LDAPGroup is moved to a different container that is not specified as a Search DN before the LDAPGroup is moved, the LDAPGroup is removed from the iFolder LDAPGroup list. The LDAPGroup's iFolders are orphaned and the LDAPGroup is removed as a member of iFolders owned by others. If the new container is later added as a Search DN, the LDAPGroup is treated as a new LDAPGroup, with no association with previous iFolders and memberships.
- If the LDAPGroup appears in multiple defined Search DNs, if one or more DNs are removed from the LDAP settings, the LDAPGroup remains in the iFolder LDAPGroup list if at least one DN containing the LDAPGroup remains.
- If the LDAPGroup is deleted from LDAP or moved from all defined Search DNs, the LDAPGroup is removed as an iFolder LDAPGroup. The LDAPGroup's iFolders are orphaned and the LDAPGroup is removed as a member of iFolders owned by others.
- The iFolder Admin LDAPGroup and iFolder Proxy LDAPGroup are tracked by their GUIDs, whether their LDAPGroup objects are in a context in the Search DN or not.

NOTE: LDAP groups are not supported for Openldap.

2.5.4 Setting Account Quotas

You can restrict the amount of space each user account is allowed to store on the server by setting an account quota. The account quota applies to the total space consumed by the iFolders the user owns. If the user participates in other iFolders, the space consumed on the server is billed to the owner of that iFolder. You can set quotas at the system or user level. Within a give account quota, you can also set a quota for any iFolder.

2.6 iFolders Data and Synchronization Considerations

Consider the following when setting policies for iFolders data and synchronization:

- "Naming Conventions for an iFolder and Its Folders and Files" on page 31
- "Guidelines for File Types and Sizes to Be Synchronized" on page 31

2.6.1 Naming Conventions for an iFolder and Its Folders and Files

The iFolder client imposes naming conventions that consider the collective restrictions of the Linux, Macintosh and Windows file systems. An iFolder, folder, or file must have a valid name that complies with the naming conventions before it can be synchronized.

Use the following naming conventions for your iFolders and the folders and files in them:

- iFolder supports the Unicode* (http://www.unicode.org) character set with UTF-8 encoding.
- Do not use the following invalid characters in the names of iFolders or in the names of folders and files in them:

  `\/:*?"<>|;`

  iFolder creates a name conflict if you use the invalid characters in a file or folder name. The conflict must be resolved before the file or folder can be synchronized.
- The maximum name length for a single path component is 255 bytes. For filenames, the maximum length includes the dot (`.`) and file extension.
- Names of iFolders, folders, and files are case insensitive; however, case is preserved. If filenames differ only by case, iFolder creates a name conflict. The conflict must be resolved before the file or folder can be synchronized.
- If users create iFolders on the FAT32 file system on Linux, they should avoid naming files in all uppercase characters. The VFAT or FAT32 file handling on Linux automatically changes the filenames that are all uppercase characters and meet the MS-DOS 8.3 file format from all uppercase characters to all lowercase characters. This creates synchronization problems for those files if the iFolder is set with the Read Only access right.

2.6.2 Guidelines for File Types and Sizes to Be Synchronized

You can set policies to govern which files are synchronized by specifying file type restrictions and the maximum file size allowed to be synchronized. You can set these policies at the system, user account, and iFolder level.

Some file types are not good candidates for synchronization, such as operating system files, hidden files created by a file manager, or databases that are implemented as a collection of linked files. You might include only key file types used for your business, or exclude files that are likely unrelated to business, such as `.mp3` files.

Operating System Files

You should not convert system directories to iFolders. Most system files change infrequently and it is better to keep an image file of your basic system and key software than to attempt to synchronize those files to the server.

Hidden Files

If your file system uses hidden files to track display preferences, you should determine the file types of these files and exclude them from being synchronized on your system. Usually, they are relevant only to the particular computer where they were created, and they change every time the file or directory is accessed. You do not need to keep these files, and synchronizing them results in repeated file conflict errors.

For example, iFolder automatically excludes two hidden file manager files called `thumbs.db` and `.DS_Store`.

Database Files

iFolder synchronizes the changed portions of a file; it does not synchronize files as a set. If you have a database file that is implemented as a collection of linked files, do not try to synchronize them in an iFolder.

File Sizes

The maximum file size you allow for synchronization depends on your production environment. While some users work with hundreds of small files, other users work with very large files. You might set a system-wide policy to restrict sizes for most users, then set individual policies for power users.

2.7 Management Tools

Use the following tools to manage the Novell iFolder 3.7 enterprise server and Web Access server.

- Section 2.7.1, “Web Access Configuration File,” on page 32

2.7.1 Web Access Configuration File

Use the `/usr/webaccess/Web.config` file to configure HTTP runtime parameters for your iFolder Web Access server. For information, see Section 14.4, “Configuring the HTTP Runtime Parameters,” on page 169.

What's New

3

Novell® iFolder® 3.*x* and the iFolder™ client offer many new capabilities as compared to Novell iFolder 2.*x*. This section discusses the following:

3.1 What's New in Novell iFolder 3.7

The following features are new in iFolder 3.7:

- iFolder client for Macintosh and Vista
- Server Migration by using the Migration Tool
- SSL Communication
- LDAPGroup Support
- Auto-Account creation by using a Response file
- iFolder Merge
- Improved file conflict management
- Enhanced Web administration
- Mechanism to re-provision users to another server

3.2 What's New in Novell iFolder 3.6

The following features are new in iFolder 3.6:

- Multi-sever support with no limit on the number of users and servers to allow expanding the iFolder domain across multiple servers
- Encryption support for users to store sensitive files secured on servers.
- Enhanced Web Admin console to manage, deploy and maintain iFolder system.
- Volume scalability support for iFolder servers to allow administrator to move data across multiple volume on a single server.
- With Multi-domain capability, iFolder 3.6 allows users to work with files belonging to two iFolders that reside on two different iFolder servers
- Enhanced web access for users to help them perform all the operations equivalent to that of iFolder client through web access. It allow mobile users access their iFolder and thus perform all the iFolder operations via mobile.
- Simplified iFolder sharing via Web Access.

- Enhanced reporting for better manageability.
- Support for multiple directories (eDirectory, OpenLDAP and SunOne)

3.3 What's New in Novell iFolder 3.2

The following features are new in iFolder 3.2:

- Localized user help for the iFolder client
- Support for users to log in to the iFolder server with their common name or e-mail address. The iFolder Admin User configures the option during installation and the setting applies to all users.

3.4 What's New in Novell iFolder 3.1

The following features are new in iFolder 3.1:

- Support for the iFolder data store on Novell Storage Services™ (NSS) volumes on Linux
- Support for Novell Cluster Services™ for Linux.
- Support for Mono 1.1.7.7*x*.
- Interoperability for Novell iChain, Novell BorderManager, and Novell Security Manager.

3.5 What's New in Novell iFolder 3.0

Novell iFolder 3.0 includes several important new features.

- **Multiple iFolders:** A user creates as many iFolders as desired and manages each one separately. Each iFolder functions independently to synchronize its own set of files. Users specify the local path for each iFolder.
- **Shared iFolders:** Each iFolder can be kept private or shared with a different group of users. For a shared iFolder, the owner or a member with the Full Control right controls who participates in the iFolder and the level of access granted to each member, such as Full Control, Read/Write, or Read Only.
- **Centralized iFolder Synchronization and Storage:** iFolder data is automatically synchronized by the iFolder client to the iFolder enterprise server over an IP network. The enterprise server stores files for each iFolder, then synchronizes them to other member computers. Encryption is supported for data transfers. Administrators control whether data is transported securely with HTTPS (SSL) connections during synchronization, or if data is transported with standard HTTP BASIC connections.
- **Multiple iFolder Accounts:** Users can concurrently access iFolder accounts on different servers.
- **Web Access to iFolders:** Users access their iFolder enterprise server accounts from any computer with Internet access. They create subdirectories, upload files, and download files to any of their iFolders. All iFolders for the account are available, whether the user is the owner or a member.
- **Client-Side APIs:** Almost every function an end user can accomplish through the UI is exposed as an API. This allows third-party developers to more easily integrate their applications with iFolder and gives organizations the tools they need to customize iFolder.

Comparing Novell iFolder 2.x and 3.7

4

This section compares the features and capabilities of Novell® iFolder® 3.7 to Novell iFolder 2.*x*.

4.1 Comparison of 2.*x* and 3.7 Server Features and Capabilities

Table 4-1 *Comparison of 2.x and 3.7 iFolder server features*

Feature or Capability	Novell iFolder 2.*x* Server	Novell iFolder 3.7 Enterprise Server
Server management	iFolder Administration tool `http://serveraddress/iFolderServer/Admin.html`	Novell iFolder 3.7 Web Admin. `http://serveraddress/admin`
Automatic provisioning of iFolder services	No The administrator enables iFolder services for users, requires users to log in to activate the account, and then creates the iFolder on the server.	Yes Multiple servers participate in a single iFolder domain and iFolder users are automatically balanced across participant servers.
Maximum iFolders per username	One	Multiple. Virtually unlimited number of iFolders as an owner or member.
Allows administrators to create an iFolder for a user	No	Yes
Allows administrators to share an iFolder and specify its member users	No	Yes ◆ For each iFolder, specify a list of users, which can be further modified by the iFolder owner. ◆ For each member of an iFolder, specify the user's level of access with Full Control, Read/Write, and Read Only rights.
Allows administrators to transfer ownership of a shared iFolder to another user	No	Yes
LDAP Group Support	No	Yes LDAP group provisioning,de-provisioning, sharing,and setting Policies to group Objects is supported.

Feature or Capability	Novell iFolder 2.*x* Server	Novell iFolder 3.7 Enterprise Server
Detects orphaned iFolders and allows the iFolder Admin user to manage them	No	Yes
Maximum file size	Software limits file size to 4 GB. Below 4 GB, the maximum file size depends on the server's and clients' local file systems. For example, on Windows clients, FAT32 limits file sizes to 4 GB. On Linux, EXT2 limits file sizes to 2 GB.	There are no software restrictions, but the administrator can specify the maximum file size that users can synchronize as system-wide, individual user account quotas, and individual iFolder quotas. Below the administrative maximum, the practical maximum file size depends on the server's and clients' local file systems.
Maximum number of directories	32,765	No software restrictions; depends on the server's and clients' local file systems.
Multi-volume support	No	You can move data across multiple volumes available on a single server or across servers.
Disk quotas	The administrator can specify a default user quota that applies system-wide, and specify individual user quotas for iFolder accounts.	You can specify a default account quota that applies system-wide, individual user account quotas, and individual iFolder quotas. An owner can also specify a quota for an individual iFolder, but the total combined quotas for all the iFolders the user owns cannot exceed the system-wide account quota or the user's individual account quota, whichever is less. An iFolder member can specify a quota for the iFolder on each client. The quota cannot exceed the iFolder's quota or that user's own quota for his or her account.
Minimum synchronization interval	The administrator can set minimum synchronization intervals to apply system-wide and for individual users.	You can set minimum synchronization intervals to apply system-wide, for individual users, or for an individual iFolder.
Multi-volume support	No	With multi volume support, administrator can move the data across multiple volumes available on a single server. In effect, it ensure increased storage scalability.

Feature or Capability	Novell iFolder 2.*x* Server	Novell iFolder 3.7 Enterprise Server
Allows administrators to specify which file types to synchronize	No	Yes You can specify file types to include or exclude by setting system-wide, individual account, or individual iFolder policies.
Allows administrators to enable or disable the iFolder synchronization	Yes, by temporarily disabling iFolder services for the user account.	Yes, by using the iFolder Enable/ Disable User function to temporarily disable login for the user to the user's iFolder account.
Authenticated access	Yes, using the Admin username and password for the iFolder Management tool	Yes
Encrypted data transfer	Yes, with the encrypted iFolder option The Blowfish algorithm is applied with a user-specified passphrase. The admin user determines whether encryption services are available to users.	Yes, with automatic HTTPS (SSL) connections. The iFolder Admin user or equivalent determines whether secure or insecure connections are used.
iFolder data stored encrypted on server	Yes, with the encrypted iFolder option The user must specify a passphrase when first creating the iFolder account.	Yes
Backup of local files to a network server	Files in users' local iFolders are backed up on the iFolder server.	Files in users' local iFolders are backed up on the iFolder enterprise server.
Backup support to restore deleted files	Entire iFolder contents must be backed up and restored.	Individual files, directories, and iFolders are backed up.

4.2 Comparison of 2.*x* and 3.7 Client Features and Capabilities

Table 4-2 *Comparison of 2.x and 3.7 client features*

Feature or Capability	Novell iFolder 2.*x* Client	iFolder Client with a Novell iFolder 3.7 Enterprise Server
Download location	The iFolder download page is `http://serveraddress/iFolder` Replace *serveraddress* with the IP address or DNS name of your iFolder server. For example, `192.168.1.1` or `nifsvr1.example.com`. The path is case sensitive.	The administrator provides a download site where users can download the iFolder client.
Default location of the iFolder directory on a client	Windows: `C:\Documents and Settings\`*`username`*`\My Documents\iFolder\`*`username`*`\Home` Linux: `/home/userid/ifolder/userid` Macintosh: Not supported	`/home/username/`
Connect to server	Log in to one account at a time.	Set up accounts for multiple iFolder servers and log in to one or more as desired.
Authenticated access	Yes, with username and password authentication via your LDAP server.	Yes, with username and password authentication via your LDAP server.
Encrypted data transfer	Yes, with the encrypted iFolder option. The Blowfish algorithm is applied with a user-specified passphrase.	Yes, with automatic HTTPS (SSL) connections. You can control whether connections use HTTPS or HTTP.
iFolder data stored encrypted on server	Yes, with encrypted iFolder option The user must specify a passphrase when first creating the iFolder account.	Yes Data is stored encrypted on the server.
iFolder data stored encrypted on clients	No iFolder data is stored unencrypted on the client. Use third-party local encryption options, if needed.	No iFolder data is stored unencrypted on the client. Use third-party local encryption options, if needed.

Feature or Capability	Novell iFolder 2.*x* Client	iFolder Client with a Novell iFolder 3.7 Enterprise Server
Create an iFolder	Yes, by logging in to the server for the first time after being provisioned for iFolder services.	Yes, by selecting any local directory and making it an iFolder. A user can create multiple iFolders in each iFolder account.
Maximum iFolders per username	One	Multiple. Virtually unlimited number of iFolders as an owner or member.
Share an iFolder across multiple computers	Yes, by logging in to an iFolder server from a computer with the iFolder client, or by accessing the iFolder via the Web with NetStorage.	Yes, by logging in to an iFolder account from another computer with an iFolder client and setting up the available iFolder. You can select which of the iFolders you own or participate in to set up on each computer, according to your needs at each location.
Share an iFolder with other users	Not as designed, but it is possible. The administrator can create a username for this purpose. Membership in the iFolder is determined by who has access to the password for that username and its iFolder account.	Yes, as the owner user or a member user with the Full Control right. ◆ For each iFolder, specify a list of users. ◆ For each member of an iFolder, specify different levels of access with the Full Control, Read/Write, or Read Only right.
Share an iFolder with other LDAP groups	No	Yes You can share iFolders with other LDAP groups.
Participate in a shared iFolder owned by another user	Not as designed, but it is possible if the iFolder's owner shares his or her username and password. **IMPORTANT:** Sharing a password is a security risk and is never recommended.	Yes, if the owner adds you as a member. After the owner makes you a member of the iFolder, the server notifies you by making the iFolder available in your My iFolders window. Use the iFolder Setup function to activate the iFolder on one or more computers where you want to participate.
Allows the owner of a shared iFolder to transfer ownership of a shared iFolder to another user	No	Yes
Allows the iFolder owner to transfer ownership the iFolder to another user	No	Yes

Feature or Capability	Novell iFolder 2.*x* Client	iFolder Client with a Novell iFolder 3.7 Enterprise Server
Maximum file size	Software limits file size to 4 GB. Below 4 GB, the maximum file size depends on the server's and clients' local file systems. For example, on Windows clients, FAT32 limits file sizes to 4 GB. On Linux, EXT2 limits file sizes to 2 GB.	There are no software restrictions, but you can specify the maximum file size that users can synchronize as system-wide, individual user account quotas, and individual iFolder quotas. Below the administrative maximum, the practical maximum file size depends on the server's and clients' local file systems.
Restrict synchronization by including or excluding files by file type, such as `.mp3`	No	Yes, with policies set by you that can apply system-wide, to individual user accounts, or to individual iFolders.
Maximum number of directories	32,765	No software restrictions; depends on the server's and clients' local file systems.
Disk quotas	No	An owner can specify a quota for each iFolder, but the total combined administrative quotas for all owned iFolders cannot exceed the user's quota, or the system-wide quota if there is no user quota. An iFolder member can specify a quota for the iFolder on each computer where the iFolder is set up.
Minimum synchronization interval	The user sets a synchronization interval for each workstation. The value cannot be less than the system-wide setting or individual user setting.	The user sets a synchronization interval for each computer that applies to all iFolders in all accounts on that computer.
Allows users to suspend synchronization for a given client computer	Yes, using any of the following methods: ◆ Log out of the iFolder server ◆ Disable Automatic Synchronization in the Preferences tab. You can remain logged in, and then synchronization when you want with the Synchronization Now option.	Yes, using any of the following methods: ◆ Log out of the iFolder server account ◆ Disable Automatic Sync ◆ Disable the account in the Account window (deselect Enable Account)
Passphrase Management	No	Automated passphrase management.

Feature or Capability	Novell iFolder 2.*x* Client	iFolder Client with a Novell iFolder 3.7 Enterprise Server
Remote access to iFolder data on the server	Yes, using NetStorage. Your administrator must configure NetStorage for iFolder services.	Yes, using iFolder 3.7 Web Access.
Backup of local files to a network server	Files in users' local iFolders are backed up on the iFolder server.	Files in users' local iFolders are backed up on the iFolder enterprise server.
Backup support to restore deleted files	Administrators must back up and restore the entire iFolder contents.	You can back up the entire iFolder data store. You can restore individual files, directories, or iFolders.
Enhanced Web access	No	Management of all iFolder enterprise servers is centralized through the enhanced Web Admin. iFolder 3.7 allows management from any location, using a standard Web browser.

4.3 Comparison of 2.*x* and 3.7 Web Access Features and Capabilities

Table 4-3 *Comparison Table*

Feature or Capability	Novell iFolder 2.*x* Web Access	Novell iFolder 3.7 Web Access
Web Access method	For iFolder 2.1.4 and earlier, the Java* applet or Novell NetStorage (for NetWare® servers only) For iFolder 2.1.5 and later, Novell NetStorage (both Linux and NetWare servers)	iFolder 3.7 Web Access for Linux.
Web Access location	http://serveraddress/iFolder Replace *serveraddress* with the IP address or DNS name of your iFolder server. For example, `192.168.1.1` or `nifsvr1.example.com`. The path is case sensitive.	`http://`*`serveraddress`*`/` *`<webalias>`* Replace *serveraddress* with the IP address or DNS name of your iFolder server. For example, `10.10.1.1` or `nifsvr1.example.com`. Replace *webalias* with the administrator-specified path. The default path is `/ifolder`. The path is case sensitive. For example: `http://10.10.1.1/ifolder`

Feature or Capability	Novell iFolder 2.*x* Web Access	Novell iFolder 3.7 Web Access
Connect to server	The user has only one iFolder per username. The user accesses the iFolder server where his or her files are located for that username.	Users separately access the different servers where you have accounts. All iFolders for the individual account are available.
Authenticated access	Yes, with username and password authentication via your LDAP server.	Yes, with username and password authentication via your LDAP server.
Encrypted data transfer	Yes, with the encrypted iFolder option.	Yes, with the encrypted iFolder option.
	The Blowfish algorithm is applied with a user-specified passphrase.	The Blowfish algorithm is applied with an auto-generated passphrase. An additional option is available to enable HTTPS(SSL) connection.
WebDAV protocol support	Yes, allows WebDAV clients, such as Microsoft Explorer, to seamlessly access folders and files on an iFolder 2.*x* server.	No

Prerequisites and Guidelines

5

This section discusses prerequisites and guidelines for this release of Novell® iFolder® 3.7 and the iFolder™ Client. Before installing and configuring iFolder, make sure that your system meets the requirements in each of the following:

5.1 File System

iFolder 3.7 installs the iFolder files on the system volume. We recommend that you store the users' iFolder data on a separate volume.

5.2 Enterprise Server

5.2.1 Install Guidelines When Using a Linux POSIX Volume to Store iFolder Data

- In YaST, specify an Ext3 or ReiserFS partition as your system device.
- (Optional) Modify the Software components to add the iFolder 3 components to the install.

  If you install iFolder at this time, be prepared to configure iFolder as part of the install process. For more information, see Chapter 7, “Installing and Configuring iFolder Services,” on page 67.For more information, see

5.2.2 Install Guidelines for Other Components

We recommend that your iFolder enterprise server, Web Admin server and Web Access server run on separate dedicated servers. For small office use, both enterprise server, Web Admin server and Web access server can run on the same server without degraded performance. For best performance, configure your iFolder server as an independent system with, at most, the following services:

- Directory services.
- Novell iFolder 3.7
  - Enterprise server
  - Web Access server
  - Web Admin server
  - Mono 1.2.6 (The Mono package is required for iFolder 3.7 enterprise server, Web Admin server and Web Access server.)
  - Apache 2 Web Server (The apache2-worker package is required for iFolder 3.7 enterprise server, Web Admin server and for Web access server.)

  IMPORTANT: Ensure that Apache is SSL-enabled and is configured to point to an SSL certificate on an ifolder server. For more information, see Section F.3, "Configuring Apache to Point to an SSL Certificate on an iFolder Server," on page 206.

Installing other applications or services on the iFolder server affects iFolder performance and might introduce conflicts with the required versions of applications iFolder depends on, such as Apache 2 or Mono.

5.3 Openldap

Before you configure iFolder, Openldap must be configured and running. In iFolder, you specify LDAP containers and groups that contain User objects of users who you want to be iFolder users. You must create contexts and define users in Openldap.

If you are using Openldap as the LDAP source for iFolder, follow the guidelines given below:

- iFolder proxy user has the read rights to all the LDAP contexts configured in iFolder.
- The iFolder Admin user and all other users are synced from the LDAP to the iFolder domain by using the proxy user credentials. Therefore, the proxy user should have the read rights to the iFolder Admin object and to all the contexts.

NOTE: Read rights refer to the entry rights and all the attributes rights.

5.4 Novell eDirectory 8.8

Novell eDirectory™ 8.8 is a secure identity management solution that provides centralized identity management, infrastructure, Net-wide security, and scalability to all types of applications running behind and beyond the firewall. It natively supports the directory standard Lightweight Directory Access Protocol (LDAP) 3 and provides support for TLS/SSL services based on the OpenSSL source code. eDirectory is available as a component of Novell Open Enterprise Server.

IMPORTANT: Ensure that you select *Use eDirectory Certificate for HTTPS services* option in the eDirectory configuration for a proper SSL communication between the iFolder master and the slave servers.

Before you configure iFolder, eDirectory must be configured and running. In iFolder, you specify LDAP containers and groups that contain User objects of users who you want to be iFolder users. You must create contexts and define users in eDirectory. For information, see the following topics in the *Novell eDirectory 8.8 Administration Guide* (http://www.novell.com/documentation/edir88/edir88/data/a2iii88.html):

- "Designing Your Novell eDirectory Network" (http://www.novell.com/documentation/edir88/edir88/data/a2iiido.html)
- "Managing User Accounts" (http://www.novell.com/documentation/edir88/edir88/data/afxkmdi.html)

Make sure your LDAP objects comply with the naming conventions for your LDAP services. For information, see Section 2.3, "Naming Conventions for Usernames and Passwords," on page 26.

5.5 Active Directory

If you are using Active Directory as the LDAP source for iFolder, consider the following:

- During iFolder server configuration, ensure that you select the *Require a secure connection between the LDAP server and the iFolder Server* option.
- An iFolder proxy user will be assigned *browse* rights on the user containers that are configured. On the other hand a proxy user will be assigned *read* and *compare* rights for all the attributes of users,groups, and container objects configured under the container.
- Ensure that for all users, the *User must change password at next login* option is not set. This is because iFolder does not support password change. Setting this option will lead to a login failure and an appropriate message will be displayed in the `Simias.log` file.

NOTE: Read rights refer to the entry rights and all the attributes rights.

5.6 Novell iManager 2.7

Novell iManager 2.7 is a Web-based administration console that provides secure, customized access to network administration utilities and content. Before you can configure the Novell iFolder 3 Web Admin for iManager, iManager must be installed and configured.

For information, see the *Novell iManager 2.7 Administration Guide* (http://www.novell.com/documentation/imanager27/).

5.7 Mono 1.2.x

Novell iFolder 3.7 requires the Mono® framework for Linux. Mono is a development platform for running and developing modern applications. Based on the ECMA/ISO Standards, Mono can run existing programs that target the .NET or Java frameworks. The Mono Project is an open source effort led by Novell and is the foundation for many new applications. For information about Mono, see the Mono Project Web site (http://www.mono-project.com/Main_Page).

The required version of Mono is included in the `.iso` files. Mono is installed automatically as a dependency of iFolder during the install of the iFolder enterprise server or the Web Access server.

The iFolder clients for Linux and Macintosh also require Mono 1.2.*x*. Linux and Macintosh users must install both iFolder and Mono packages. For information, see "Getting Started" in the *Novell iFolder 3.7 Cross-Platform User Guide*.

Make sure to use the required version of Mono. If you have a different version of Mono on your server, uninstall it before you install iFolder.

Novell iFolder 3.7 supports only the version of Mono included in its install software. If you need to upgrade Mono for another reason, please check our online documentation to see if we explicitly support that version and to learn any necessary steps to make the upgrade work correctly. For information, see the latest version of the online documentation on the Novell iFolder 3.*x* Documentation Web site (http://www.novell.com/documentation/ifolderos/index.html).

5.8 Client Computers

The iFolder client supports the following workstation operating systems:

- Macintosh OS X v10.4 and later (requires Mono 1.2.*x*)
- OpenSUSE 10.3
- SLED 11
- OpenSUSE 11.1
- SLED 10 SP1 (requires Mono 1.2.x for Linux)
- Windows 2000/XP with the latest .NET support patches

The Mono modules you need for this release are included on the `.iso` files for iFolder 3.7

Make sure you have installed the latest critical updates for your operating system or .NET.

5.9 Web Browser

You need one or more of the following supported Web browsers on the computer you use to access Web Admin console, and Web Access console on the client computers:

- Mozilla* Firefox* 2.*x*
- Microsoft* Internet Explorer
- Safari* 3.0

Installing and Configuring iFolder Services

6

This section describes how to install and configure Novell® iFolder® 3.7 Enterprise and Web Access servers.

6.1 Installing iFolder

Before you install iFolder server, you must ensure that the necessary rpm’s are present on your system where you want to install the iFolder server. Given below is a list of rpm’s that must be available on your system:

- **Server rpm for 32 bit machine:** ifolder3-enterprise-3.7.<VersionInfo>.i586.rpm
- **Server plugin for 32 bit machine :** ifolder-enterprise-plugins-3.7.2.<VersionInfo>.i586.rpm*
- **Server rpm for 64 bit machine:** ifolder3-enterprise-3.7.<VersionInfo>.x86_64.rpm
- **Server plugin rpm for 64 bit machine :** ifolder-enterprise-plugins-3.7.2.<VersionInfo>.x86_64.rpm*

To install iFolder server, do the following:

1. Open a terminal console, log in as the root user by entering `su` and entering your password, go to the directory where you placed the `.rpm` files, then enter:

   ```
   rpm -ivh *
   ```

   To upgrade the rpm package, enter:

   ```
   rpm -uvh *
   ```

2. After the installation process is finished, you must configure the enterprise server, Web Admin, and Web Access. To do this, see the sections given below.

6.2 Deploying iFolder Server

This section describes how to configure Novell® iFolder® 3.7 servers in a Multi-server environment.

- Section 6.2.2, “Configuring the iFolder Slave Server,” on page 50
- Section 6.2.3, “Configuring iFolder Web Access,” on page 52
- Section 6.2.4, “Configuring iFolder Web Admin,” on page 53
- Section 6.2.5, “Managing Server IP Change,” on page 54

6.2.1 Configuring the iFolder Enterprise Server

After you install the iFolder enterprise server, you must configure the iFolder services, including LDAP, iFolder system, and iFolder administration settings. To configure iFolder enterprise server, do the following:

1. Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.
2. Change the directory by typing `cd /usr/bin` at the command prompt.
3. Run `simias-server-setup`.
4. Follow the on-screen instructions to proceed through the iFolder Enterprise Server configuration.

The table summarizes the decisions you make:

Settings	Description
Server data path	The case-sensitive address of the location where the iFolder enterprise server stores iFolder application files as well as the users' iFolders and files. For example: `/var/simias/data/simias` This location cannot be modified after install.
Server name	A unique name to identify your iFolder server. For example, IF3EastS.
Configure mode of communication for iFolder	There are three options to choose from: ◆ **SSL:** Enables a secure connection between the iFolder server, iFolder Web Admin server, iFolder Web Access server, and the iFolder clients. iFolder uses the HTTPS channel for communication. ◆ **Non SSL:** Enables unsecured communication between the iFolder server, Web Admin server, Web Access server, and the clients. iFolder uses the HTTP channel for communication. ◆ **Both:** Enables you to select secure or non secure channel for communication between the iFolder server, Web Admin server, Web Access server, and the clients. By default, these components use the HTTPS (secure) communication channel. However, all components can also be configured to use HTTP channel.

Settings	Description
iFolder public URL Host or IP Address	The public URL to reach the iFolder server.
	IMPORTANT: You must specify the DNS name of the server as iFolder Public URL to connect the client to the server using a DNS name. In this case, users need not remember all the IP addresses they are provisioned to. A single DNS name can map them to the respective server IP based on their location .
iFolder private URLHost or IP Address	The private URL corresponding to the iFolder server to allow communication between the servers within the iFolder domain. The Private URL and the Public URL can be the same.
	NOTE: You can use a single URL for the iFolder server if it is accessed only inside the corporate firewall. If the server needs to be accessed outside the firewall, you must provide two different URLs: Private and Public. The private URL is used for server to server communication within the corporate firewall and this should not be exposed outside the firewall. The public URL is used for the iFolder clients that can communicate from outside the corporate firewall. The clients can be inside or outside of the firewall and based on this, you can use private or public URL, or use public URL all the time.
Slave server	Defines if you want the installation to be a master server installation or a slave server installation.
System Name	Name used to identify the iFolder System to users. A unique name to identify your iFolder 3 server. For example, iFolder Server.
System Description	Descriptive label for your iFolder 3 server. For example, iFolder3 Enterprise Server.
Path to the Recovery Agent Certificates	The path to the recovery agent certificates that are used for recovering the encryption key. After you configure the path to the Recovery Agent, you must load the Agent certificates to this location.
LDAP Server	The IP address of the LDAP server.
Secure connection between the LDAP server and the iFolder Server	Establishes a secure connection between the LDAP server and the iFolder server. If the LDAP server co-exists on the same machine as the iFolder server, an administrator can disable SSL, which increases the performance of LDAP authentications.
LDAP admin DN	The username for the default iFolder Admin user. Use the full distinguished name of the iFolder Admin user. For example: cn=admin,o=acme.
LDAP admin password	Specify a password for the iFolder Admin user.
LDAP Proxy DN	The full distinguished name of the LDAP Proxy user. For example: cn=iFolderproxy,o=acme. This user must have the Read right to the LDAP service. The LDAP Proxy user is used for provisioning the users between the iFolder Enterprise Server and the LDAP server. If the Proxy user does not exist, it is created and granted the Read right to the root of the tree. If the Proxy user already exists, but the given credentials don’t match, then a new Proxy user is automatically created. The Proxy user's domain name (dn) and password are stored by the iFolder.

Settings	Description
LDAP Proxy Password	Password for the LDAP Proxy user.
LDAP Search Context	The tree context to be searched for users. For example, o=acme, o=acme2,oro=acme3. If no context is specified, only the iFolder Admin user is provisioned for services during the install. **IMPORTANT:** Ensure that the LDAP search context you have specified is present in the LDAP server. If the LDAP search context is not present, the iFolder installation fails.
LDAP Naming Attribute	LDAP attribute of the User account to apply when authenticating users. Each user enters a Username in this specified format at login time. Common Name (cn) is the default and an e-mail address (e-mail) is the other option. For example, if a user named John Smith has a common name of jsmith and e-mail as john.smith@example.com, this field determines whether the user enters jsmith or john.smith@example.com as the Username when logging in to the iFolder server. This setting cannot be changed after the install using the Web Admin console.
Configure LDAP Groups plugin	Specifies LDAP Groups plug-in support. If this is not enabled, iFolder will not have the LDAP Groups support enabled.

6.2.2 Configuring the iFolder Slave Server

To configure iFolder slave server, do the following:

1. Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.
2. Change the directory by typing `cd /usr/bin` at the command prompt.
3. Run `simias-server-setup --ldap-server=<iFolder LDAP IP address> --prompt`.

   Here, `iFolder LDAP IP address` can either be the one configured in iFolder Master server or it can be the LDAP replica server of the LDAP server configured on iFolder master server.

4. Follow the on-screen instructions to proceed through the iFolder Slave Server configuration.

NOTE: After the iFolder server configuration, you must restart the Apache server for proper configuration of iFolder Web Admin and iFolder Web Access

The table summarizes the decisions you make:

Settings	Description
Server data path	The case-sensitive address of the location where the iFolder enterprise server stores iFolder application files as well as the users' iFolders and files. For example: `/var/simias/data/simias` This location cannot be modified after install.
Server name	A unique name to identify your iFolder server. For example, IF3EastS.
Configure mode of communication for iFolder	There are three options to choose from: ◆ **SSL:** Enables a secure connection between the iFolder server, iFolder Web Admin server, iFolder Web Access server, and the iFolder clients. iFolder uses the HTTPS channel for communication. ◆ **Non SSL:** Enables unsecured communication between the iFolder server, Web Admin server, Web Access server, and the clients. iFolder uses the HTTP channel for communication. ◆ **Both:** Enables you to select secure or non secure channel for communication between the iFolder server, Web Admin server, Web Access server, and the clients. By default, these components use the HTTPS (secure) communication channel. However, all components can also be configured to use HTTP channel.
iFolder public URL Host or IP Address	The public URL to reach the iFolder server. **IMPORTANT:** You must specify the DNS name of the server as iFolder Public URL to connect the client to the server using a DNS name. In this case, users need not remember all the IP addresses they are provisioned to. A single DNS name can map them to the respective server IP based on their location .
iFolder private URL Host or IP Address	The private URL corresponding to the iFolder server to allow communication between the servers within the iFolder domain. The Private URL and the Public URL can be the same. **NOTE:** You can use a single URL for the iFolder server if it is accessed only inside the corporate firewall. If the server needs to be accessed outside the firewall, you must provide two different URLs: Private and Public. The private URL is used for server to server communication within the corporate firewall and this should not be exposed outside the firewall. The public URL is used for the iFolder clients that can communicate from outside the corporate firewall. The clients can be inside or outside of the firewall and based on this, you can use private or public URL, or use public URL all the time.
Slave server	Defines if you want the installation to be a master server installation or a slave server installation.

Settings	Description
Private URL of Master Server	The private URL of the Master iFolder server that holds the master iFolder data for synchronization to the current iFolder Server. For example: https://127.0.0.1:443/simias10. **IMPORTANT:** iFolder Master server and slave servers must be in the same eDirectory tree.
Path to the Recovery Agent Certificates	The path to the recovery agent certificates that are used for recovering the encryption key. After you configure the path to the Recovery Agent, you must load the Agent certificates to this location.
System Admin	The Simias default administrator. If the system is configured to use an external identity source, the distinguished name (dn) should be used.
System Admin Password	Password for the system admin user.
Configure LDAP Groups plugin	Specifies LDAP Groups plug-in support. If this is not enabled, iFolder will not have the LDAP Groups support enabled.
LDAP Server	The IP address of the LDAP server.
Secure connection between the LDAP server and the iFolder Server	Establishes a secure connection between the LDAP server and the iFolder server. If the LDAP server co-exists on the same machine as the iFolder server, an administrator can disable SSL, which increases the performance of LDAP authentications.
LDAP Proxy Password	Password for the LDAP Proxy user.
LDAP Search Context	The tree context to be searched for users. For example, o=acme, o=acme2,oro=acme3. If no context is specified, only the iFolder Admin user is provisioned for services during the install. **IMPORTANT:** Ensure that the LDAP search context you have specified is present in the LDAP server. If the LDAP search context is not present, the iFolder installation fails.

6.2.3 Configuring iFolder Web Access

After you install the iFolder Web Access server, you must specify which iFolder enterprise server it supports and the user-friendly URL that users enter in their Web browsers to access it. To configure iFolder Web Access, follow the steps given below:

1. Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.
2. Change the directory by typing `cd /usr/bin` at the command prompt.
3. Run `ifolder-web-setup`.
4. Follow the on-screen instructions to proceed through the iFolder Web Access configuration.

Install Settings	Description
Web Access Alias	The user-friendly path for accessing iFolder services on the specified iFolder enterprise server. For example: `/ifolder`
Require SSL	Establishes a secure connection between the Web browser and the iFolder Web Access application. This enables a secure SSL channel between the two.
Require Server SSL	Establishes a secure connection between the iFolder Server and the iFolder Web Access application.
iFolder Server URL	The host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Access application. This Web Access application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL for iChain/ AccessGateway	The redirect URL for iChain/AccessGateway that will be used by the iFolder Web Access application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session.

6.2.4 Configuring iFolder Web Admin

After you install the iFolder Web Admin server, you must specify which iFolder enterprise server it supports and the user-friendly URL that users enter in their Web browsers to access it. To configure iFolder Web Admin server, follow the steps given below:

1. Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.
2. Change the directory by typing `cd /usr/bin` at the command prompt.
3. Run `ifolder-admin-setup.`
4. Follow the on-screen instructions to proceed through the iFolder Web Admin configuration.

Install Settings	Description
Web Admin Alias	The user-friendly path for accessing iFolder services on the specified iFolder 3 enterprise server. For example: `/admin`
Require SSL	Establishes a secure connection between the Web browser and the iFolder Web Admin application. This enables a secure SSL channel between the two.
Require Server SSL	Establishes a secure connection between the iFolder Server and the iFolder Web Admin application.

Install Settings	Description
iFolder Server URL	The host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Admin application. This Web Admin application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL for iChain/ AccessGateway	The redirect URL for iChain/AccessGateway that will be used by the iFolder Web Admin application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session.

6.2.5 Managing Server IP Change

Given below are the steps to change the iFolder service IP addresses:

1. To change the IP address of an iFolder Enterprise server,
   - **1a** In the Web Admin console, click the Server tab and select the desired server.
     - **1a1** Change the Public URL and Private URL to reflect the new IP address and click *OK*.
     - **1a2** If the IP address change is for a master server, change the master URL for all the slave servers by using the *Server details* page of the respective slave servers listed in the *Server* page.

       For more information on this, see "Accessing and Viewing the Server Details Page" on page 144.
     - **1a3** If the LDAP server is configured to the same server, change the URL by using the *Server details* page.

       For more information on this, see "LDAP Server" on page 146.
2. To change the IP address of the Web Admin server,
   - **2a** In a terminal console, run the following command and change the iFolder enterprise server URL used by the Web Admin server application.

     ```
     /usr/bin/ifolder-admin-setup
     ```
3. To change the IP address of the Web Access server,
   - **3a** In a terminal console, run the following command and change the iFolder enterprise server URL used by the Web Access server application.

     ```
     /usr/bin/ifolder-access-setup
     ```
4. Restart the system.

IMPORTANT: You must ensure that all the users whose iFolder clients are connected to the old server IP, are updated the client with the new IP address of the server. For more information on configuring server IP address in an iFolder client, see "Viewing and Modifying iFolder Account Settings" in the *Novell iFolder 3.7 Cross-Platform User Guide*.

If the server is SSL enabled, you must ensure that the new SSL certificate is accepted by all the iFolder users.If a DNS name is used in the iFolder set-up and the new IP address uses the existing DNS name, then you don't need to change the DNS name for the client, instead accept the new certificate.

6.3 Recovery Agent Certificates

The Recovery agent is a trustworthy organizations that issue and sign public key certificates. This organization should be an entity independent of entities owning the iFolder server's infrastructure, or, independent of the IT department if deployed in a corporate environment.

Recovery agent certificates are the public key certificates used for encrypting the data encryption key. The user selects one of these certificates to perform the data key encryption for later key recovery. The supported certificate formats are `*.cer` and `*.der(X.509)`.

You can use the self-signed certificates if the iFolder is deployed in a trusted environment.The certificates are generated by using the YaST CA Management plug-in or OpenSSL tools.

6.3.1 Understanding Digital Certification

To protect user data from access by unauthorized people, the user data is encrypted by using keys that always occur in private and public key pairs. The keys are applied to the user data in a mathematical process, producing an altered data record in which the original content can no longer be identified.

Private Key: The private key must be kept safely by the key owner. Accidental publication of the private key compromises the key pair and can also be a security threat. The private key is either held by the Recovery agent or the user.

Public Key: The key owner circulates the public key for use by third parties.

Certified Authority (CA): The public key process is popular and there are many public keys in circulation. Certified Authorities are the trustworthy organizations that issue and sign public key certificates. The CA ensures that a public key actually belongs to the assumed owner. The certificates that a CA holds contain the name of the key owner, the corresponding public key, and the electronic signature of the person or entity issuing the certificate. The iFolder Recovery Agents are examples of one kind of CA.

Public Key Infrastructure (PKI): Certificate authorities are usually part of a certification infrastructure that is also responsible for the other aspects of certificate management, such as publication, withdrawal, and renewal of certificates. An infrastructure of this kind is generally referred to as a Public Key Infrastructure or PKI. One familiar PKI is the X.509 Public Key Infrastructure (PKIX). The security of such a PKI depends on the trustworthiness of the CA certificates. To make certification practices clear to PKI customers, the PKI operator defines a certification practice statement (CPS) that defines the procedures for certificate management. This should ensure that the PKI issues only trustworthy certificates.

X.509 Public Key Infrastructure: The X.509 Public Key Infrastructure is defined by the IETF (Internet Engineering Task Force) that serves as a model for almost all publicly-used PKIs today. In this model, authentication is made by certificate authorities (CA) in a hierarchical tree structure. The root of the tree is the root CA, which certifies all sub-CAs. The lowest level of sub-CAs issue user certificates. The user certificates are trustworthy by certification that can be traced to the root CA.

X.509 Certificate: An X.509 certificate is a data structure with several fixed fields and, optionally, additional extensions. The fixed fields mainly contain the name of the key owner, the public key, and the data such as name and signature relating to the issuing CA. For security reasons, a certificate should only have a limited period of validity, so a field is also provided for this date. The CA guarantees the validity of the certificate in the specified period. The CPS usually requires the issuing CA to create and distribute a new certificate before expiration. The extensions can contain any additional information. An application is only required to be able to evaluate an extension if it is identified as critical. If an application does not recognize a critical extension, it must reject the certificate. Some extensions are only useful for a specific application, such as signature or encryption.

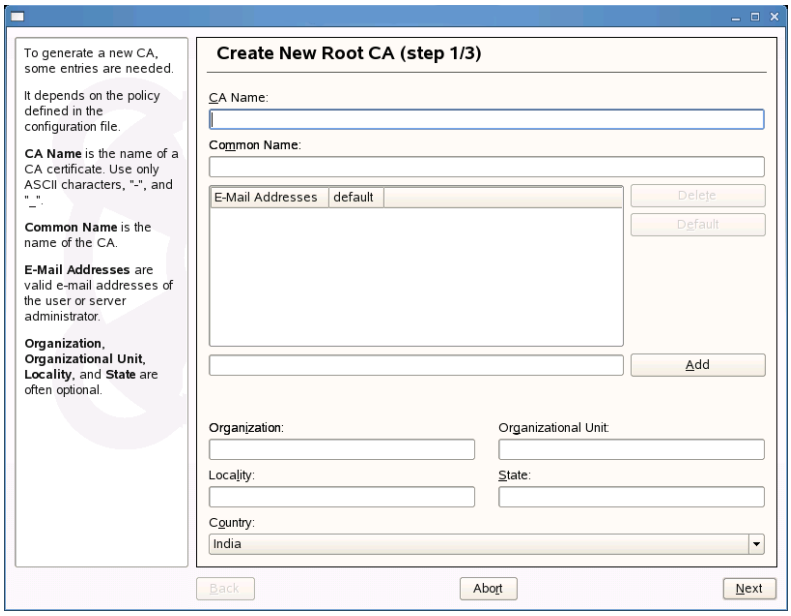
Table 6-1 *X.509v3 Certificate*

Field	Content
Version	The version of the certificate, for example, v3
Serial Number	Unique certificate ID (an integer)
Signature	The ID of the algorithm used to sign the certificate
Issuer	Unique name (DN) of the issuing authority (CA)
Validity	Period of validity
Subjectr	Unique name (DN) of the owner
Subject Public Key Info	InfoPublic key of the owner and the ID of the algorithm
Issuer Unique ID	Unique ID of the issuing CA (optional)
Subject Unique ID	Unique ID of the owner (optional)
Extensions	Optional additional information, such as KeyUsage or BasicConstraints

YaST-Based PKI: YaST contains modules for the basic management of X.509 certificates. This mainly involves the creation of CAs and their certificate. YaST provides tools for creating and distributing CAs and certificates, but cannot currently offer the background infrastructure that allow continuous update of certificates and CRLs. To set up a small PKI, you can use the available YaST modules. However, you should use commercial products to set up an official or commercial PKI.

6.3.2 Creating a YaST-based CA

1. Start YaST and go to *Security and Users > CA Management*.
2. Click *Create Root CA*.



3 Enter the information for creating the CA in the dialog boxes. The following table summarizes the decisions you make.

CA Settings	Description
CA Name	Enter the technical name of the CA. Because the Directory names, among other things, are derived from this name, you must use only the characters listed in the help. The technical name is also displayed in the overview when the module is started.
Common Name	Enter the name of the CA.
E-Mail Address	You can enter several e-mail addresses that a CA user can see. This is helpful for inquiries.
Country	Select the country where the CA is operated.
Organization, Organizational Unit, Locality, State	Optional Values.

4 Click *Next*.

5 Enter a password in the second dialog. This password is always required when using the CA for generating certificates. The following table summarizes the decisions you make.

CA Settings	Descriptions
Password	Specify a password with a minimum length of five characters. To confirm, re-enter it in the next field.
Key Length (bit)	Select the key length. You can choose a value between a minimum of 512 and a maximum of 2048.

CA Settings	Descriptions
Valid Period (days)	The Valid Period in the case of a CA defaults to 3650 days (roughly ten years). This long period makes sense because the replacement of a deleted CA involves an enormous administrative effort.
Advanced Options	Advanced Options are very special options. **WARNING:** If you change these options, iFolder cannot guarantee that the generated certificate works correctly. Clicking Advanced Options opens a dialog for setting different attributes from the X.509 extensions. These values have rational default settings and should only be changed if you are really sure of what you are doing.

YaST displays the current settings for confirmation.

6 Click *Create*.

The root CA is created then appears in the overview.

6.3.3 Creating Self-Signed Certificates Using YaST

iFolder key recovery mechanism uses the X509 certificates to manage the keys. You can either get a certificate from an external Certified Authority, for instance Verisign* or generate a self-signed certificate if deployed in a trusted environment, where a trusted user-admin relationship exists.

NOTE: In certificates intended for e-mail signature, the e-mail address of the sender (the private key owner) should be contained in the certificate to enable the e-mail program to assign the correct certificate. For certificate assignment during encryption, it is necessary for the e-mail address of the recipient (the public key owner) to be included in the certificate. In the case of server and client certificates, the hostname of the server must be entered in the Common Name field. The default validity period for certificates is 365 days.

This section discusses creating self-signed certificates for encryption and self-signed key certificate for key recovery using YaST.

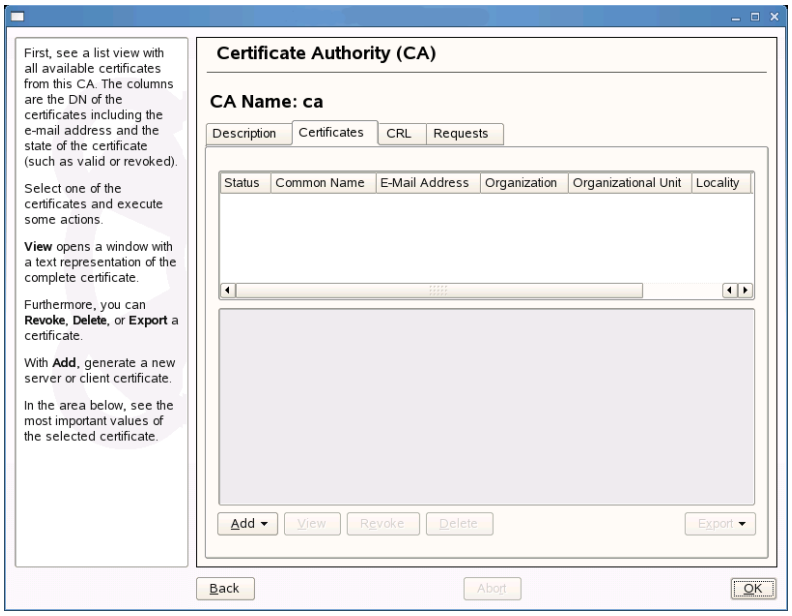
1 Start YaST and go to *Security and Users > CA Management*.

2 Select the required CA and click *Enter CA*.

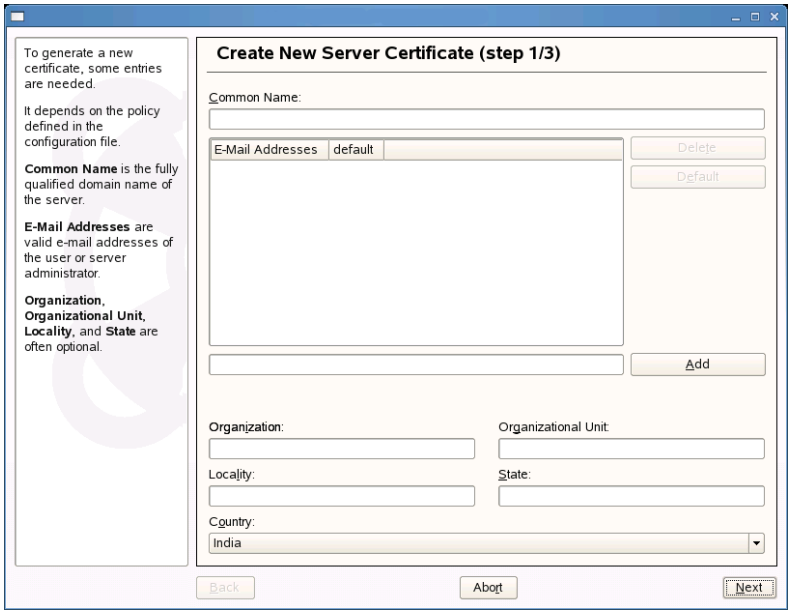
3 Enter the password for the CA if asked for.

YaST displays the CA key information in the Description tab.

4 Click Certificates tab.



5 Click *Add* > *Add Server Certificate*.



6 Enter the information for creating the certificates in the dialog boxes. The following table summarizes the decisions you make.

CA Settings	Description
Common Name	Enter the name of the CA.
E-Mail Address	You can enter several e-mail addresses that a CA user can see. This is helpful for inquiries.
Country	Select the country where the CA is operated.
Organization, Organizational Unit, Locality, State	Optional Values.

7 Enter a password in the second dialog.The following table summarizes the decisions you make.

CA Settings	Descriptions
Password	Specify a password with a minimum length of five characters. To confirm, re-enter it in the next field.
Key Length (bit)	Select the key length of minimum value of 512 and a maximum value of 2048. iFolder supports only 512, 1024 and 2048 as the key length.
Valid Period (days)	The Valid Period in the case of a CA defaults to 3650 days (roughly ten years). This long period makes sense because the replacement of a deleted CA involves an enormous administrative effort.
Advanced Options	Advanced Options are very special options. **WARNING:** If you change these options, iFolder cannot guarantee that the generated certificate works correctly. Clicking Advanced Options opens a dialog for setting different attributes from the X.509 extensions. These values have rational default settings and should only be changed if you are really sure of what you are doing.

YaST displays the current settings for confirmation.

For information on encryption, see the *Novell iFolder 3.7 Security Administration Guide*.

6.3.4 Exporting Self-Signed Certificates

1 Click Export drop-down and select *Export to File*.

2 Select *Only the Certificate in PEM format*.

3 Specify a password of minimum length of five characters.

4 Click *Browse* to find a location to save the file, then specify a filename for the certificate you have created.

5 Click *OK* to save the certificate.

6 Convert the certificate in PEM format to DER format using OpenSSL command as given below:

```
openssl x509 -in <certificate>.pem -inform PEM -out
<certificate>.der -outform DER
```

7 Copy the certificate in DER format to the location you have configured for loading Recovery Agent Certificate during iFolder configuration.

If the certificate is expired, you need to load the new certificates again to this location.

8 Restart the iFolder server to load the Recovery agent certificates.

6.3.5 Exporting Self-Signed Private Key Certificates For Key Recovery

1 Click Export drop-down and select *Export to File*.

2 Select *Certificate and the Key in PKCS12 Format*.

3 Specify a new password and re-enter that for confirmation.

This password is used with the certificate and the keys exported to a file in XML format.

IMPORTANT: You must use a password different from the one you have used for certificate creation.

4 Specify a filename for the certificate you have created and click Browse to find a location to save the file.

5 Click *OK* to save the certificate.

6.3.6 Using KeyRecovery to Recover the Data

Each iFolder has a unique data encryption key which is auto-generated during iFolder creation. The key is encrypted by using a passphrase provided by individual user and also by using the public key with the Recovery agent. If the user forget the secret passphrase, he or she cannot access either the iFolder data or the encrypted key used for recovering it unless the passphrase is saved locally (enabling Remember passphrase). To avoid this problem, user export the keys using the *Security* > *Export Keys* option in the client and send it manually to the Recovery agent using the e-mail address provided in the Export dialog box in the client GUI. The Recovery agent retrieves the keys and sends back to the user through e-mail or any other communication channel. User can then import the keys and use them to reset the passphrase.

NOTE: The keys are exported to a file in XML format. It is recommended to save the file as `<filename>.xml`

This section help you understand the process followed by a Recovery agent to retrieve the key.

1 Go to the location where iFolder is installed.

Platform	Default Location of the Utility
Linux	`/usr/bin/KeyRecovery`
Windows	`C:/Program Files/iFolder/KeyRecovery.exe`
Macintosh	`/usr/KeyRecovery`

2 Run `KeyRecovery` or `KeyReovery.exe` based on the platform you use and follow the on-screen instructions.

The following table summarizes the decisions you make.

Parameters	Description
Encrypted Key file path	Specify the path (including the file name of the encrypted key) for reading the encrypted keys.
Private Key	Specify the path to the private key file (PKCS12 file format, *.p12).
Decrypted Key file path	Specify the path to store the decrypted key file. Ensure that the filename also included in the path you specify.
Private Key password	Specify the password to decrypt the private key.

Parameters	Description
Encrypt Result key	Specify whether you want to encrypt the decrypted key with one time passphrase. Default value: Yes
One time passphrase	Specify a one time passphrase to encrypt the decrypted keys.

3 Send the decrypted key usually by replying to the mail attached with the encrypted keys and the one-time passphrase (if the key is encrypted using the one-time passphrase) to the user.

4 Send the one-time passphrase (if the key is encrypted using the one-time passphrase) to the user through any other communication channel other than the one you used to exchange the key files.

6.3.7 Managing Certificate Change

The self-signed certificates for iFolder services change when they are expired, revoked, or replaced with a new certificate by a new CA.

Client: When a new certificate is created, the user has to approve of from the client side. The client prompts for the new certificate for the user to accept it.

Web Admin Server: The change in the certificate is not automatically communicated to the Web Admin server. You must reconfigure the Web Admin server for the new certificate to be accepted. By default, the new certificate is accepted in the server side. In the front-end, the browser is updated automatically when the server is updated with the new certificate.

Web Access Server: The change in the certificate is not automatically communicated to the Web Admin server. You must reconfigure the Web Access server for the new certificate to be accepted. By default, the new certificate is accepted in the server side. In the front-end, the browser is updated automatically when the server is updated with the new certificate.

6.4 Provisioning Users, Groups and iFolder Services

After you configure your Novell iFolder 3.7 enterprise server, you must specify containers and groups as Search DNs in the LDAP settings. iFolder uses these to provision user and group accounts. You can provision users and iFolders through iFolder Web Admin console. For more information, see the following:

- Chapter 11, “Managing iFolder Services via Web Admin,” on page 135
- Chapter 12, “Managing iFolder Users,” on page 153
- Chapter 13, “Managing iFolders,” on page 161

6.4.1 Prerequisites

- “Users and LDAP Contexts” on page 63

Users and LDAP Contexts

The contexts you plan to use as LDAP Search DNs in the LDAP settings must exist in the LDAP directory; they are not created and configured from within the iFolder plug-in.

For information about configuring user, group, and container objects, see the *Novell eDirectory 8.8 Administration Guide* (http://www.novell.com/documentation/edir88/treetitl.html).

6.5 Updating Mono for the Server and Client

You can upgrade the Mono packages available in the SUSE distribution through Mono upgrade channel unless otherwise the iFolder Administrator guide specifies a particular version. For both server and client XSP RPMs must be at least 1.1.18 or later.

For iFolder 3.7 server, you must ensure that Mono 1.2.6 is installed. To upgrade Mono 1.2.5 to Mono 1.2.6, follow the steps given below:

1. Access the following URL: Download rpm (http://ftp.novell.com/pub/mono/archive/1.2.6/download/)
2. Under the section *RPM Packages*, click *suse-103-i586* for 32 bit or *suse-103-x86_64* for 64 bit.
3. Download the following RPM's to your system:
   - mono-core
   - mono-data
   - mono-data-sqlite
   - mono-web
   - mono-nunit
   - mono-winforms
   - xsp
   - apache2-mod_mono
4. Upgrade the rpm package. For instance, to upgrade the mono-core rpm package, open a terminal console, log in as the root user by entering su and entering your password. Then go to the directory where you placed the .rpm files and enter:

   ```
   rpm –Uvh mono-core*rpm
   ```

   Alternatively, you can issue the following command:

   ```
   rpm –Uvh mono-core*rpm –nodeps
   ```

   Similarly, upgrade the remaining rpm packages
5. To ensure that Mono 1.2.6 rpm's are installed, issue the following command:

   ```
   rpm –qa | grep mono
   ```

6.6 Uninstalling the iFolder 3.7 Enterprise Server

Uninstalling iFolder 3.7 software does not remove the Simias store, including the config files available in the `/etc/apache2/conf.d`.

When the server is re-installed, each of the iFolder clients must remove the old iFolder account and re-create it, even if the server IP address for the iFolder account has not changed. Users must also set up iFolders and share relationships again.

6.7 What's Next

You have now installed and configured your Novell iFolder 3.7 enterprise server and provisioned iFolder services for users. To set up system policies for iFolder services, continue with Chapter 11, "Managing iFolder Services via Web Admin," on page 135.

Provisioned iFolder users can install the Novell iFolder 3.*6* client on their workstations, create iFolders, and share iFolders with other authorized Novell iFolder users. For information, see the *Novell iFolder 3.7 Cross-Platform User Guide*.

Installing and Configuring iFolder Services

7

This section describes how to install and configure Novell® iFolder® 3.7 Enterprise and Web Access servers.

7.1 Installing iFolder on an Existing OES 2 Linux SP1 Server

We recommend that you install iFolder after your server operating system is installed and all storage services are configured. The following procedure describes how to install iFolder enterprise server, iFolder Web access server, or both of the servers on an existing OES 2 Linux platform. If you install only one of the iFolder servers, repeat the entire install process for the other on a second OES Linux server.

NOTE: If you used the Minimum install option for your OES 2 Linux server, which has no GUI installed, the iFolder services configuration is done with the YaST 2 text-based interface. For example, there are no check boxes and clicking is not possible. Use the standard methods for navigating the text-based interface to achieve the tasks as described here.

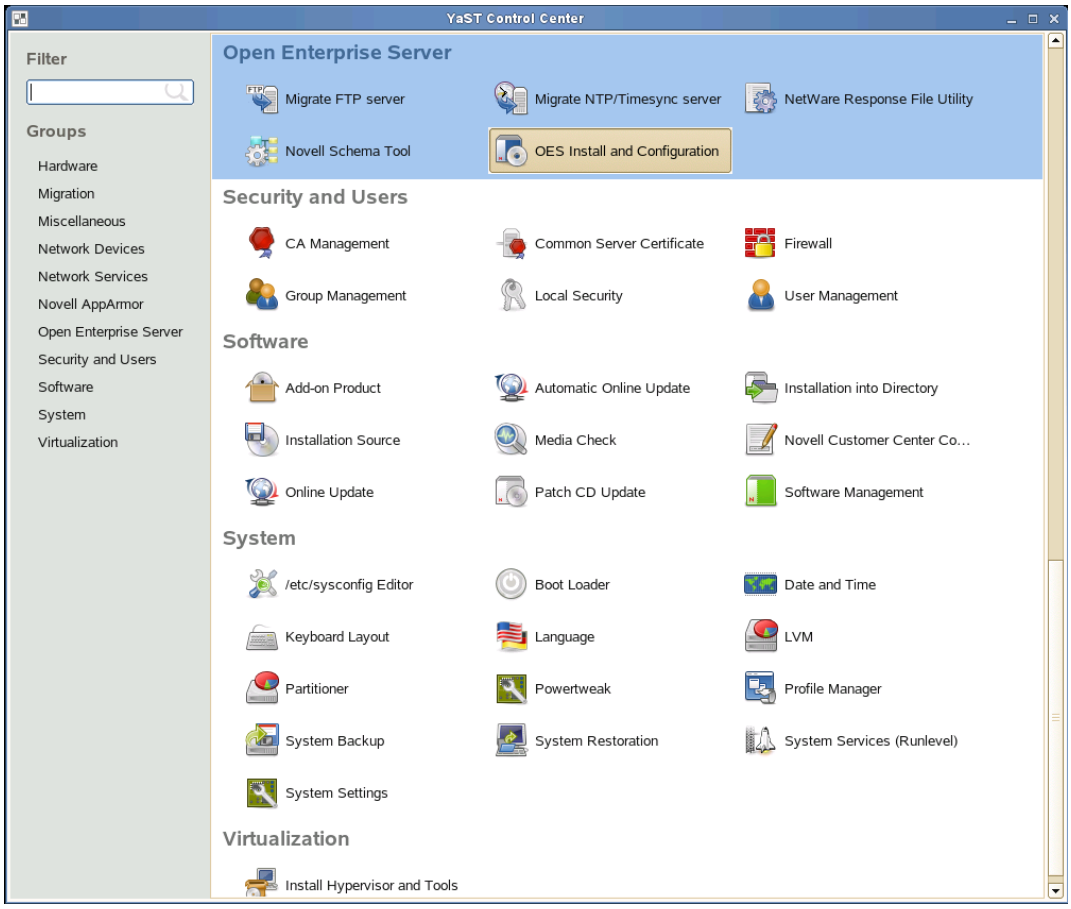
---

1. Before you begin, make sure your OES 2 Linux system setup meets the “Prerequisites and Guidelines” on page 43.
2. Open YaST2 using one of the following methods:
   - On your desktop, click the *YaST* shortcut icon to launch YaST, then enter the root password when prompted.
   - At a terminal, log in as the root user, then enter

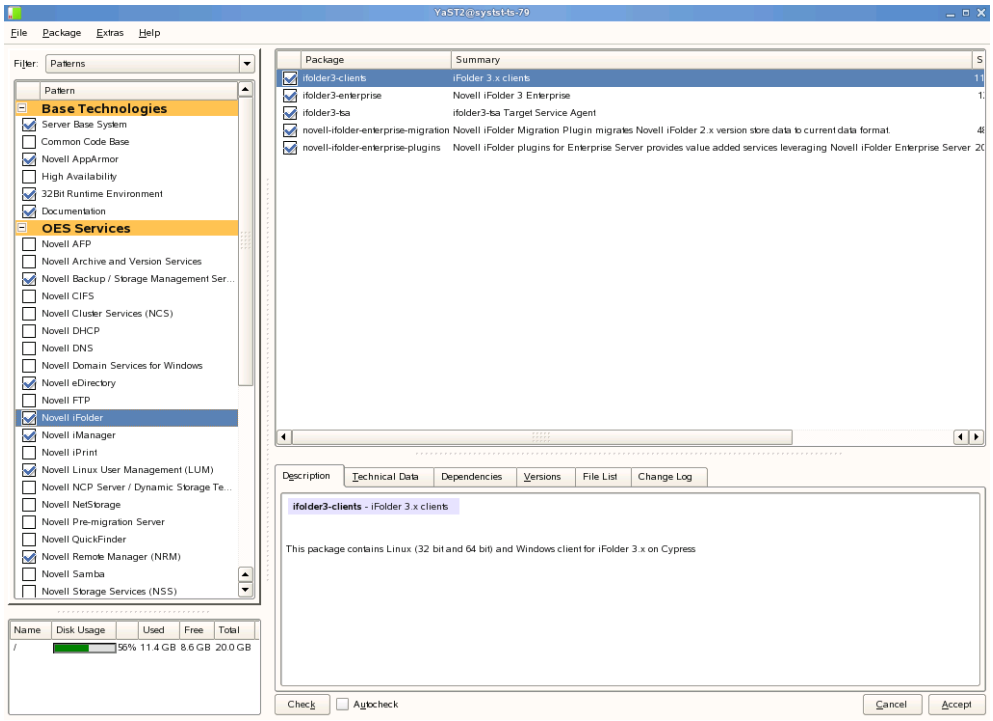
```
yast2
```

IMPORTANT: Ensure that you are logged in as the `root` user before performing the installation and configuration procedure.

3 In the left menu, select `Open Enterprise Server > OES Install and Configuration`.



A window displays with the Open Enterprise Server Services and Server Role patterns under software selection.



4 Select the *Novell iFolder* option.

You can install the iFolder 3.7 Enterprise Server, Web Admin Server, and Web Access Server on the same computer or on different computers.

5 Click Details to resolve the dependency conflicts if you encounter any.

Resolve all the dependencies before continuing.

6 To begin the installation, click *Accept* at the bottom right of the screen.

7 When the installation is complete, either close YaST or continue with one or all of the following as needed:

- Section 7.2, “Deploying iFolder Server,” on page 69
- Section 7.2, “Deploying iFolder Server,” on page 69
- Section 7.3, “Configuring the iFolder Web Access Server,” on page 85
- Section 7.4, “Configuring the iFolder Web Admin Server,” on page 87

7.2 Deploying iFolder Server

This section describes how to configure Novell® iFolder® 3.7 servers in a Multi-server environment.

- Section 7.2.1, “Configuring the iFolder Enterprise Server,” on page 70
- Section 7.2.2, “Configuring the iFolder Slave Server,” on page 79
- Section 7.2.3, “Managing Server IP Change,” on page 84

7.2.1 Configuring the iFolder Enterprise Server

After you install the iFolder enterprise server, you must configure the iFolder services, including the LDAP, iFolder system, and iFolder administration settings.

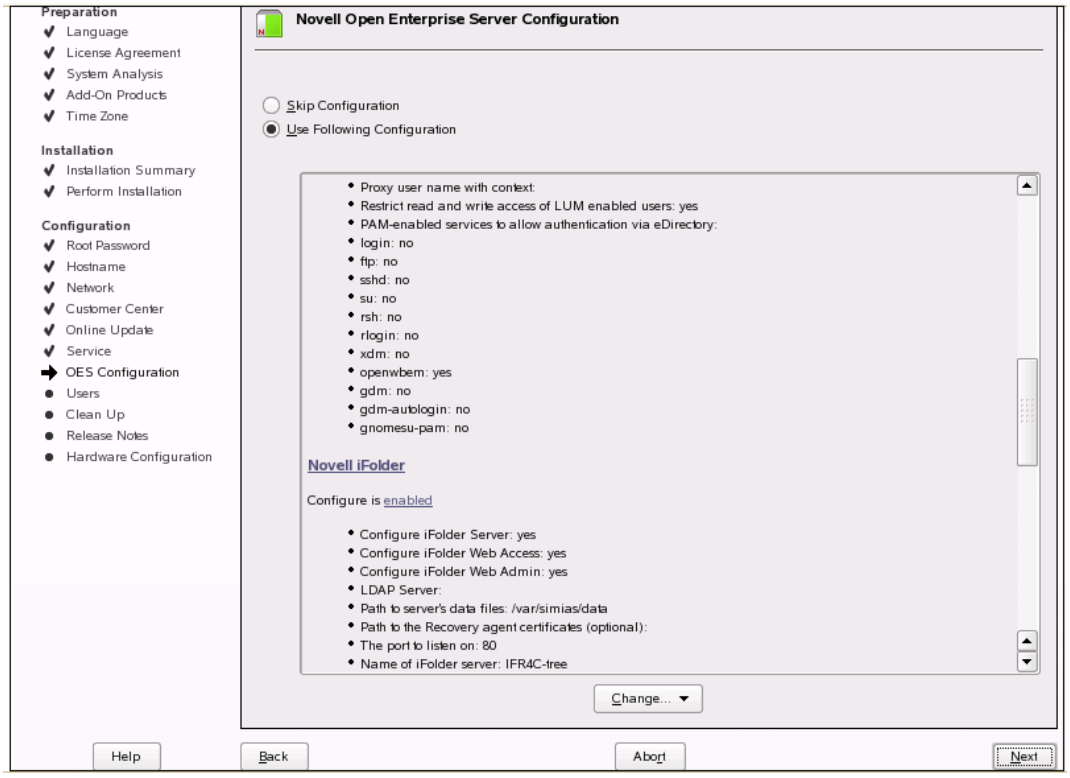
1. If you plan to use an NSS volume as the System Store Path for the users' iFolder data, use iManager to create the NSS volume, then create a directory on the volume.

   For information, see "Managing NSS Volumes" in the *OES 2 SP1: NSS File System Administration Guide*.

2. Log in to the server as the root user, or open a terminal console, enter `su`, then enter the `root` password.

3. Start YaST, follow the YaST on-screen instruction to finish the installation. For more information see Step 1 on page 67 through Step 7 on page 69 in the section Section 7.1, "Installing iFolder on an Existing OES 2 Linux SP1 Server," on page 67.

4. Select *Use Following Configuration* and click *Novell iFolder* to change the default configuration settings for iFolder.

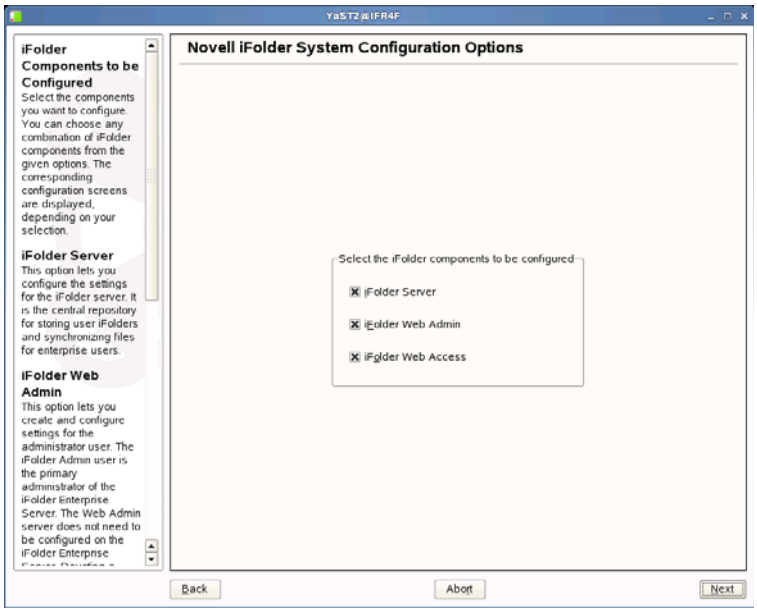


   If you decide to use default settings, click *Next* to start Novell iFolder 3 configuration.

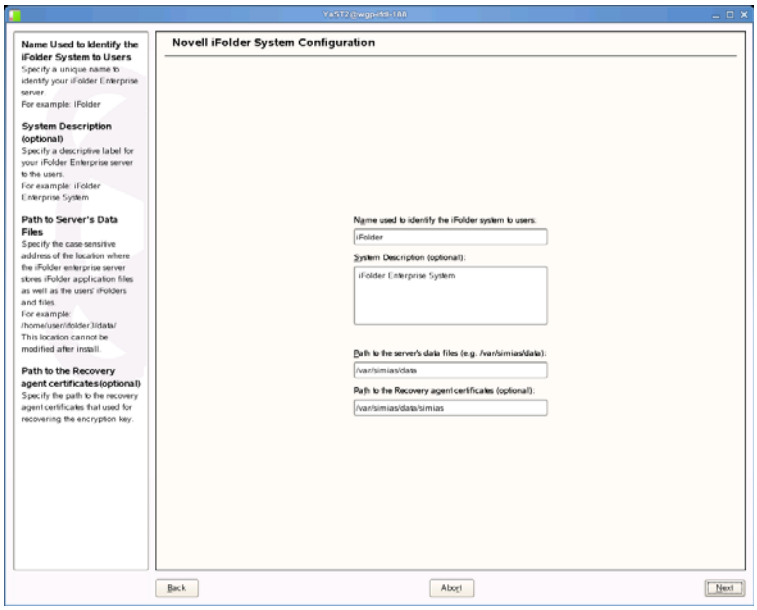
   IMPORTANT: For security reasons, it is recommended that you always change the default iFolder configuration settings.

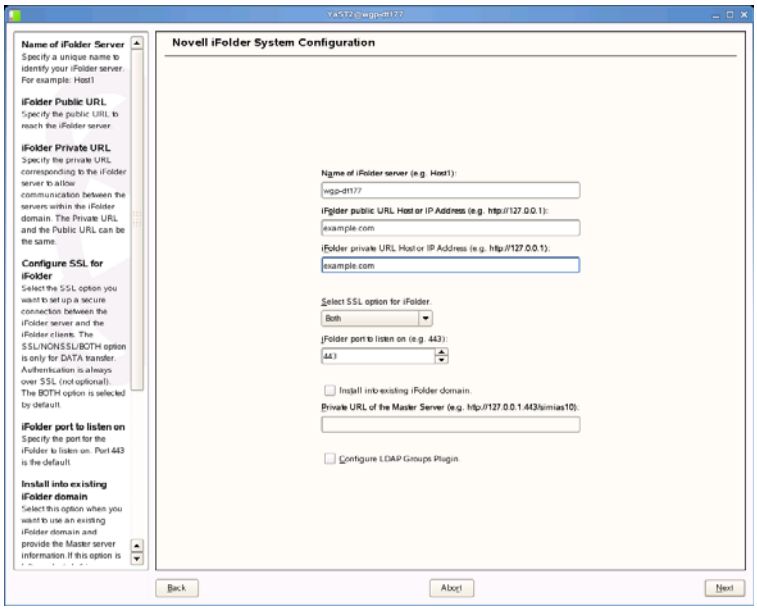
5. Follow the Yast on-screen instructions to proceed through the Novell iFolder 3 configuration. The following table summarizes the decisions you make.

TIP: If the iFolder configuration failed at any stage, refer to the `/var/log/YaST2/y2log` file to find the details on the failure that help you in analyzing and troubleshooting the issues.

Install Settings	Description
iFolder components	

- **Select the iFolder components to be configured:** Select the components you want to configure. You can choose any combination of iFolder components from the given options. The corresponding screens are displayed depending on your selection.
- **iFolder Server (optional):** Select the check box adjacent to the iFolder Server to configure iFolder server.This option lets you configure the settings for the iFolder server. It is the central repository for storing user iFolders and synchronizing files for enterprise users.
- **iFolder Web Admin (optional):** Select the check box adjacent to the iFolder Web Admin to configure iFolder Web Admin server. This option lets you create and configure settings for the Administrator user. The iFolder Admin user is the primary administrator of the iFolder Enterprise Server. The Web Admin server does not need to be configured on the iFolder Enterprise Server. Devoting a separate server to the Web Admin application improves the performance of the iFolder Enterprise Server by reducing the admin traffic.
- **iFolder Web Access (optional):** Select the check box adjacent to the iFolder Web Access to configure iFolder Web Access server. This option lets you configure the Web Access server, which is an interface that lets users have remote access to iFolders on the enterprise server. The Web Access server lets users perform all the operations equivalent to those of the iFolder client through using a standard Web browser. The Web Access server does not need to be configured in the same iFolder Enterprise Server. Channeling the user tasks to a separate server and thereby reducing the HTTP requests helps to improve the performance of the iFolder Enterprise Server.

Install Settings	Description
Novell iFolder System Configuration	 ◆ **Name Used to Identify the iFolder System to Users:** A unique name to identify your iFolder 3 server. For example, `iFolder Server`. ◆ **System Description:** A descriptive label for your iFolder 3 server. For example, `iFolder3 Enterprise Server` ◆ **Path to the Server Data File:** Specify the case-sensitive address of the location where the iFolder enterprise server stores iFolder application files as well as the users' iFolders and files. For example, `/var/simias/data/simias`. This location cannot be modified after install. ◆ **Path to the Recovery Agent Certificates (optional):** Specify the path to the recovery agent certificates that are used for recovering the encryption key. After you configure the path to the Recovery Agent, you must load the Agent certificates to this location. For more information, see Section 7.6, “Recovery Agent Certificates,” on page 91 For more information, see Section 7.6, “Recovery Agent Certificates,” on page 91

Install Settings	Description
Novell iFolder System Configuration	

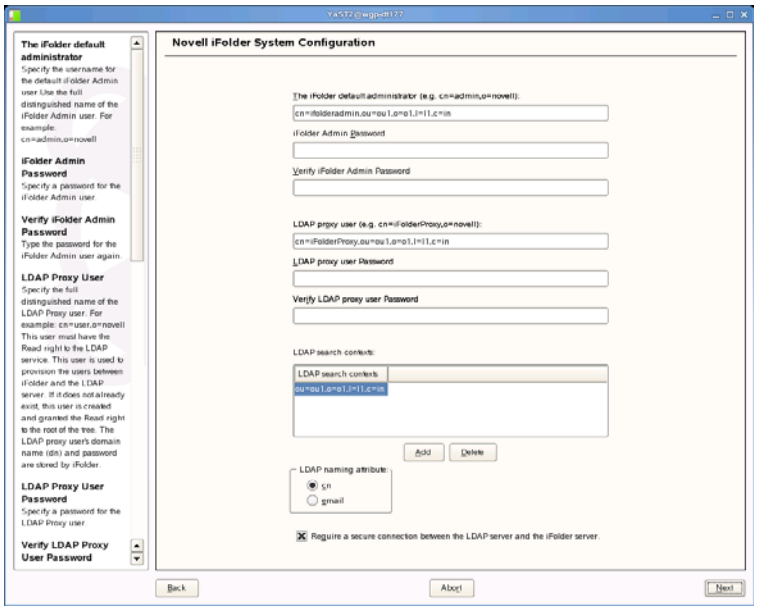
- **Name of iFolder Server:** Specify a unique name to identify your iFolder server. For example, `IF3EastS`
- **iFolder public URL Host or IP Address:** Specify the public URL to reach the iFolder server.

  IMPORTANT: You must specify the DNS name of the server as *iFolder Public URL* to connect the client to the server using a DNS name. In this case, users need not remember all the IP addresses they are provisioned to. A single DNS name can map them to the respective server IP based on their location as in office or home.

- **iFolder private URLHost or IP Address:** Specify the private URL corresponding to the iFolder server to allow communication between the servers within the iFolder domain. The Private URL and the Public URL can be the same.

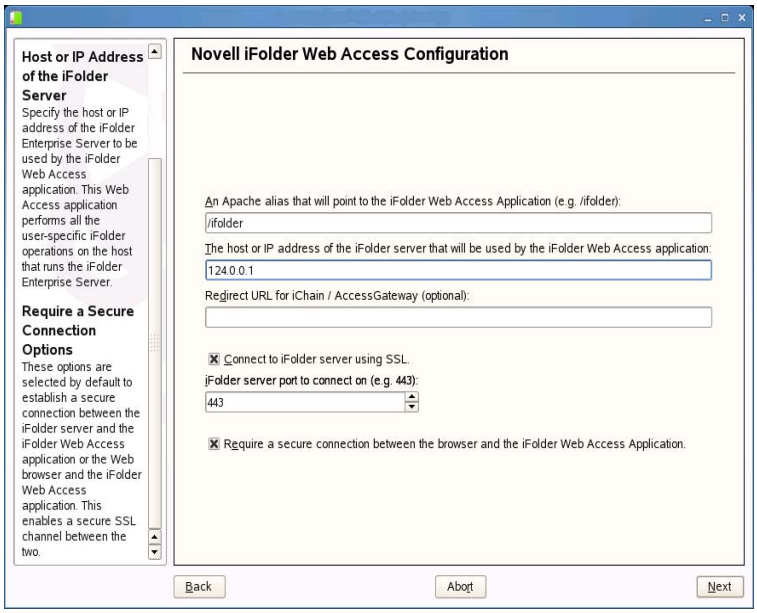
  NOTE: You can use a single URL for the iFolder server if it is accessed only inside the corporate firewall. If the server needs to be accessed outside the firewall, you must provide two different URLs: Private and Public. The private URL is used for server to server communication within the corporate firewall and this should not be exposed to outside of the firewall. The public URL is used for the iFolder clients that can communicate from outside the corporate firewall. The clients can be inside or outside of the firewall and based on this, you can use private or public URL, or use public URL all the time.

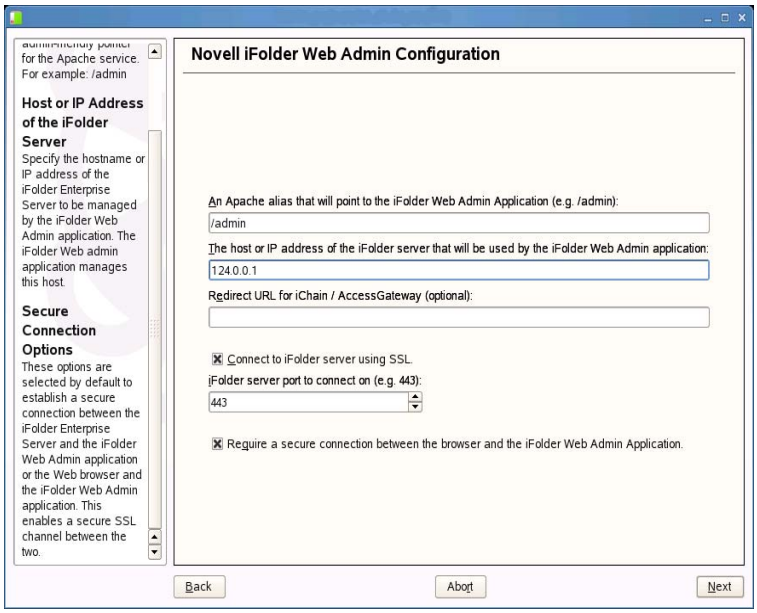
Install Settings	Description
Novell iFolder System Configuration	• **Configure SSL for iFolder:** There are three options to select from. • **SSL:** Select *SSL* to enable a secure connection between the iFolder server, iFolder Web Admin server, iFolder Web Access server, and the iFolder clients. iFolder uses the HTTPS channel for communication. • **Non SSL:** Select *Non SSL* to enable unsecured communication between the iFolder server, Web Admin server, Web Access server and the clients. iFolder uses the HTTP channel for communication. • **Both:** This option is selected by default. Selecting *Both* enables you to select secure or non secure channel for communication between the iFolder server, Web Admin server, Web Access server and the clients. By default, these components use the HTTPS (secure) communication channel. However, all components can also be configured to use HTTP channel. • **iFolder Port to Listen On:** Specify the port for the iFolder to Listen On. Port 443 is the default for SSL. • **Install into Existing iFolder Domain:** If left unselected, this server becomes the Master iFolder server. Select this option when you want to use an existing iFolder domain and provide the Master server information. **IMPORTANT:** You must ensure that the server you install and the current iFolder domain are in the same LDAP tree. • **Private URL of the Master Server:** Specify the private URL of the Master iFolder server that holds the master iFolder data for synchronization to the current iFolder Server. For example: https://127.0.1.1. For more information, see the Section 7.2.2, “Configuring the iFolder Slave Server,” on page 79 • **Configure LDAP Groups plugin:** Select this option to configure the LDAP Groups plug-in. If this option is left unselected, iFolder will not have the LDAP Groups support enabled.
Novell iFolder LDAP Configuration	• **Directory Server Address:** The IP address shown is the default LDAP server for this service. If you do not want to use the default, select a different LDAP server in the list. If you are installing into an existing tree, ensure that the server you select has a master replica or read/write replica of eDirectory. If you need to add another LDAP server (including Active Directory) to the list, add it using the LDAP Configuration for Open Enterprise Services dialog. For more information on Active Directory, see Section 5.5, “Active Directory,” on page 45. **IMPORTANT:** If you are using a DSFW server, ensure that the iFolder Admin user and iFolder Proxy user are already present. You must use port 1389 for non-SSL communication and port 1636 for SSL communication.

Install Settings	Description
Novell iFolder System Configuration	

- **The iFolder Default Administrator:** Specify the username for the default iFolder Admin user. Use the full distinguished name of the iFolder Admin user. For example:`cn=admin,o=acme`.
- **iFolder Admin Password:** Specify a password for the iFolder Admin user.
- **Verify iFolder Admin Password:** Type the password for the iFolder Admin user again.
- **LDAP Proxy User:** Specify the full distinguished name of the LDAP Proxy user. For example:`cn=iFolderproxy,o=acme`. This user must have the Read right to the LDAP service. The LDAP Proxy user is used for provisioning the users between the iFolder Enterprise Server and the LDAP server. If the Proxy user does not exist, it is created and granted the Read right to the root of the tree. If the Proxy user already exists, but the given credentials don't match, then a new Proxy user is automatically created. The Proxy user's domain name (dn) and password are stored by the iFolder.

Install Settings	Description
Novell iFolder System Configuration	◆ **LDAP Proxy User Password:** Specify a password for the LDAP Proxy user. By default, it is YaST-generated password. **IMPORTANT:** You are recommended not to use the YaST-generated default password. You must specify the password for the Proxy user. ◆ **Verify LDAP Proxy User Password:** Type the password for the LDAP Proxy User again. ◆ **LDAP Search Context** Click *Add*, then specify an LDAP tree context to be searched for users and provisioning them in to iFolder. For example, `o=acme, o=acme2,` or `o=acme3`. If no context is specified, only the iFolder Admin user is provisioned for services during the install. **IMPORTANT:** Ensure that the LDAP search context you have specified is present in the LDAP server. If the LDAP search context is not present, the iFolder installation fails. ◆ **LDAP Naming Attribute:** Select which LDAP attribute of the User account to apply when authenticating users. Each user enters a Username in this specified format at login time. Common Name (cn) is the default and an e-mail address (e-mail) is the other option. For example, if a user named John Smith has a common name of jsmith and e-mail of john.smith@example.com, this field determines whether the user enters jsmith or john.smith@example.com as the Username when logging in to the iFolder server. This setting cannot be changed after the install using the Web Admin console. ◆ **Require a secure connection between the LDAP server and the iFolder Server:** Select this option to establish a secure connection between the LDAP server and the iFolder server. This option is selected by default. If the LDAP server co-exists on the same machine as the iFolder server, an administrator can disable SSL, which increases the performance of LDAP authentications.

Install Settings	Description
iFolder Web Access Configuration	 • **An Apache alias that will point to the iFolder Web Access Application:** Specify an Apache alias to point to the iFolder Web Admin application. This is an admin-friendly pointer for the Apache service. For example, /access • **The host or IP address of the iFolder server that will be used by the iFolder Web Access application:** Specify the hostname or IP address of the iFolder Enterprise Server to be managed by the iFolder Web Admin application. The iFolder Web Admin application manages this host. • **Connect to iFolder server using SSL:** This option is selected by default to establish a secure connection between iFolder enterprise server and the iFolder Web Access application. • **iFolder server port to connect on:** Specify the port for the iFolder server to connect to the Web Access application. Port 443 is the default. Port 80 is the default value for non-SSL communication. • **Require a secure connection between the browser and the iFolder Web Access application:** Select the check box to establish a secure connection between the Web browser and the iFolder Web Access application. This enables a secure SSL channel between the two.

Install Settings	Description
iFolder Web Admin Configuration	 • **An Apache alias that will point to the iFolder Web Admin Application:** Specify the Apache alias to point to the iFolder Web Access Application. This is a user-friendly pointer for the Apache service. For example, /admin • **The host or IP address of the iFolder server that will be used by the iFolder Web Admin application:** Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Access application. This Web Access application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server. • **Connect to iFolder server using SSL:** This option is selected by default to establish a secure connection between iFolder enterprise server and the iFolder Web Admin application. • **iFolder server port to connect on:** Specify the port for the iFolder server to connect to the Web Admin application. Port 443 is the default. Port 80 is the default value for non-SSL communication. • **Require a secure connection between the browser and the iFolder Web Admin application:** Select the check box to establish a secure connection between the Web browser and the iFolder Web Admin application. This enables a secure SSL channel between the two.

6 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*, then restart the Apache server. This is necessary to use the new settings.

To manually restart the Apache Web server,

6a Open a terminal console, then log in as the `root` user.

6b Stop the Apache server by entering either of the following commands at the prompt:

```
/etc/init.d/apache2 stop
```

```
rcapache2 stop
```

6c Start Apache by entering either of the following commands at the prompt:

```
/etc/init.d/apache2 start

rcapache2 start
```

7 Go to Novell iManager to install the Novell iFolder plug-in or to manage iFolder services.

8 If you are using an NSS volume to store user data, you must set up NSS file system trustee rights for the Web server user object `wwwrun` before restarting your web server. At a terminal console prompt, log in as the root user or equivalent, then enter

```
rights -f /media/nss/NSSVOL -r rwfcem trustee wwwrun.ou.o.treename
```

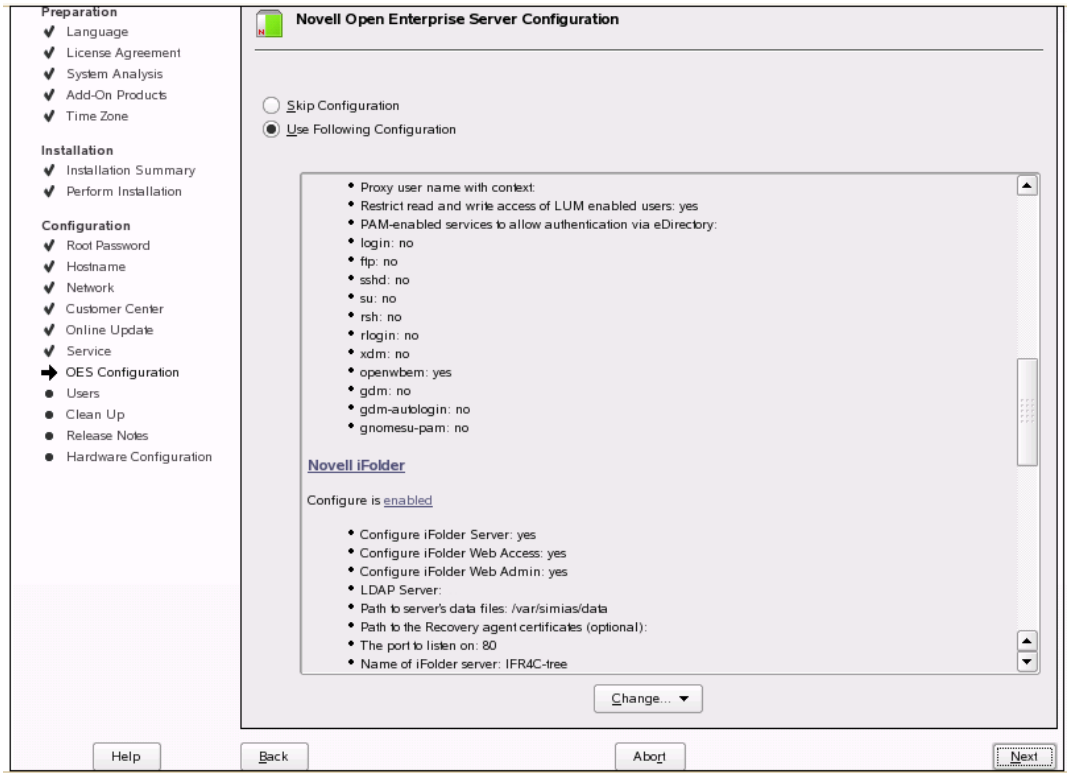
If you ever get `An Internal Error has occurred` error message within the iManager plug-in, this is a sure sign that you have not set up file system trustee rights within NSS properly.

7.2.2 Configuring the iFolder Slave Server

To deploy iFolder server in a Multi-server set up,

After you configure the iFolder enterprise master server, you must configure the iFolder slave servers.

1 Select *Use Following Configuration* and click *Novell iFolder* in the window displayed.



2 Click *Novell iFolder* and then *Next* to start configuring the slave server.

IMPORTANT: For security reasons, it is recommended that you always change the default iFolder configuration settings.

3 Follow the Yast on-screen instructions to proceed through the Novell iFolder 3 configuration. The following table summarizes the decisions you make.

Install Settings	Description
iFolder components	◆ **Select the iFolder components to be configured:** Select the components you want to configure. You can choose any combination of iFolder components from the given options. The corresponding screens are displayed depending on your selection. ◆ **iFolder Server (optional):** Select the check box adjacent to the iFolder Server to configure iFolder server.This option lets you configure the settings for the iFolder server. It is the central repository for storing user iFolders and synchronizing files for enterprise users. ◆ **iFolder Web Admin (optional):** Select the check box adjacent to the iFolder Web Admin to configure iFolder Web Admin server. This option lets you create and configure settings for the Administrator user. The iFolder Admin user is the primary administrator of the iFolder Enterprise Server. The Web Admin server does not need to be configured on the iFolder Enterprise Server. Devoting a separate server to the Web Admin application improves the performance of the iFolder Enterprise Server by reducing the admin traffic. ◆ **iFolder Web Access (optional):** Select the check box adjacent to the iFolder Web Access to configure iFolder Web Access server. This option lets you configure the Web Access server, which is an interface that lets users have remote access to iFolders on the enterprise server. The Web Access server lets users perform all the operations equivalent to those of the iFolder client through using a standard Web browser. The Web Access server does not need to be configured in the same iFolder Enterprise Server. Channeling the user tasks to a separate server and thereby reducing the HTTP requests helps to improve the performance of the iFolder Enterprise Server.
Novell iFolder System Configuration	◆ **Name Used to Identify the iFolder System to Users:** A unique name to identify your iFolder 3 server. For example, `iFolder Server`. ◆ **System Description:** A descriptive label for your iFolder 3 server. For example, `iFolder3 Enterprise Server` ◆ **Path to the Server Data File:** Specify the case-sensitive address of the location where the iFolder enterprise server stores iFolder application files as well as the users' iFolders and files. For example, `/var/simias/data/simias`. This location cannot be modified after install. ◆ **Path to the Recovery Agent Certificates (optional):** Specify the path to the recovery agent certificates that are used for recovering the encryption key. If the path to the Recovery Agent is configured, you need to copy the Agent certificates to this location. For more information, see Section 7.6, “Recovery Agent Certificates,” on page 91.

Install Settings	Description
Novell iFolder System Configuration	◆ **Name of iFolder Server:** Specify a unique name to identify your iFolder server. For example, `IF3EastS` ◆ **iFolder Public URL:** Specify the public URL to reach the iFolder server. ◆ **iFolder Private URL:** Specify the private URL corresponding to the iFolder server to allow communication between the servers within the iFolder domain. The Private URL and the Public URL can be the same. ◆ **Configure SSL for iFolder:** There are three options to select from. ◆ **SSL:** Select *SSL* to enable a secure connection between the iFolder server, iFolder Web Admin server, iFolder Web Access server, and the iFolder clients. iFolder uses the HTTPS channel for communication. ◆ **Non SSL:** Select *Non SSL* to enable unsecured communication between the iFolder server, Web Admin server, Web Access server and the clients. iFolder uses the HTTP channel for communication. ◆ **Both:** This option is selected by default. Selecting *Both* enables you to select secure or non secure channel for communication between the iFolder server, Web Admin server, Web Access server and the clients. By default, these components use the HTTPS (secure) communication channel. However, all components can also be configured to use HTTP channel. ◆ **iFolder Port to Listen On:** Specify the port for the iFolder to Listen On. Port 80 is the default ◆ **Install into Existing iFolder Domain:** If left unselected, this server becomes the Master iFolder server. For slave server configuration, select this option. ◆ **Private URL Host or IP address of the Master Server:** Specify the private URL of the Master iFolder server that holds the master iFolder data for synchronization to the current iFolder Server. For example: https://127.0.0.1:443/simias10.
Novell iFolder LDAP Configuration	◆ **IMPORTANT:** iFolder Master server and slave servers must be in the same eDirectory tree. **Directory Server Address:** The IP address shown is the default LDAP server for this service. If you do not want to use the default, select a different LDAP server in the list. If you are installing into an existing tree, ensure that the server you select has a master replica or read/write replica of eDirectory. If you need to add another LDAP server to the list, add it using the LDAP Configuration for Open Enterprise Services dialog. **IMPORTANT:** If you are using a DSFW server, ensure that the iFolder Admin user and iFolder Proxy user are already present. You must use port 1389 for non-SSL communication and port 1636 for SSL communication.

Install Settings	Description
Novell iFolder System Configuration	◆ **The iFolder Default Administrator:** Specify the username for the default iFolder Admin user. Use the full distinguished name of the iFolder Admin user. For example:`cn=admin,o=acme` ◆ **iFolder Admin Password:** Specify a password for the iFolder Admin user. ◆ **Verify iFolder Admin Password:** Type the password for the iFolder Admin user again. ◆ **LDAP proxy User:** Specify the full distinguished name of the LDAP Proxy user. For example:cn=iFolderproxy,o=acme. This user must have the Read right to the LDAP service. The LDAP Proxy user is used for provisioning the users between the iFolder Enterprise Server and the LDAP server. If the Proxy user does not exist, it is created and granted the Read right to the root of the tree. If the Proxy user already exists, but the given credentials don't match, then a new Proxy user is automatically created. The Proxy user's domain name (dn) and password are stored by the iFolder. **NOTE:** *LDAP Proxy user* and *LDAP proxy user Password* options are disabled for all iFolder upgrade scenarios. For more information on Upgrade, see "Upgrading iFolder 3.x " and "Upgrading iFolder 3.6 " in the *OES 2 SP1: Migration Tool Administration Guide*. ◆ **LDAP proxy user Password:** Specify a password for the LDAP Proxy user. By default, it is YaST-generated password. **IMPORTANT:** You are recommended not to use the YaST-generated default password. You must specify the password for the Proxy user. ◆ **LDAP Search Context** Click *Add*, then specify an LDAP tree context to be searched for users and provisioning them in to iFolder. For example, `o=acme, o=acme2,` or`o=acme3`. If no context is specified, only the iFolder Admin user is provisioned for services during the install. The recommended settings must have a mutually exclusive LDAP search context list with other participating servers in the iFolder domain. **IMPORTANT:** Ensure that the LDAP search context you have specified is present in the LDAP server. If the LDAP search context is not present, the iFolder installation fails.
Novell iFolder System Configuration	◆ **LDAP Naming Attribute:** Select which LDAP attribute of the User account to apply when authenticating users. Each user enters a Username in this specified format at login time. Common Name (cn) is the default and an e-mail address (e-mail) is the other option. For example, if a user named John Smith has a common name of jsmith and e-mail of john.smith@example.com, this field determines whether the user enters jsmith or john.smith@example.com as the Username when logging in to the iFolder server. This setting cannot be changed after the install. ◆ **Require a Secure Connection between the LDAP server and the iFolder Server:** Select this option to require a secure connection between the LDAP server and the iFolder server. This option is selected by default. If the LDAP server co-exists on the same machine as the iFolder server, an administrator can disable SSL, which increases the performance of LDAP authentications.

Install Settings	Description
iFolder Web Access Configuration	◆ **An Apache alias that will point to the iFolder Web Access Application:** Specify an Apache alias to point to the iFolder Web Access application. This is an admin-friendly pointer for the Apache service. For example, /access ◆ **The host or IP address of the iFolder server that will be used by the iFolder Web Access application:** Specify the hostname or IP address of the iFolder Enterprise Server to be managed by the iFolder Web Access application. The iFolder Web Access application manages this host. ◆ **Redirect URL for iChain/AccessGateway (optional):** Specify the redirect URL for iChain/AccessGateway that will be used by the iFolder Web Access application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session. ◆ **Connect to iFolder server using SSL:** Select the check box to establish a secure connection between the iFolder enterprise server and the iFolder Web Admin application. ◆ **iFolder server port to connect on:** Specify the port for the iFolder server to connect to the Web Access application. Port 443 is the default for SSL. Port 80 is the default value for non-SSL communication. ◆ **Require a secure connection between the browser and the iFolder Web Access application:** Select the check box to establish a secure connection between the Web browser and the iFolder Web Access application. This enables a secure SSL channel between the two.
iFolder Web Admin Configuration	◆ **An Apache alias that will point to the iFolder Web Admin Application:** Specify the Apache alias to point to the iFolder Web Admin Application. This is a user-friendly pointer for the Apache service. For example, /admin ◆ **The host or IP address of the iFolder server that will be used by the iFolder Web Admin application:** Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Admin application. This Web Admin application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server. ◆ **Redirect URL for iChain/AccessGateway (optional):** Specify the redirect URL for iChain/AccessGateway that will be used by the iFolder Web Access application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session. ◆ **Connect to iFolder server using SSL:** Select the check box to establish a secure connection between the iFolder enterprise server and the iFolder Web Admin application. ◆ **iFolder server port to connect on:** Specify the port for the Web Admin application to connect to the iFolder server. Port 443 is the default. Port 80 is the default value for non-SSL communication. ◆ **Require a secure connection between the browser and the iFolder Web Admin application:** Select the check box to establish a secure connection between the Web browser and the iFolder Web Admin application. This enables a secure SSL channel between the two.

4 Click *Accept* to complete the configuration.

5 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*, then restart the Apache server. This is necessary to use the new settings.

To manually restart the Apache Web server,

5a Open a terminal console, then log in as the `root` user.

5b Stop the Apache server by entering either of the following commands at the prompt:

```
/etc/init.d/apache2 stop
```

```
rcapache2 stop
```

5c Start Apache by entering either of the following commands at the prompt:

```
/etc/init.d/apache2 start
```

```
rcapache2 start
```

6 Go to Novell iManager to install the Novell iFolder plug-in or to manage iFolder services.

7 If you are using an NSS volume to store user data, you must set up NSS file system trustee rights for the Web server user object `wwwrun` before restarting your web server. At a terminal console prompt, log in as the root user or equivalent, then enter

```
rights -f /media/nss/NSSVOL -r rwfcem trustee wwwrun.ou.o.treename
```

If you ever get `An Internal Error has occurred` error message within the iManager plug-in, this is a sure sign that you have not set up file system trustee rights within NSS properly.

7.2.3 Managing Server IP Change

When you change the Novell OES 2 server IP address either through YaST or through command line, it does not automatically change the iFolder Service IP address. You can change the iFolder service IP address only by reconfiguring the iFolder service either through YaST or command line.

1 To change the IP address of an iFolder Enterprise server,

1a In the Web Admin console, click the Server tab and select the desired server.

1a1 Change the Public URL and Private URL to reflect the new IP address and click *OK*.

1a2 If the IP address change is for a master server, change the master URL for all the slave servers by using the *Server details* page of the respective slave servers listed in the *Server* page.

For more information on this, see “Accessing and Viewing the Server Details Page” on page 144.

1a3 If the LDAP server is configured to the same OES 2 server, change the URL by using the *Server details* page.

For more information on this, see “LDAP Server” on page 146.

2 To change the IP address of the Web Admin server,

2a In a terminal console, run the following command and change the iFolder enterprise server URL used by the Web Admin server application.

```
/opt/novell/ifolder3/bin/ifolder-admin-setup
```

For more information on this, see Section 7.4, “Configuring the iFolder Web Admin Server,” on page 87.

3 To change the IP address of the Web Access server,

   3a In a terminal console, run the following command and change the iFolder enterprise server URL used by the Web Access server application.

   ```
   /opt/novell/ifolder3/bin/ifolder-access-setup
   ```

   For more information on this, see Section 7.3, "Configuring the iFolder Web Access Server," on page 85.

4 Restart the system.

IMPORTANT: You must ensure that all the users whose iFolder clients are connected to the old server IP, are updated the client with the new IP address of the server. For more information on configuring server IP address in an iFolder client, see "Viewing and Modifying iFolder Account Settings" in the *OES 2 SP2: Novell iFolder 3.7 Cross-Platform User Guide*.

If the server is SSL enabled, you must ensure that the new SSL certificate is accepted by all the iFolder users.If a DNS name is used in the iFolder set-up and the new IP address uses the existing DNS name, then you don't need to change the DNS name for the client, instead accept the new certificate.

7.3 Configuring the iFolder Web Access Server

After you install the iFolder Web Access server, you must specify which iFolder enterprise server it supports and the user-friendly URL that users enter in their Web browsers to access it.

IMPORTANT: If you install iFolder when you install OES 2.0 Linux, the same parameters described in this procedure are available as an integrated part of the server install.

7.3.1 Configuring Web Access

1 Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.

2 Start YaST to refresh its list of installed configuration modules.

3 Click *Novell iFolder* in the window displays with Novell Open Enterprise Server Configuration.

4 Select *iFolder Web Access*.

5 Follow the Yast on-screen instructions to proceed through the iFolder 3 Web Access configuration. The table summarizes the decisions you make.

Install Settings	Description
Web Access Alias	The user-friendly path for accessing iFolder services on the specified iFolder 3 enterprise server. For example: `/ifolder`
iFolder Server URL	Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Access application. This Web Access application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL for iChain/ AccessGateway	Specify the redirect URL for iChain/AccessGateway that will be used by the iFolder Web Access application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session.
Connect to iFolder server using SSL	Select the check box to establish a secure connection between the iFolder enterprise server and the iFolder Web Access application.
iFolder server port to connect on	Specify the port for the Web Admin application to connect to the iFolder server. Port 443 is the default. Port 80 is the default value for non-SSL communication.
Require SSL	Select the check box to establish a secure connection between the Web browser and the iFolder Web Access application. This enables a secure SSL channel between the two.

6 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*.

Restarting Apache is necessary to use the new settings.

7.3.2 Configuring iFolder Web Access for iChain or AccessGateway

iFolder 3.7 is interoperable with iChain and AccessGateway*. iChain and AccessGateway requires it's own session (user authentication data) logout which is provided by a specified URL. You must configure this URL for the Web Access console for proper logout of iChain/AccessGateway sessions along with iFolder.

1 Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.

2 Change the directory by typing `cd /opt/novell/ifolder3/bin` at the command prompt.

3 Run `ifolder-web-setup`.

4 Follow the on-screen instructions to proceed through the iFolder 3 Web Access configuration. The table summarizes the decisions you make.

Install Settings	Description
Web Access Alias	The user-friendly path for accessing iFolder services on the specified iFolder 3 enterprise server. For example: `/ifolder`
Require SSL	Select the check box to establish a secure connection between the Web browser and the iFolder Web Access application. This enables a secure SSL channel between the two.
iFolder Server URL	Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Access application. This Web Access application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL	Specify the redirect URL for iChain or AccessGateway. This URL is used for the proper logout of iFolder Web Access console and iChain or AccessGateway sessions.
Require Server SSL	Skip this option to apply the default value.

5 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*.

7.4 Configuring the iFolder Web Admin Server

After you install the iFolder Web Admin server, you must specify which iFolder enterprise server it supports and the user-friendly URL that users enter in their Web browsers to access it.

IMPORTANT: If you install iFolder with OES 2.0 Linux, the same parameters described in this procedure are available as an integrated part of the server install.

7.4.1 Configuring Web Admin Console

1 Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.

2 Start YaST to refresh its list of installed configuration modules.

3 Click *Novell iFolder* in the window displays with Novell Open Enterprise Server Configuration.

4 Click *Next* to start configuring the iFolder Web Admin.

5 In YaST, select *iFolder Web Admin*.

6 Follow the Yast on-screen instructions to proceed through the iFolder 3 Web Admin configuration. The table summarizes the decisions you make.

Install Settings	Description
Web Admin Alias	The user-friendly path for accessing iFolder services on the specified iFolder 3 enterprise server. For example: `/admin`
iFolder Server URL	Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Admin application. This Web Admin application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL for iChain/ AccessGateway	Specify the redirect URL for iChain/AccessGateway that will be used by the iFolder Web Access application. This URL is used for the proper logout of iChain/AccessGateway sessions along with the iFolder session.
Connect to iFolder server using SSL	Select the check box to establish a secure connection between the iFolder enterprise server and the iFolder Web Admin application.
iFolder server port to connect on	Specify the port for the the Web Admin application to connect to the iFolder server. Port 443 is the default. Port 80 is the default value for non-SSL communication.
Require Server SSL	Select the check box to establish a secure connection between the Web browser and the iFolder Web Admin application. This enables a secure SSL channel between the two. **IMPORTANT:** If this option is not enabled, you cannot login to Web Admin via iManager.

After you complete the YaST configuration for Web Admin console, restart Apache server.

7 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*.

Restarting Apache is necessary to use the new settings.

7.4.2 Configuring iFolder Web Admin for iChain or AccessGateway

iFolder 3.7 is interoperable with iChain and AccessGateway*. iChain and AccessGateway requires it's own session (user authentication data) logout which is provided by a specified URL. You must configure this URL for the Web Admin console for proper logout of iChain/AccessGateway sessions along with iFolder.

1 Log in as the root user, or open a terminal console, enter `su`, then enter a password to log in as root.

2 Change the directory by typing `cd /opt/novell/ifolder3/bin` at the command prompt.

3 Run ifolder-admin-setup.

4 Follow the on-screen instructions to proceed through the iFolder 3 Web Admin configuration. The table summarizes the decisions you make.

Install Settings	Description
Web Admin Alias	The user-friendly path for accessing iFolder services on the specified iFolder 3 enterprise server. For example: `/ifolder`
Require SSL	Select the check box to establish a secure connection between the Web browser and the iFolder Web Admin application. This enables a secure SSL channel between the two.
iFolder Server URL	Specify the host or IP address of the iFolder Enterprise Server to be used by the iFolder Web Admin application. This Web Admin application performs all the user-specific iFolder operations on the host that runs the iFolder Enterprise Server.
Redirect URL	Specify the redirect URL for iChain or AccessGateway. This URL is used for the proper logout of iFolder Web Admin console and iChain or AccessGateway sessions.
Require Server SSL	Skip this option to apply the default value.

5 When the system prompts you to restart the Apache server, accept the option by clicking *Yes*.

7.5 Installing the Novell iFolder 3 Plug-In for iManager

Before you can manage Novell iFolder 3 services, you must install the iFolder iManager Module for Novell iManager 2.7. After it is installed, this plug-in is named Novell iFolder 3 in the iManager Roles and Tasks list.

Make sure you meet prerequisites, then use one of the methods for installing the iFolder plug-in:

- Section 7.5.1, “Prerequisites,” on page 89
- Section 7.5.2, “Installing a Plug-In When RBS Is Not Configured,” on page 90
- Section 7.5.3, “Installing a Plug-In When RBS Is Configured,” on page 90

7.5.1 Prerequisites

Novell iManager 2.7

If you have not already done so, install Novell iManager 2.7 on the same or different server as your iFolder server. For information, see *Novell iManager 2.7 Installation Guide* (http://www.novell.com/documentation/imanager25/imanager_install_25/data/hk42s9ot.html)

Role-Based Services

The iFolder 3 plug-in supports the optional use of Role Based Services (RBS) in Novell iManager. RBS gives you the ability to assign specific tasks to iManager admin users and to present the admin user with only the tools necessary to perform a specified set of tasks or manage only objects as determined by their roles. What admin users see when they access iManager is based on their role assignments in Novell eDirectory™. Only the roles and tasks assigned to that user are displayed.

For information, see "Configuring Role-Based Services" (http://www.novell.com/documentation/edir873/edir873/data/a31aexm.html) in the *Novell eDirectory 8.7.3 Administration Guide* (http://www.novell.com/documentation/edir873/edir873/data/a2iii88.html)

7.5.2 Installing a Plug-In When RBS Is Not Configured

If you do not have Role-Based Services (RBS) configured for Novell eDirectory™, install the iFolder Manager Module as follows:

1. In a Web browser, log in to iManager on the iFolder server where you installed iManager.

   `https://ifolder.example.com/nps/iManager.html`

   Replace `ifolder.example.com` with the IP address (such as `192.168.1.1`) or the DNS name of the iFolder server.

   If you installed iManager on a different server in the same tree as your iFolder server, log in to iManager on that server.
2. In the toolbar, click the *Configure* icon (person seated behind a desk).
3. In Roles and Tasks, expand *Plug-in Installation*, then click *Available Novell Plug-In Modules*.
4. Locate the *iFolder iManager Module* plug-in, select its plug-in check box, then click *Install*.

   This install takes a few minutes. You should receive a message confirming a successful install.
5. Click *OK* to dismiss the message, then close iManager.
6. Stop and start the Apache server by entering the following command at the terminal console:

   `/etc/init.d/apache2 restart`
7. Verify that the plug-in is enabled by opening iManager in a Web browser and checking to see if the Novell iFolder 3 plug-in appears in the list of Roles and Tasks.

   For information, see Section 7.7, "Accessing iManager and the Novell iFolder Web Admin," on page 100.
8. Continue with Section 7.8, "Provisioning Users, Groups and iFolder Services," on page 101.
9. Continue with Section 7.8, "Provisioning Users, Groups and iFolder Services," on page 101

7.5.3 Installing a Plug-In When RBS Is Configured

If you are running iManager in Assigned Mode and have RBS configured for eDirectory, complete the following steps to install the iFolder iManager Module.

IMPORTANT: To re-install an existing plug-in, you must first delete the rbsModule object for that plug-in from eDirectory, using the *Module Configuration* > *Delete RBS Module* task.

1. In a Web browser, log in to iManager as an RBS Collection Owner on the system where you installed iFolder.

   `https://ifolder.example.com/nps/iManager.html`

   Replace `ifolder.example.com` with the IP address (such as `192.168.1.1`) or the DNS name of the iFolder server.
2. In the toolbar, click the *Configure* icon (person seated behind a desk).
3. In Roles and Tasks, expand *Plug-in Installation*, then click *Available Novell Plug-In Modules*.
4. Locate the iFolder iManager Module, select its plug-in check box, then click *Install*.

   This install takes a few minutes. You should receive a message confirming a successful install.
5. Click *OK* to dismiss the message, then close iManager.
6. Stop and start the Apache server by entering the following command at the terminal console:

   ```
   /etc/init.d/apache2 restart
   ```
7. Click the *Configure* icon.
8. Under *Role-Based Services*, select *RBS Configuration*.

   The table on the Collections tabbed page displays modules ready to update.
9. Locate the collection where you want to install the plug-in, then click its *Out-of-Date* number.

   The *iFolder iManager Module* plug-in should be displayed under *Modules Not Yet Installed* column.
10. Select the *iFolder iManager Module* plug-in.
11. Click *Update*.
12. Wait for the Completed message, then click *OK* to continue.
13. Verify that the plug-in is enabled by opening iManager in a Web browser and checking to see if the Novell iFolder 3 plug-in appears in the list of *Roles and Tasks*.

    For information, see Section 7.7, “Accessing iManager and the Novell iFolder Web Admin,” on page 100.

7.6 Recovery Agent Certificates

The Recovery agent is a trustworthy organizations that issue and sign public key certificates. This organization should be an entity independent of entities owning the iFolder server's infrastructure, or, independent of the IT department if deployed in a corporate environment.

Recovery agent certificates are the public key certificates used for encrypting the data encryption key. The user selects one of these certificates to perform the data key encryption for later key recovery. The supported certificate formats are `*.cer` and `*.der(X.509)`.

You can use the self-signed certificates if the iFolder is deployed in a trusted environment.The certificates are generated by using the YaST CA Management plug-in or OpenSSL tools.

- Section 7.6.1, “Understanding Digital Certification,” on page 92
- Section 7.6.2, “Creating a YaST-based CA,” on page 93

7.6.1 Understanding Digital Certification

To protect user data from access by unauthorized people, the user data is encrypted by using keys that always occur in private and public key pairs. The keys are applied to the user data in a mathematical process, producing an altered data record in which the original content can no longer be identified.

Private Key: The private key must be kept safely by the key owner. Accidental publication of the private key compromises the key pair and can also be a security threat. The private key is either held by the Recovery agent or the user.

Public Key: The key owner circulates the public key for use by third parties.

Certified Authority (CA): The public key process is popular and there are many public keys in circulation. Certified Authorities are the trustworthy organizations that issue and sign public key certificates. The CA ensures that a public key actually belongs to the assumed owner. The certificates that a CA holds contain the name of the key owner, the corresponding public key, and the electronic signature of the person or entity issuing the certificate. The iFolder Recovery Agents are examples of one kind of CA.

Public Key Infrastructure (PKI): Certificate authorities are usually part of a certification infrastructure that is also responsible for the other aspects of certificate management, such as publication, withdrawal, and renewal of certificates. An infrastructure of this kind is generally referred to as a Public Key Infrastructure or PKI. One familiar PKI is the X.509 Public Key Infrastructure (PKIX). The security of such a PKI depends on the trustworthiness of the CA certificates. To make certification practices clear to PKI customers, the PKI operator defines a certification practice statement (CPS) that defines the procedures for certificate management. This should ensure that the PKI issues only trustworthy certificates.

X.509 Public Key Infrastructure: The X.509 Public Key Infrastructure is defined by the IETF (Internet Engineering Task Force) that serves as a model for almost all publicly-used PKIs today. In this model, authentication is made by certificate authorities (CA) in a hierarchical tree structure. The root of the tree is the root CA, which certifies all sub-CAs. The lowest level of sub-CAs issue user certificates. The user certificates are trustworthy by certification that can be traced to the root CA.

X.509 Certificate: An X.509 certificate is a data structure with several fixed fields and, optionally, additional extensions. The fixed fields mainly contain the name of the key owner, the public key, and the data such as name and signature relating to the issuing CA. For security reasons, a certificate should only have a limited period of validity, so a field is also provided for this date. The CA guarantees the validity of the certificate in the specified period. The CPS usually requires the issuing CA to create and distribute a new certificate before expiration. The extensions can contain any additional information. An application is only required to be able to evaluate an extension if it is identified as critical. If an application does not recognize a critical extension, it must reject the certificate. Some extensions are only useful for a specific application, such as signature or encryption.

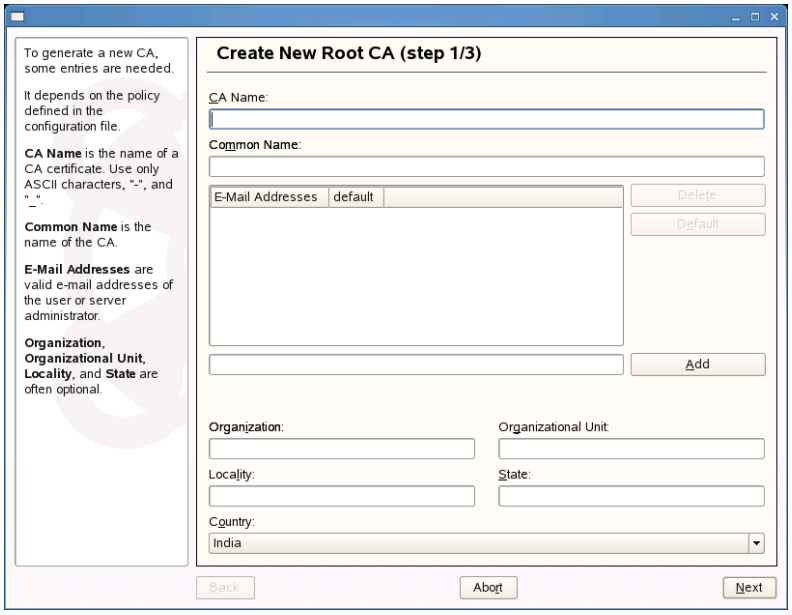
Table 7-1 *X.509v3 Certificate*

Field	Content
Version	The version of the certificate, for example, v3
Serial Number	Unique certificate ID (an integer)
Signature	The ID of the algorithm used to sign the certificate
Issuer	Unique name (DN) of the issuing authority (CA)
Validity	Period of validity
Subjectr	Unique name (DN) of the owner
Subject Public Key Info	InfoPublic key of the owner and the ID of the algorithm
Issuer Unique ID	Unique ID of the issuing CA (optional)
Subject Unique ID	Unique ID of the owner (optional)
Extensions	Optional additional information, such as KeyUsage or BasicConstraints

YaST-Based PKI: YaST contains modules for the basic management of X.509 certificates. This mainly involves the creation of CAs and their certificate. YaST provides tools for creating and distributing CAs and certificates, but cannot currently offer the background infrastructure that allow continuous update of certificates and CRLs. To set up a small PKI, you can use the available YaST modules. However, you should use commercial products to set up an official or commercial PKI.

7.6.2 Creating a YaST-based CA

1. Start YaST and go to *Security and Users > CA Management*.
2. Click *Create Root CA*.



3 Enter the information for creating the CA in the dialog boxes. The following table summarizes the decisions you make.

CA Settings	Description
CA Name	Enter the technical name of the CA. Because the Directory names, among other things, are derived from this name, you must use only the characters listed in the help. The technical name is also displayed in the overview when the module is started.
Common Name	Enter the name of the CA.
E-Mail Address	You can enter several e-mail addresses that a CA user can see. This is helpful for inquiries.
Country	Select the country where the CA is operated.
Organization, Organizational Unit, Locality, State	Optional Values.

4 Click *Next*.

5 Enter a password in the second dialog. This password is always required when using the CA for generating certificates. The following table summarizes the decisions you make.

CA Settings	Descriptions
Password	Specify a password with a minimum length of five characters. To confirm, re-enter it in the next field.
Key Length (bit)	Select the key length. You can choose a value between a minimum of 512 and a maximum of 2048.
Valid Period (days)	The Valid Period in the case of a CA defaults to 3650 days (roughly ten years). This long period makes sense because the replacement of a deleted CA involves an enormous administrative effort.
Advanced Options	Advanced Options are very special options. **WARNING:** If you change these options, iFolder cannot guarantee that the generated certificate works correctly. Clicking Advanced Options opens a dialog for setting different attributes from the X.509 extensions. These values have rational default settings and should only be changed if you are really sure of what you are doing.

YaST displays the current settings for confirmation.

6 Click *Create*.

The root CA is created then appears in the overview.

7.6.3 Creating Self-Signed Certificates Using YaST

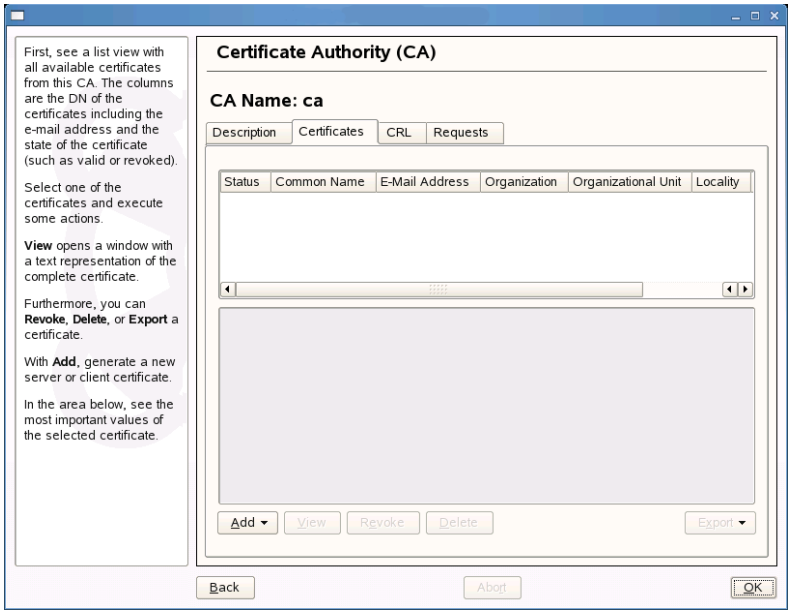
iFolder key recovery mechanism uses the X509 certificates to manage the keys. You can either get a certificate from an external Certified Authority, for instance Verisign* or generate a self-signed certificate if deployed in a trusted environment, where a trusted user-admin relationship exists.

NOTE: In certificates intended for e-mail signature, the e-mail address of the sender (the private key owner) should be contained in the certificate to enable the e-mail program to assign the correct certificate. For certificate assignment during encryption, it is necessary for the e-mail address of the recipient (the public key owner) to be included in the certificate. In the case of server and client certificates, the hostname of the server must be entered in the Common Name field. The default validity period for certificates is 365 days.

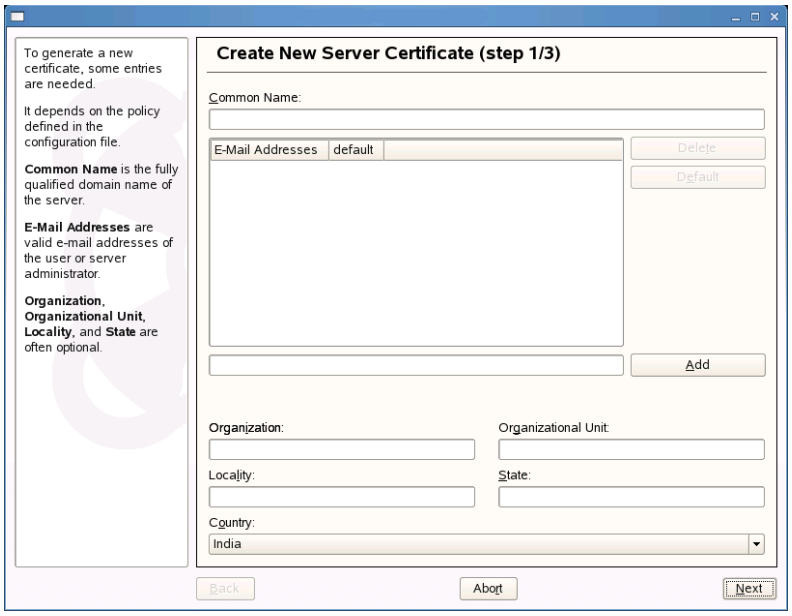
This section discusses creating self-signed certificates for encryption and self-signed key certificate for key recovery using YaST.

1. Start YaST and go to *Security and Users* > *CA Management*.
2. Select the required CA and click *Enter CA*.
3. Enter the password for the CA if asked for.

   YaST displays the CA key information in the Description tab.
4. Click Certificates tab.



5. Click *Add* > *Add Server Certificate*.



6 Enter the information for creating the certificates in the dialog boxes. The following table summarizes the decisions you make.

CA Settings	Description
Common Name	Enter the name of the CA.
E-Mail Address	You can enter several e-mail addresses that a CA user can see. This is helpful for inquiries.
Country	Select the country where the CA is operated.
Organization, Organizational Unit, Locality, State	Optional Values.

7 Enter a password in the second dialog.The following table summarizes the decisions you make.

CA Settings	Descriptions
Password	Specify a password with a minimum length of five characters. To confirm, re-enter it in the next field.
Key Length (bit)	Select the key length of minimum value of 512 and a maximum value of 2048. iFolder supports only 512, 1024 and 2048 as the key length.
Valid Period (days)	The Valid Period in the case of a CA defaults to 3650 days (roughly ten years). This long period makes sense because the replacement of a deleted CA involves an enormous administrative effort.

CA Settings	Descriptions
Advanced Options	Advanced Options are very special options. **WARNING:** If you change these options, iFolder cannot guarantee that the generated certificate works correctly. Clicking Advanced Options opens a dialog for setting different attributes from the X.509 extensions. These values have rational default settings and should only be changed if you are really sure of what you are doing.

YaST displays the current settings for confirmation.

For information on encryption, see “” in the *OES 2 SP2: Novell iFolder 3.7 Cross-Platform User Guide* and “Using the Recovery Agent” in the *OES 2 SP2 Linux: Novell iFolder 3.7 Security Administration Guide*.

7.6.4 Exporting Self-Signed Certificates

1. Click Export drop-down and select *Export to File*.

2. Select *Only the Certificate in PEM format*.
3. Specify a password of minimum length of five characters.
4. Click *Browse* to find a location to save the file, then specify a filename for the certificate you have created.
5. Click *OK* to save the certificate.
6. Convert the certificate in PEM format to DER format using OpenSSL command as given below:

   ```
   openssl x509 -in <certificate>.pem -inform PEM -out
   <certificate>.der -outform DER
   ```

7. Copy the certificate in DER format to the location you have configured for loading Recovery Agent Certificate during iFolder configuration.

   If the certificate is expired, you need to load the new certificates again to this location.

8. Restart the iFolder server to load the Recovery agent certificates.

7.6.5 Exporting Self-Signed Private Key Certificates For Key Recovery

1 Click Export drop-down and select *Export to File*.

2 Select *Certificate and the Key in PKCS12 Format*.

3 Specify a new password and re-enter that for confirmation.

This password is used with the certificate and the keys exported to a file in XML format.

IMPORTANT: You must use a password different from the one you have used for certificate creation.

---

4 Specify a filename for the certificate you have created and click Browse to find a location to save the file.

5 Click *OK* to save the certificate.

7.6.6 Using KeyRecovery to Recover the Data

Each iFolder has a unique data encryption key which is auto-generated during iFolder creation. The key is encrypted by using a passphrase provided by individual user and also by using the public key with the Recovery agent. If the user forget the secret passphrase, he or she cannot access either the iFolder data or the encrypted key used for recovering it unless the passphrase is saved locally (enabling Remember passphrase). To avoid this problem, user export the keys using the *Security > Export Keys* option in the client and send it manually to the Recovery agent using the e-mail address provided in the Export dialog box in the client GUI. The Recovery agent retrieves the keys and sends back to the user through e-mail or any other communication channel. User can then import the keys and use them to reset the passphrase.

NOTE: The keys are exported to a file in XML format. It is recommended to save the file as `<filename>.xml`

This section help you understand the process followed by a Recovery agent to retrieve the key.

1 Go to the location where iFolder is installed.

Platform	Default Location of the Utility
Linux	`/opt/novell/ifolder3/bin/KeyRecovery`
Windows	`C:/Program Files/iFolder/KeyRecovery.exe`
Macintosh	`/opt/novell/ifolder3/KeyRecovery`

2 Run `KeyRecovery` or `KeyReovery.exe` based on the platform you use and follow the on-screen instructions.

The following table summarizes the decisions you make.

Parameters	Description
Encrypted Key file path	Specify the path (including the file name of the encrypted key) for reading the encrypted keys.
Private Key	Specify the path to the private key file (PKCS12 file format, *.p12).
Decrypted Key file path	Specify the path to store the decrypted key file. Ensure that the filename also included in the path you specify.
Private Key password	Specify the password to decrypt the private key.
Encrypt Result key	Specify whether you want to encrypt the decrypted key with one time passphrase. Default value: Yes
One time passphrase	Specify a one time passphrase to encrypt the decrypted keys.

3 Send the decrypted key usually by replying to the mail attached with the encrypted keys and the one-time passphrase (if the key is encrypted using the one-time passphrase) to the user.

4 Send the one-time passphrase (if the key is encrypted using the one-time passphrase) to the user through any other communication channel other than the one you used to exchange the key files.

7.6.7 Managing Certificate Change

The self-signed certificates for iFolder services change when they are expired, revoked, or replaced with a new certificate by a new CA.

Client: When a new certificate is created, the user has to approve of from the client side. The client prompts for the new certificate for the user to accept it.

Web Admin Server: The change in the certificate is not automatically communicated to the Web Admin server. You must reconfigure the Web Admin server for the new certificate to be accepted. By default, the new certificate is accepted in the server side. In the front-end, the browser is updated automatically when the server is updated with the new certificate.

Web Access Server: The change in the certificate is not automatically communicated to the Web Admin server. You must reconfigure the Web Access server for the new certificate to be accepted. By default, the new certificate is accepted in the server side. In the front-end, the browser is updated automatically when the server is updated with the new certificate.

7.7 Accessing iManager and the Novell iFolder Web Admin

The Novell iFolder Web Admin is the tool used to manage your iFolder server.

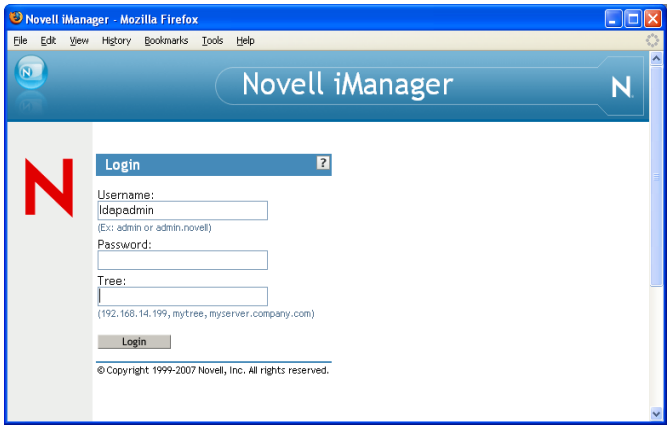
1. Open a Web browser to the iManager Login page by entering the following location:

   `http://servername.example.com/nps/iManager.html`

   Replace *`servername.example.com`* with the DNS name or IP address (such as `192.168.1.1`) of the OES Linux server where you installed iManager. This might be the same or different computer where you installed iFolder 3.7 or iFolder 3.7 Web Access.

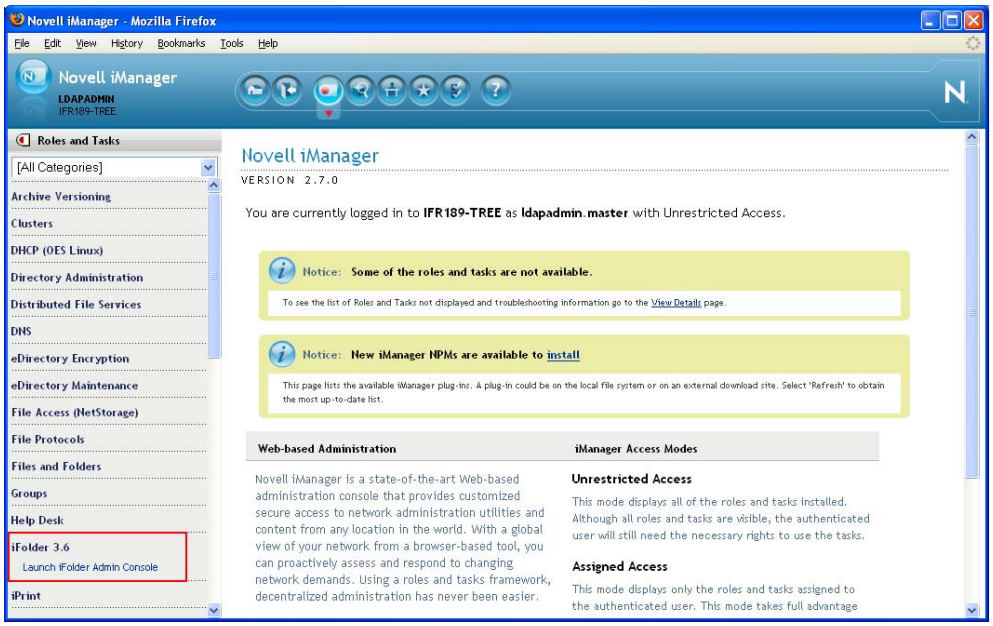
2. (Conditional) If prompted to accept the server's certificate, review the certificate information, then click *OK* to accept it if it is valid.

3. On the iManager Login page, specify the Admin username and password you created during the OES 2 Linux install, then click *Login*.



   The user name can be specified as contextless (such as *admin*) or with the context (such as *`cn=admin.o=acme`*). You must use a dot delimiter in fully distinguished names when working in iManager.

   The iManager Web management interface opens with *Roles and Tasks* listed in the navigator on the left.



4 In Roles and Tasks, click *iFolder 3.7 > Launch Admin Console*.

5 Specify the DNS name or IP address of the iFolder enterprise server you want to manage.

For example, type `svr1.example.com or 192.168.1.1`.

6 Do one of the following:

6a If you logged in to iManager with the same username as the iFolder Admin user of the Web Admin, select Authenticate Using Current iManager Credentials.

6b If you logged in to iManager with a different username than the iFolder Admin user of the Web Admin, leave the check box Authenticate Using Current iManager Credentials unselected, then specify the iFolder Admin username and password.

7 Click *OK*.

IMPORTANT: If you are logged in to iManager with iManager admin credential, iFolder Web Admin does not ask the credentials again for logging into Web Admin console.

For information, see Section 11.2, “Connecting to the iFolder Server,” on page 135.

Novell iFolder 3.7 opens to the User page, which consists of a tabbed list of the main administrative functions that can be performed on iFolder domain.

7.8 Provisioning Users, Groups and iFolder Services

After you configure your Novell iFolder 3.7 enterprise server, you must specify containers and groups as Search DNs in the LDAP settings. iFolder uses these to provision user and group accounts. You can provision users and iFolders through iFolder Web Admin console. For more information, see the following:

- Chapter 11, “Managing iFolder Services via Web Admin,” on page 135

- Chapter 12, “Managing iFolder Users,” on page 153
- Chapter 13, “Managing iFolders,” on page 161

7.8.1 Prerequisites

- “Users and LDAP Contexts” on page 102
- “Extending LDAP User Objects for iFolder 3.7” on page 102

Users and LDAP Contexts

The contexts you plan to use as LDAP Search DNs in the LDAP settings must exist in the LDAP directory; they are not created and configured from within the iFolder plug-in.

For information about configuring user, group, and container objects, see the *Novell eDirectory 8.8 Administration Guide* (http://www.novell.com/documentation/edir88/treetitl.html).

Extending LDAP User Objects for iFolder 3.7

To enable LDAP attribute-based provisioning, you must Extend the LDAP user schema with the i*FolderUserProvision* auxiliary object class with *iFolderHomeServer* as one attribute. For Active Directory, you must use Active Directory tools to extend User Objects with *iFolderHomeServer* as an attribute.

1. Login to iManager using iManager administrator credentials.
2. Click *View Objects* icon to open the Object view.
3. Browse and find the appropriate tree where the desired users are listed.

   For more information on this, see the *Novell iManager 2.7 Administration Guide (http://www.novell.com/documentation/imanager27/imanager_admin_27/data/bob1yft.html)*.
4. Click the desired user object you want to extend, and open the *Action* window, then click *Object Extensions*.
5. Click *OK* in the right-side panel that displays the object extensions detail.
6. In the new page that lists the current auxiliary class extensions, click *Add*.
7. From the pop-up window, select *iFolderUserProvision* entry, and click *OK*.
8. Click *Close*.

   For more information on this, see the section Roles and Tasks (http://www.novell.com/documentation/imanager27/imanager_admin_27/data/b8im2s7.html) in the *iManager Administration Guide*.
9. To add *iFolderHomeServer* attribute, click the same object to pop-up the *Tasks* window.
10. Select *Modify Objects* to display the object modification details in the right panel.
11. Under the *General* tab in that page, click the *Other* link, and select *iFolderHomeServer* from the *Unvalued Attribute* list, then click the arrow mark.
12. In the pop-up window, provide a value for the *iFolderHomeServer* attribute and click *OK*.

    The value can either be the IP address or the DNS name of the iFolder server assigned to this user.
13. click *Apply* to save the modifications.
14. For all the users, repeat the Step 1 thru Step 13 on page 102.

Command Line Option

You can also use the following script to extend the existing user objects or create a new user object with the `iFolderUserProvision` object class extension.

1. In the terminal console, type `/opt/novell/ifolder3/bin/iFolderLdapUserUpdate.sh`.
2. Type `./iFolderLdapUserUpdate.sh -h <Ldap URL> -d <admin DN> -w <admin password> -u <user DN> [-s <surname>] [-c <user password>] [-i <iFolder Home Server>]`.

   For example: `./iFolderLdapUserUpdate.sh -h ldaps://10.10.10.10 -d admin,o=novell -w secret -u cn=abc,o=novell -s xyz -c secret -i 10.10.10.10`.

7.9 Distributing the iFolder Client to Users

After you configure iFolder services on the enterprise server, users can download the install files for the iFolder client from the OES 2 Welcome page.

NOTE: iFolder 3.7 does not support a silent install (that is, a scriptable non-interactive install) on any platform. A silent install is possible the Linux client using its `.rpm` files, but it is not supported.

- Section 7.9.1, “Accessing the OES 2 Linux Welcome Page,” on page 103
- Section 7.9.2, “Downloading the iFolder Client,” on page 103
- Section 7.9.3, “Installing the iFolder Client,” on page 105

7.9.1 Accessing the OES 2 Linux Welcome Page

1. Open a Web browser to the following location to open the server’s Welcome page:

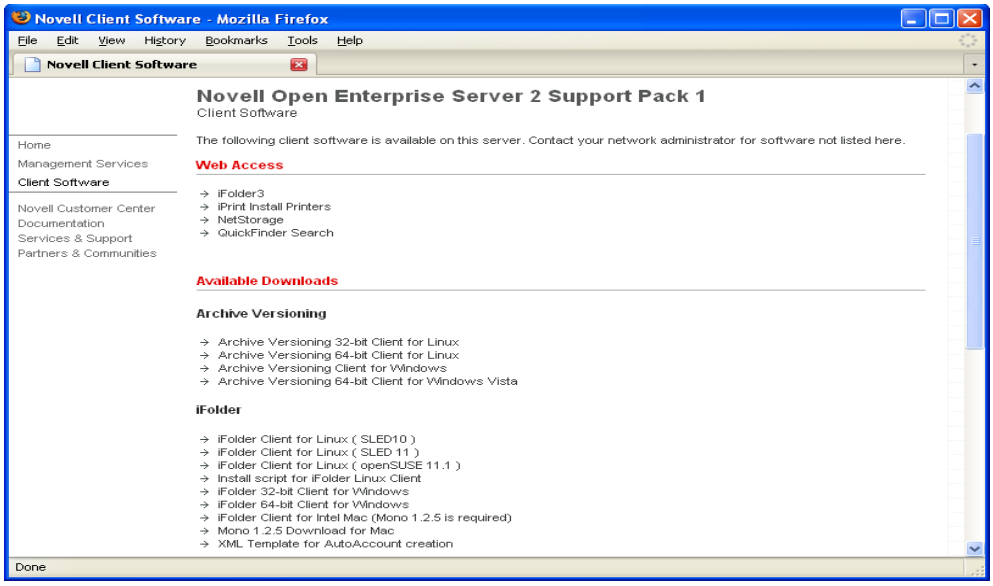
   `http://ifolder3.example.com`.

   Replace *`ifolder3.example.com`* with the DNS name or the IP address (such as *`192.168.1.1`*) of the OES 2 Linux server.

7.9.2 Downloading the iFolder Client

On the OES 2.0 SP1 Welcome page, users can select one of the following client links from the *Client Software* page under *Available Downloads* to download the install files for the iFolder client for Novell iFolder 3.7:

Figure 7-1 *Client Download*



Users can download the following install files:

Table 7-2 *Client Install Files*

Link Name	Operating System/Description	Filename
iFolder 3.7 Linux Client	Suse Linux Enterprise Desktop 10 and later	`ifolder3-linux.tar.gz`
	Suse Linux Enterprise Desktop 11	`ifolder3-sled11.tar.gz`
	OpenSUSE 11.1	`ifolder3-openSUSE11.1.tar.gz`
iFolder 3.7 Windows Client	Windows Vista/ XP SP2	`ifolder3-windows.exe`
iFolder 3.7 Windows Client (64 bit)	Windows Vista **NOTE:** To install Vista, right-click and select the option Install as Administrator.	`ifolder3-windows-x64.exe`
iFolder 3.7 Macintosh Client	Macintosh v10.4 and above	`ifolder-3.7.0-1.dmg`
Install Script for iFolder Linux Client	Use the script to automatically install the iFolder client for Linux	`install-ifolder-script.sh`
Mono 1.2.5 Download for Mac	For more information on Mono, see Section 5.7, “Mono 1.2.x,” on page 45	`MonoFramework-1.2.5_5.macos10.novell.universal.dmg`

Link Name	Operating System/Description	Filename
XML Template for AutoAccount Creation	Fore more information on AutoAccount creation, see Section 7.10, “Using a Response File to Automatically Create iFolder Accounts,” on page 105	`AutoAccount.xml`

After expanding the install files, users are ready to install the iFolder client and its dependencies with the following files:

Table 7-3 *Install Files*

iFolder Client	Install Files
iFolder for Linux	ifolder3-3.7.1.xxxx-1-1.i586.rpm nautilus-ifolder3-3.7.1.xxxx-1-1.i586.rpm simias-1.7.0.xxxx-1-0.3.i586.rpm novell-ifolder-client-plugins-3.7.1.xxxx.1-1.i586.rpm ifolder3-3.7.1.xxxx-1-1.x86_64.rpm nautilus-ifolder3-3.7.1.xxxx-1-1.x86_64.rpm simias-1.7.1.xxxx-1-0.3.x86_64.rpm novell-ifolder-client-plugins-3.7.1.xxxx.1-1.x86_64.rpm xsp-1.2.1-13.8.noarch.rpm
iFolder for Windows	`ifolder3-windows.exe`
iFolder for Windows (64 bits)	`ifolder3-windows-x64.exe`
iFolder for Macintosh	`ifolder-3.7.0-1.dmg`

7.9.3 Installing the iFolder Client

For information about prerequisites and installation, see “Getting Started” in the *OES 2 SP2: Novell iFolder 3.7 Cross-Platform User Guide*.

7.10 Using a Response File to Automatically Create iFolder Accounts

Installing iFolder client and configuring an account on each desktop is a difficult task when the number of users are high. Without configuring an account, users cannot create iFolders or share iFolders on the system. For each user, you must provide a username and the server address with which they can configure an account by using the iFolder Account Assistant.To make these tasks simpler, it’s useful to automate the process of installing and configuring iFolder. You can use a deployment manager such as Novell ZenWorks® to automate the process of iFolder installation.To make the iFolder account creation simpler and automatic, with little or no user interaction, you can use the Auto-account creation feature.

iFolder Auto-account creation facility provides you an user-friendly XML-based response file that helps you create accounts for multiple enterprise users. The response file contains the necessary information in XML format such as default credential and server information to configure an account.You can use any deployment manager to distribute the client RPMs along with the customized response file to the user desktops.

- Section 7.10.1, "Response Files," on page 106
- Section 7.10.2, "Using a Response File to Deploying the iFolder Client," on page 108

7.10.1 Response Files

The response file is a user-specific XML file named `AutoAccount.xml` that contains the basic information to automatically create and configure an iFolder user account. A sample `AutoAccount.xml` is available for downloading in the Software Download page of the OES 2 Linux SP1 Welcome page. You can also use a script to generate a user-specific XML file with default credentials or with only the server information so that users can enter their credentials when the Account Assistant displays. See "Sample Response File" on page 108 for more information. Use a deployment manager to push the response file to the following folders depending on the client platform.

Table 7-4 *Location of the Response file*

Platform	Location
Linux	`$HOME/.local/share/simias`
Windows XP	`%USERPROFILE%\Local Settings\Application Data\simias`
Windows Vista	`%LOCALAPPDATA%/simias`

IMPORTANT: The name of the response file `AutoAccount.xml` cannot be changed.

The mandatory fields in the response file are *Server* and *Username*. If you specify only the server name without giving the username, then all the inputs to the response file except the server name is ignored. If this is the case, the Account Assistant displays with the server name pre populated with the value from the response file. The user should give the rest of the information in the iFolder Account Assistant.

IMPORTANT: Regardless of whether a field is classified as mandatory or optional, the corresponding tags should always be present in the XML file for validation. The terms mandatory or optional apply only to the value of the tags and not to the tags themselves.

To get the status and details of the auto-account creation, see the `AutoAccount log` file. The path to the log file is specified in the log configuration file `UI.log4net`. The UI.log4net file allows you specify output location of the AutoAccount log files and what events are recorded at run time.The editable parameters of UI.log4net are similar to that of Simias.log4net. For more information, see Section 10.4, "Managing the Simias Log and Simias Access Log," on page 118.

Depending on the platform, the log configuration file is present in the following directory.

Table 7-5 *Location of the Configuration File*

Platform	Location
Linux	`$HOME/.local/share/simias`
Windows XP	`%APPDATA%/Local Settings/Application Data/simias`
Windows Vista	`%LOCALAPPDATA%/simias`

Response File Parameters

The following table gives the list of all parameters of the response file. All the parameters except Server and Username are optional. For optional fields, the default value is used when no explicit value is specified.

Table 7-6 *Response File Parameters*

Parameter	Possible Values	Default Value
default user account	True/false	True for the first account and false for the remaining accounts.
server	IP address	Mandatory field; no default value
user-id	Any string	Mandatory field; no default value
remember password	True/false	False
default-ifolder	True/false	True
path	Path string	**Linux:** *`HOME Directory/domain-name/user-id/`*`Default` **Windows:** `%APPDATA%\..\`*`domain-name\user-id`*
encrypted	True/false	False (If it is permitted by server)
securesync	True/false	False
prompt-to-accept-cert	True/False	False. This means that the certificate is accepted by default.
iFolder-creation-confirmation	True/False	True
iFolder-share-notify	True/False	True
conflict-notify	True/False	True
auto-sync enabled	True/False	True
auto-sync interval	Integer value	5

Sample Response File

Following is a typical example for the response file:

```
<?xml version="1.0" encoding="utf-8"?>

<auto-account xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="AutoAccount.xsd">

<user-account default="true">

        <server></server>

        <user-id></user-id>

        <remember-password>false</remember-password>

        <prompt-to-accept-cert>true</prompt-to-accept-cert>

        <default-ifolder default="true">

                <path></path>

                <encrypted>false</encrypted>

                <securesync>false</securesync>

        </default-ifolder>

</user-account>

<general-preferences>

        <iFolder-creation-confirmation>true</iFolder-creation-confirmation>

        <iFolder-share-notify>true</iFolder-share-notify>

        <user-join-notify>true</user-join-notify>

        <conflict-notify>true</conflict-notify>

        <auto-sync interval="5">true</auto-sync>

</general-preferences>

</auto-account>
```

7.10.2 Using a Response File to Deploying the iFolder Client

NOTE: The procedure below shows one method of deployment. You can follow the method best suited to your needs.

1. Use the ZenWorks deployment manager to distribute and install the iFolder client.
2. Depending on the platform used on the client machine that had the iFolder client auto-installed, push the `AutoAccount.xml` file to the path mentioned below:

Table 7-7 Platform-specific locations of Response file

Platform	Location
Linux	`$HOME/.local/share/simias`
Windows XP	`%USERPROFILE%\Local Settings\Application Data\simias`
Windows Vista	`%LOCALAPPDATA%/simias`

When the user starts the iFolder client for the first time, the account is created based on the information from the response file. If you have specified all the parameters for creating an account in the response file, then only password is requested from the user. Otherwise, the user must provide information for all the empty mandatory fields along with password when he or she logs in for the first time.

7.11 Updating Novell iFolder 3.7

As patches become available for iFolder 3.7 and the iFolder client, they are delivered to the OES Patch channel. Any iFolder server or client patches or updates can be installed through ZENworks® Linux Management (formerly Red Carpet®) channels.

- The iFolder client checks for updates on the server whenever a user logs in, and prompts the user to install a new update if it exists.

IMPORTANT: Ensure that you update the version configuration file with the version number and the filename for the respective client platform. Until the version configuration file is updated, user does not get the upgrade prompt. For more information on editing the version configuration file, see "Updating the Version Configuration Files" on page 109.

- Patches or updates to the iFolder client for Linux must be delivered through a customer-hosted channel, so that your users have access to them. For information on how to set up a customer-hosted channel, please see documentation for ZENworks Linux Management.

Updating the Version Configuration Files

1. Copy the filename and version number given in the patch description.
2. Open a terminal console and login as `root` user.
3. Go to the location `/opt/novell/ifolder3/lib/simias/web/update` and open the version configuration file for the respective client.

Platform	Version Configuration File
Linux	`unix-version.config` Each time a Linux iFolder Client authenticates to an iFolder Server, it checks for an updated client on the server. The server uses `unix-version.config` file to determine whether an upgrade exists for a given linux client. You may specify multiple distribution match tags within this file. The match attribute is compared against the client's `/etc/issue` file. A contains search is performed in order of the distribution tags listed in the file and the first match is used to upgrade the client. If no matches are found, the `DEFAULT` distribution is used.
Windows	`verion.config` If the specified version is greater than the iFolder version on the client, the user is prompted to upgrade their ifolder application with the one specified in the `version.config` file by `filename`.
Macintosh	`mac-version.config`

4 Replace the existing filename and version number with the one you copied from the patch description for the respective client platforms.

Platform	Client	Tag to Update (Example)
Linux	SLED 10 SP2	`<distribution match="SUSE LINUX 10.0 SP2 (i586)">` `<version>3.7.1</version>` `<download-directory>suse-linux-10.2-i586</download-directory>` `</distribution>`
Windows	• Windows 32 • Windows 64 (Vista)	`<distribution match="windows32">` `<version>3.7.1.17</version>` `<filename>ifolder3-windows.exe</filename>` `</distribution>`
Mac	Intel Macintosh v10.4	`<version>3.7.1.17</version>` `<filenamme>ifolder-3.7.0-1.dmg</filename>`

7.12 Updating Mono for the Server and Client

You can upgrade the Mono packages available in the SUSE distribution through Mono upgrade channel unless otherwise the iFolder Administrator guide specifies a particular version. For both server and client XSP RPMs must be at least 1.1.18 or later.

Please check our online documentation to see if we explicitly support that version and to learn any necessary steps to make the upgrade work correctly. For information, see the latest version of the online documentation on the Novell iFolder 3.7 Documentation Web site (http://www.novell.com/documentation/ifolder3).

7.13 Uninstalling the iFolder 3.7 Enterprise Server

Use YaST to uninstall the iFolder 3.7 enterprise server `.rpm` file. Uninstalling iFolder 3.7 software does not remove the Simias store, including the config files available in the `/etc/apache2/conf.d`.

When the server is re-installed, each of the iFolder clients must remove the old iFolder account and re-create it, even if the server IP address for the iFolder account has not changed. Users must also set up iFolders and share relationships again.

7.14 What's Next

You have now installed and configured your Novell iFolder 3.7 enterprise server and provisioned iFolder services for users. To set up system policies for iFolder services, continue with Chapter 11, "Managing iFolder Services via Web Admin," on page 135.

Provisioned iFolder users can install the Novell iFolder 3.*6* client on their workstations, create iFolders, and share iFolders with other authorized Novell iFolder users. For information, see the *OES 2 SP2: Novell iFolder 3.7 Cross-Platform User Guide*.

Migrating iFolder Services

8

The OES 2 Migration Tool has a plug-in architecture and is made up of Linux command line utilities with a GUI wrapper.

You can migrate Novell iFolder 3.2 running on OES 1 Linux and iFolder 2.*x* on OES 1 Linux or on Netware® to Novell iFolder 3.7 running on the OES 2 Linux SP1 platform. Migration can be done either through the GUI Migration Tool or through the command line utilities.

To get started with migration, see "Overview of the Migration Tool" in the *OES 2 SP1: Migration Tool Administration Guide*.

For information on iFolder Migration, Upgrade and Coexistence see "Novell iFolder Upgrade, Migration, and Coexistence" in the *OES 2 SP1: Migration Tool Administration Guide*.

Running Novell iFolder in a Virtualized Environment

9

Novell iFolder 3.7 runs in a virtualized environment just as it does on a physical server and requires no special configuration or other changes.

To get started with virtualization, see Introduction to Xen Virtualization (http://www.novell.com/documentation/vmserver/virtualization_basics/data/b9km2i6.html) in the Getting Started with Virtualization Guide (http://www.novell.com/documentation/vmserver/virtualization_basics/data/front_html.html).

9.1 What's Next

To learn more about managing Novell iFolder 3.7, continue with Chapter 10, "Managing an iFolder Enterprise Server," on page 117.

Managing an iFolder Enterprise Server

10

This section describes how to manage your Novell® iFolder® 3.7 enterprise server.

10.1 Starting iFolder Services

iFolder services start whenever you reboot the system or whenever you start Apache services.

As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 start
```

10.2 Stopping iFolder Services

iFolder services stop whenever you stop the system or whenever you stop Apache services.

As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 stop
```

10.3 Restarting iFolder Services

If you need to restart iFolder services, you must stop and start Apache services:

As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 stop
```

```
/etc/init.d/apache2 start
```

Avoid using the Apache Restart command, instead you must use Apache reload command. If any other modules using the Apache instance do not exit immediately in response to the Apache Restart command, iFolder might hang.

10.4 Managing the Simias Log and Simias Access Log

On the iFolder enterprise, there are two logs that track events:

- **Simias Log:** The `/simias/log/Simias.log` file contains status messages about the health of the Simias Service.
- **Simias Access Log:** The `simias/log/Simias.access.log` file contains file access events for data and metadata about iFolders, users, membership in shared iFolders, and so on. It reports the success of the event and identifies who did what and when they did it. For example, if a file was deleted on the server, it identifies the user who initiated the deletion.

Review the logs whenever you need to troubleshoot problems with your iFolder system.

The Simias Log4net file (`/simias/Simias.log4net`) allows you specify output location of the log files and what events are recorded at run time. Its parameters are based on, but not compliant with, the Apache Logging Services (http://logging.apache.org/log4net). The following parameters are modifiable:

Parameters	Description	Examples
Location and name of the log `<file value="`*`pathname`*`" />`	The location of the log file. Specify the full path where the file is located on the computer, including the volume, intermediate directories, and filename.	`<file value="<iFolder Data>/simias/log/Simias.log">` `<file value="<iFolder Data>/simias/log/Simias.access.log" />`
Maximum size of the log file `<maximumFileSize value="`*`size`*`" />`	The maximum size of the log file. When the file grows to this size, the content is rolled over into a backup file and the recording continues in the now-empty file. A period and sequential number are appended to the filename of the backup log files, such as `Simias.log.1` and `Simias.log.2`. For *`size`*, specify the number and unit, such as `10MB` or `20MB`, with no space between them.	`<maximumFileSize value="10MB" />`
How much logged data to retain `<maxSizeRollBackups value="`*`number`*`" />`	The maximum number of backup log files that are kept before they are overwritten. The log rolls over sequentially until the maximum number of backups are created, then overwrites the oldest log file.	`<maxSizeRollBackups value="10" />`

Parameters	Description	Examples
Level of Simias Services messages `<level value="status" />` (Use only for the `Simias.log`.)	The type of messages or level of detail you want to capture for the log. Valid levels include the following: `OFF` `FATAL` `ERROR` `WARN` `INFO` `DEBUG` `ALL`	`<level value="ERROR" />`
Fields to report for file access events `<header value="layout" />` (Use only for the `Simias.access.log`.)	Specify which fields to report and the order you want them to appear for each entry. Valid fields include the following: `date` `time` `method` (program call or event) `status` (success or failure) `user` `uri` (relative path of the file in an iFolder) `id` (node key) The fields are pattern delimited (`**`) by default. Use this pattern to add additional fields.	`<header value="#version: 1.0
#Fields:**date**time**method**status**user**uri**id**
" />`

In the Log4net terminology, each output destination is defined in an XML `appender` tag. If you do not want to log events for the Simias Service or for file access, comment out (`!--`) the related `appender` tag and its child elements for that log file.

10.5 Backing Up the iFolder Server

1. Find and note down the Simias Data Store(s)

   You can find the default location of the Simias store directory under Data Store section in the Server Details page of the Web Admin console and additional data stores if configured. For more information on this, see Step 8 on page 148 and “Enable or Disable Data Store:” on page 149.

2. Open a terminal console, login as root or root equivalent user, and enter the following command to stop the iFolder server.

   ```
   /etc/init.d/apache2 stop
   ```

3. Stop the iFolder mono process if running.

   ```
   pkill mono
   ```

4 Use your normal file system backup procedures to back up all the Data Stores.

5 Start the iFolder server by entering the following command as root user:

```
/etc/init.d/apache2 start
```

10.6 Recovering from a Catastrophic Loss of the iFolder Server

If the iFolder server configuration or data store becomes corrupted, use your iFolder backup files to restore the database to its last good backup. Restoring the iFolder server to the state it was in at the time of the backup also reverts the iFolders on any connected iFolder clients to that same state.

IMPORTANT: All changes made since the time of the backup will be lost on all connected clients.

Consider the following implications of restoring iFolder data:

- Any new file or directory is deleted if it was added to an iFolder since the time of the backup.
- Any file that was modified is reverted to its state at the time of the backup.
- Any file or directory is restored if it was deleted since the time of the backup.

Before restoring the iFolder server, consider notifying all users to save copies of any files or directories they might have modified in their iFolders since the time of the last backup. After the iFolder server is restored, they can copy these files or directories back into their respective iFolders

1 Notify users to save copies of iFolders or files that have changed since the time of the backup you plan to use for the restore.

2 Stop the iFolder server by entering the following command as root user:

```
/etc/init.d/apache2 stop
```

3 Remove the following corrupted data:

- Simias store directories

  The default location is `/var/simias/data/simias`.

  If there are multiple store, ensure that the corresponding data is also removed.

4 Use your normal iFolder system restore procedures to restore the following data to its original locations:

- Simias store directories

  The default location is `/var/simias/data/simias`.

  Restore the additional Simias store directories to their respective locations, if multiple store paths has been configured.

  IMPORTANT: Be careful not to modify anything else under the Simias store directory.

  ---

5 Start the iFolder server by entering the following command as root user:

```
/etc/init.d/apache2 start
```

6 Notify users that they can return their saved files to their iFolders for upload to the server. Users should coordinate this with other shared members of the iFolder to avoid competing updates.

10.7 Using TSAIF to Back Up and Restore the iFolder Store

The Target Service Agent (TSA) for Novell iFolder 3.7 supports the back up of the iFolder store.

10.7.1 Understanding TSAIF

iFolder TSA

Novell Storage Management Services (SMS) is an API framework that backup applications consume to provide a complete backup solution. The SMS framework is implemented by two main components: The Storage Management Data Requester and the Target Service Agent.

The TSA provides an abstraction of a particular backup target. The TSA uses native interfaces to read target data and transforms it to a continuous stream of data objects. The data objects are formatted in the ECMA standard System Independent Data Format (SIDF).

The TSA for iFolder (TSAIF) provides an implementation of the SMS API for an iFolder store. Backup applications, such as nbackup(1), can make use of its features by writing to the SMS API.

iFolder and Simias

iFolder is built upon Simias technology. Simias is a general-purpose object repository that provides a foundation for building collaborative solutions. A Simias Collection store contains Collection objects. At a minimum, a Simias Collection store contains a Local Database Collection and one or more Domain Collections. The Local Database Collection controls access to the physical storage of the Collection store on the file system. A Domain Collection contains a list of members in a given domain. For example, a Domain might contain all the members from a given LDAP directory. Each Collection is owned by exactly one Domain member.

An iFolder is a type of Simias Collection that has a root directory on the file system. Each file or subdirectory in the iFolder’s root directory has a corresponding FileNode or DirNode in the Collection. An iFolder store is a Simias Collection store that contains one or more iFolders and includes the directories and files associated with the iFolders.

For more information on the iFolder and Simias technologies, see the iFolder Project at www.ifolder.com (http://www.ifolder.com).

iFolder TSA Granularity

TSAIF supports creating archives that contain the following:

- The entire iFolder store
- All iFolders owned by a specified Domain member
- An individual iFolder

TSAIF supports restoring the following:

- The entire iFolder store
- All iFolders owned by a specified Domain member
- An individual iFolder
- An individual subdirectory in an iFolder
- An individual file in an iFolder

The entire iFolder store should be backed up regularly. In certain cases, a backup administrator might choose to back up an individual iFolder or to back up all iFolders owned by a specific owner. These special-case archives can be restored only to the same iFolder store from which they were backed up.

IMPORTANT: If you are restoring an entire iFolder and want to ensure that it is in the exact state it was in when it was backed up, you should first delete it from the server using a client or the iFolder Web Admin console or Web Access console.

Deleting the iFolder is not necessary to restore any or all of the files in the iFolder; the difference is in what metadata is given preference during the restore. If you do not delete the iFolder before restoring, the attributes of the iFolder, such as the owner, members, file type or size restrictions, remain as they are in the current version.

10.7.2 Syntax

At an OES Linux server terminal console, enter

```
smsconfig -l tsaif [OPTION]...
```

The `-l` option registers the TSAIF with the Storage Management Data Requester (SMDR).

TSAIF uses the `libtsaif.so` file. The library implements all the necessary service functions to backup an iFolder target.

10.7.3 iFolder Path Options

The top-level resource for an iFolder store is `/` (a single forward slash) and represents the root of the iFolder store. The paths for iFolder data objects are specified relative to the root of the iFolder store, using the syntax of the Network File System (NFS) namespace. iFolder paths are logical paths into an iFolder store and do not correspond directly to file system paths.

Parameter	Description
path	iFolder path such as the following: / /owner /owner/collection /owner/collection/relative-path
owner	owner-name.owner-id
owner-name	Collection owner name (Simias.Storage.Collection.Owner.Name)
owner-id	Collection owner ID (Simias.Storage.Collection.Owner.ID)
collection	collection-name.collection-id
collection-name	Collection name (Simias.Storage.Collection.Name)
collection-id	Collection ID (Simias.Storage.Collection.ID)
relative-path	Relative path such as file subdir subdir/relative-path
file	name of file on file system
subdir	name of subdirectory on file system

The \fIowner-id\fR and \fIcollection-id\fR are required because \fIowner-name\fR and \fIcollection-name\fR are not guaranteed to be unique. Using both the name and ID properties to identify Collections and Collection owners provides a “friendly” name along with the required unique identifier.

In many configurations, the names of Collections and Collection owners are unique. For example, if Domain members are obtained from an LDAP directory, it is not likely that two members would have the same username. Likewise, it would be unusual for an owner to give two iFolders the same name.

Although a backup application must pass both the name and ID to TSAIF, it might display only the name to the backup administrator to simplify the user interface. The ID would need to be displayed to the backup administrator only when two Collections, or two Collection owners, have the same name and the backup administrator wants to perform an operation on only one of them.

The name of the Collection or Collection owner can be obtained by stripping off the pattern

".????????-????-????-????-???????????"

from the first two components of the path TSAIF returns to the backup application.

10.7.4 iFolder Path Examples

The following examples show how to use iFolder paths to backup and restore data at different levels in the iFolder store.

`/`

Back up or restore the entire iFolder store.

`/myOwner.12345678-1234-1234-1234-123456789abc`

Back up or restore all Collections owned by `myOwner`.

`/myOwner.12345678-1234-1234-1234-123456789abc/myCollection.22345678-1234-1234-1234-123456789abc`

Back up or restore the Collection named `myCollection`. If the Collection is an iFolder, all files and directories in the iFolder will be backed up or restored along with the Simias data in the Collection store.

To backup and restore individual or group of files or subdirectories, use the backup engine-supported file filters. These file filters perform the include or exclude operations for selective backup and restore.

10.7.5 SMSConfig Options

The TSAIF command is not a standalone shell command; it is exercised using smsconfig. All configuration options are managed via smsconfig. The TSAIF can be configured during registration and the configuration persists until TSAIF is unloaded.

All long options (options that have the format `--optionname`) are case insensitive.

Option	Command
`--help`	Displays the options supported by the TSA.
`--ReadBufferSize`	This is the amount of data (Bytes) read from the Simias store and/or file system by a single read operation. This switch is based on the buffer sizes used by the applications. For example, if the application requests 32 KB of data for each read operation, set the buffer size to 32 KB to allow the TSA to service the application better. This value works well with Simias store and/or file system reads if set in multiples of 512 Bytes. The default value is 64 KB.
`--ReadThreadsPerJob`	This enables the TSA to read data ahead of the application request during backup. This switch is based on the number of processors in the system. This switch can also be used to influence the disk activity based on system configuration. The default value is 4.
`--ReadThreadAllocation`	This sets the maximum number of read threads that process a data set at a given time. This determines the percentage of ReadThreadsPerJob that should be allocated to a data set before proceeding to cache another data set. This enables the TSA to store a cache of data sets in a non sequential manner. This sets all read threads to completely process a data set before proceeding to another data set. The default value is 100.

Option	Command
`--ReadAheadThrottle`	This sets the maximum number of data sets that the TSA caches simultaneously. This prevents the TSA from caching parts of data sets and enables complete caching of data sets instead. Use this switch along with the ReadThreadAllocation switch. The default value is 2.
`--CacheMemoryThreshold`	This is used to specify the percentage of available server memory that the TSA can utilize to store cached data sets. This represents a maximum percentage value of available server memory that the TSA uses to store cached data sets. The default value is 10% of the total server memory.

10.7.6 TSAIF and SMSConfig Examples

The following examples show how to perform typical TSAIF configuration for SMS.

```
smsconfig -l tsaif --help
```

Displays the options supported by the TSAIF.

```
smsconfig -l tsaif --readthreadsperjob=8
```

Sets the number of read threads that the TSAIF starts per job to 8.

```
smsconfig -l tsaif --readbuffersize=32768 --cachememorythreshold=15
```

Sets the read buffer size to 32KB and the maximum amount of cache memory that the TSAIF should use to 15%.

10.7.7 NBackup Options

TSAIF supports the following typical `nbackup(1)` options:

Option	Command
`--exclude-file=pattern`	Excludes all files matching the name (owner, folder, or file) or pattern for back up or restore. Use this option multiple times to exclude more than one pattern.
`-F, --full-paths`	Stores the full paths for both directories and files in the created archive.
`-k, --keep-old-files`	Does not overwrite existing files while extracting files from the archive. Files are overwritten if this option is not present.
`-N, --after-date=date`	Backs up files newer than date.
`-P, --password=password`	The password to connect to the TSA. The password can be supplied at runtime.
`-R, --remote-target=hostname`	Connects to the file system TSA of the host specified in hostname for backup. Use with the `--target-type` option.

Option	Command
`--target-type=target_name`	Connects to the TSA specified by `target_name`, where the target name is Linux, NetWare, or iFolder.
`-T, --input-file=file`	Takes file containing fully qualified paths as input for creating archive. This file should contain one path per line.
`-U, --user=username`	Username to use while connecting to the TSA.

TSAIF does not support the following nbackup(1) options:

Option	Command
`-m, --move-to=path`	Extracts the archive to the given path. This does not work with TSAIF because iFolder puts files in a `SimiasFiles` directory.
`-r, --restore-to="backup_path new_path"`	Restores by replacing `backup_path` with `new_path`. This does not work with TSAIF because iFolder puts files in a `SimiasFiles` directory.

If TSAIF cannot back up or restore a file, it skips the file and returns a warning. This can occur for various reasons. When this occurs, `nbackup(1)` creates a file with a `.warn` extension that contains a list of each file that was skipped along with the date and time it was skipped and the error code that was returned.

If files are skipped, try to resolve the issue, then run the operation again.

If you are unable to identify why the file was skipped, try running the operation again when the server is less busy.

If files are skipped during a restore, and if relatively few files are skipped, try individually restoring each skipped file.

The back-up administrator should use root or root-equivalent system user for bothe back-up and restore.

10.7.8 TSAIF and NBackup Examples

The following examples show how to perform typical TSAIF backup and restore operations using NBackup.

Backup or Restore Task	Command
Full backup	`nbackup -cvf full.sidf -U root -P password --target-type=ifolder /`
Full restore	`nbackup -xvf full.sidf -U root -P password --target-type=ifolder`

Backup or Restore Task	Command
Owner backup	`nbackup -cvf owner.sidf -U root -P password --target-type=ifolder /owner`
Owner restore	`nbackup -xvf owner.sidf -U root -P password --target-type=ifolder`
Owner restore from the full backup file `full.sidf`	`nbackup -xvf full.sidf -U root -P password --target-type=ifolder --extract-dir=/owner`
iFolder backup	`nbackup -cvf ifolder.sidf -U root -P password --target-type=ifolder /owner/collection`
iFolder restore	`nbackup -xvf ifolder.sidf -U root -P password --target-type=ifolder` `nbackup -xvf owner.sidf -U root -P password --target-type=ifolder --extract-dir=/owner/collection` `nbackup -xvf full.sidf -U root -P password --target-type=ifolder --extract-dir=/owner/collection` If you are restoring an entire iFolder and want to ensure that it is in the exact state it was in when it was backed up, you should first delete the current iFolder from the server using a client or the iFolder 3 plug-in for iManager. Deleting the iFolder is not necessary to restore any or all of the files in the iFolder; the difference is in what metadata is given preference during the restore. If you do not delete the iFolder before restoring, the attributes of the iFolder, such as the owner, members, file type or size restrictions, remain as they are in the current version.
Subdirectory restore	`nbackup -xvf ifolder.sidf -U root -P password --target-type=ifolder --extract-dir=/owner/collection/relative-path` `nbackup -xvf owner.sidf -U root -P password --target-type=ifolder --extract-dir=/owner/collection/relative-path` `nbackup -xvf full.sidf -U root -P`

10.7.9 Additional Information

For more information about backup, see the following man pages on your iFolder enterprise server: `nbackup(1)`, `sms(7)`, `smdrd(8)`, `smsconfig(1)`, `tsaif.conf(5)`.

10.8 Recovering iFolder Data from File System Backup

You can recover the individual files and directories within an iFolder irrespective of its type. Use the normal file system restore procedure to restore them from a file system backup.

- Section 10.8.1, "Recovering a Regular iFolder," on page 128
- Section 10.8.2, "Recovering Files and Directories from an Encrypted iFolder," on page 129

10.8.1 Recovering a Regular iFolder

1. Collect information that uniquely identifies the file or directory to be recovered, such as a combination of the following:
   - iFolder name, such as `MyiFolder`
   - iFolder owner
   - iFolder member list
   - Relative path of the file or directory, such as `/MyDir1/MyDir2/myfile.txt`
   - Time stamp or approximate time of the version desired
   - Other files or directories in the iFolder
2. On the iFolder server, use your normal file system restore procedures to restore the iFolder directory from backup to a temporary location.

   For example, restore `/var/opt/novell/ifolder3/simias/SimiasFiles/62ba1844-6987-47fc-83ab-84bbd5d6130b/MyiFolder/MyDir1/MyDir2/MyFile` to `/tmp/MyFile`.

   IMPORTANT: Do not restore the file to its original location, or to any location under the Simias store directory.

   ---
3. Compress and send the entire folder (`MyiFolder`) to the user via e-mail or other data transfer channel to restore the recovered file to the target iFolder.

   Use one of the following methods:

   - **Via E-Mail:** Send the restored files or directory to the iFolder owner or to any member who has the Write right to the iFolder.

     For example, e-mail the recovered file, such as `/tmp/MyFile`, to the user. A user with the Write right can restore the file to an iFolder simply by copying it back to the appropriate location on an iFolder client. For example, copy `MyFile` to `/home/username/MyiFolder/MyDir1/MyDir2/MyFile`.
   - **Via Web Access:** In the Web Admin console, select the *iFolder* tab, search for the iFolder you want to manage, then click the link for the iFolder. On the iFolder page, click *Members*, then add yourself as a member of the target iFolder.

     In a Web browser, log in to iFolder 3.7 Web Access, browse to locate and open the iFolder, then navigate to the directory where the files were originally located. Upload the file to the iFolder. For example, upload `MyFile` to `MyiFolder/MyDir1/MyDir2/MyFile`. If necessary, create the directory you want to restore, then upload the files in it.

10.8.2 Recovering Files and Directories from an Encrypted iFolder

1. Collect information that uniquely identifies the file or directory to be recovered, such as a combination of the following:
   - iFolder name, such as MyiFolder
   - iFolder owner
   - iFolder member list
   - Relative path of the file or directory, such as `/MyDir1/MyDir2/myfile.txt`
   - Time stamp or approximate time of the version desired
   - Other files or directories in the iFolder
2. On the iFolder server, use your normal file system restore procedures to restore the iFolder directory from backup to a temporary location.

   For example, restore `/var/opt/novell/ifolder3/simias/SimiasFiles/62ba1844-6987-47fc-83ab-84bbd5d6130b/MyiFolder/MyDir1/MyDir2/MyFile` to `/tmp/MyFile`.

   or

   For example, restore `/var/simias/data/simias/SimiasFiles/62ba1844-6987-47fc-83ab-84bbd5d6130b/EnciFolder/Dir1`to `/tmp/UseriFolder/Dir1`.

   IMPORTANT: Do not restore the file to its original location, or to any location under the Simias store directory.
3. Use any of the following methods to restore the recovered file to the target iFolder:

   Only an iFolder user can create iFolder database on the server. To upload the recovered files and directories, user need to create a database (iFolder store) on the iFolder server. Once a database is created, the user can upload the files or directories to it.

   The iFolder application encrypts the restored encrypted files or directories again before they are uploaded to the server. In effect, the restored files and directories are double-encrypted on the server. Therefore, you need to get the path to the location where the double-encrypted files and directories are stored on the server, and overwrite that with the initial restored data from the server-side.

   - Transferring actual files or directories

     For details, see “Transferring Files or Directories” on page 129.
   - Using dummy files or directories

     For details, see “Using Dummy Files or Directories” on page 130.

Transferring Files or Directories

1. Send the files or directories via e-mail or other file transfer service mechanism, such as FTP.
2. Ensure that the iFolder owner copies the files or directories to the iFolder in his or her workstation, then synchronizes the iFolder.

   If there are only a few files, the user can use Web Access to upload these files to the iFolder server.

3 Get the path to the list of files or directories uploaded to the iFolder server.

4 On the server, go to the particular iFolder store location and overwrite the double-encrypted files or directories uploaded by the user.

5 Set the permissions for the files or directories to the apache user or the apache group.

for example `wwwrun:www`.

6 Have the iFolder owner synchronizes the iFolder again and test that the data is restored.

Using Dummy Files or Directories

Dummy files or directories are created in the iFolder store on the server as a place holder for the actual restored files or directories.

1 Send the files or directories via e-mail or other file transfer service mechanism.

2 Have the iFolder owner create dummy files or directories in the iFolder on his or her workstation, then synchronizes the iFolder.

If the files are less in number, use the Web Access to upload these dummy files to the iFolder server.

3 Get the path to the list of dummy files or directories uploaded to the iFolder server.

4 On the server, go to the particular iFolder store location and overwrite the dummy files or directories with the restored files or directories.

5 Set the permissions for the files or directories to the apache user or the apache group.

for example `wwwrun:www`.

6 Have the iFolder owner synchronizes the iFolder again and test the data is restored.

10.9 Moving iFolder Data from One iFolder Server to Another

You can relocate iFolder services and the iFolder data in the Simias Store from one iFolder server to another, such as if you want to migrate to a more powerful system.

1 Notify users that the iFolder server is going down.

2 Stop iFolder services. As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 stop
```

3 Use your normal file system backup procedures to back up the following data:

- Simias store directory

  The default location is `/var/simias/data/simias`.

- Apache config files for iFolder

  The default location is `/etc/apache2/conf.d` and contain the following files:

  - `simias.conf`
  - `ifolder_admin.conf` (if available)
  - `ifolder_web.conf` (if available)

4 Install and configure iFolder on the target server, using the same configuration information and location as on the old computer, including the IP address.

5 In a terminal console on the target server, run `ifolder-admin-setup` and `ifolder-web-setup` to generate public keys in the server.

6 On the target server, use your normal file system restore procedures to restore the following data to its original locations:

- Simias store directory

  The default location is `/var/simias/data/simias`.

7 On the target server, copy the apache config files for iFolder to `/etc/apache2/conf.d` if it is not already available.

8 Start iFolder services. As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 start
```

9 Notify users that the server is back up.

10 Disconnect the original server from the network, then uninstall iFolder to remove iFolder software and the iFolder data. Make sure to reconfigure its IP address before using it on the network again.

NOTE: This procedure is not applicable for the iFolder 2.*x* servers.

10.10 Changing The IP Address For iFolder Services

When you reconfigure the iFolder services, you must ensure that the current data Store path is not changed. Changing the IP address of the Novell iFolder service also needs the Apache service to be restarted. Follow the steps given below to change the IP address through CLI.

1 Open a terminal console and enter `rcapache2 stop`.

2 Run `/usr/bin/simias-server-setup`.

3 Specify the `Store path`.

The default Store path is `/var/simias/data/simias`.

4 Specify the new Private IP address and Public IP address.

IMPORTANT: Ensure that the users are notified about the new IP address for connection.

---

5 For the rest of the options, accept the default values because these values are from the existing configuration.

6 Start Apache service by executing `rcapache2 start`.

10.11 Securing Enterprise Server Communications

This section describes how to configure SSL traffic between the iFolder enterprise server and other components. HTTPS (SSL) encrypts information transmitted over shared IP networks and the Internet. It helps protect your sensitive information from data interception or tampering.

- Section 10.11.1, “Using SSL for Secure Communications,” on page 132

- Section 10.11.2, “Configuring the SSL Cipher Suites for the Apache Server,” on page 132
- Section 10.11.3, “Configuring the Enterprise Server for SSL Communications with the LDAP Server,” on page 133
- Section 10.11.4, “Configuring the Enterprise Server for SSL Communications with the iFolder Client,” on page 133
- Section 10.11.5, “Configuring the Enterprise Server for SSL Communications with the Web Access Server and Web Admin Server,” on page 134
- Section 10.11.6, “Configuring an SSL Certificate for the Enterprise Server,” on page 134

For information about configuring SSL traffic for the iFolder Web access server, see Section 14.5, “Securing Web Access Server Communications,” on page 171.

10.11.1 Using SSL for Secure Communications

In a default deployment, the iFolder 3 enterprise server uses SSL 3.0 for secure communications between components as shown in the following table.

iFolder Component	Web Access Server	LDAP Server	Client	Web Browser
Enterprise Server	Yes	Yes	Yes	yes

iFolder uses the SSL 3.0 protocol instead of SSL 2.0 because it provides authentication, encryption, integrity, and non-repudiation services for network communications. During the SSL handshake, the server negotiates the cipher suite to use, establishes and shares a session key between client and server, authenticates the server to the user, and authenticates the user to the server.

The key exchange method defines how the shared secret symmetric cryptography key used for application data transfer will be agreed upon by client and server. SSL 2.0 uses only RSA key exchange, while SSL 3.0 supports a choice of key exchange algorithms, including the RC4 and RSA key exchange, when certificates are used, and Diffie-Hellman key exchange for exchanging keys without certificates and without prior communication between client and server. SSL 3.0 also supports certificate chains, which allows certificate messages to contain multiple certificates and support certificate hierarchies.

10.11.2 Configuring the SSL Cipher Suites for the Apache Server

To restrict connections to SSL 3.0 and to ensure strong encryption, we strongly recommend the following configuration for the Apache server’s SSL cipher suite settings.

- Use only High and Medium security cipher suites, such as RC4 and RSA.
- Remove from consideration any ciphers that do not authenticate, such as Anonymous Diffie-Hellman (ADH) ciphers.
- Use SSL 3.0, and disable SSL 2.0.
- Disable the Low, Export, and Null cipher suites.

To set these parameters, modify the aliases in the OpenSSL* ciphers command (the SSLCipherSuite directive) in the `/etc/apache2/vhosts.d/vhost-ssl.conf` file.

1. Stop the Apache server: At a terminal console, enter

   ```
   /etc/init.d/apache2 stop
   ```

2. Open the `/etc/httpd/conf/httpd.conf` file in a text editor, then locate the SSLCipherSuite directive in the Virtual Hosts section:

   ```
   SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:+LOW:+SSLv2:+EXP:+eNULL
   ```

3. Modify the plus (+) to a minus (−) in front of the ciphers you want to disable and make sure there is a `!` (not) before ADH:

   ```
   SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:-LOW:-SSLv2:-EXP:-eNULL
   ```

4. Save your changes.

5. Start the Apache server: At a terminal console, enter

   ```
   /etc/init.d/apache2 start
   ```

For more information about configuring strong SSL/TLS security solutions, see SSL/TLS Strong Encryption: How-To (http://httpd.apache.org/docs/2.0/ssl/ssl_howto.html) on the Apache.org Web site.

10.11.3 Configuring the Enterprise Server for SSL Communications with the LDAP Server

By default, the iFolder enterprise server is configured to communicate via SSL with the LDAP Server. For most deployments, this setting should not be changed. If the LDAP server is on the same machine as the enterprise server, communications do not need to be secured with SSL.

1. Log in to Web Admin.
2. Click *System* in the Web Admin console to open the System page.
3. Select *Enable SSL* to enable LDAP SSL communication.

10.11.4 Configuring the Enterprise Server for SSL Communications with the iFolder Client

By default, the iFolder enterprise server is configured to require SSL. If set to use SSL, all iFolder client communication to the server is encrypted using the SSL protocol. In most deployments, this setting should not be changed because iFolder uses HTTP BASIC for authentication, which means passwords are sent to the server in the clear. Without SSL encryption, the iFolder data is also sent in the clear.

1. Stop the Apache server: At a terminal console, enter

   ```
   /etc/init.d/apache2 stop
   ```

2. Go to `/usr/bin` and run `simias-server-setup`
3. Select `Yes` for the `Enable SSL` option.
4. Start Apache: At a terminal console, enter

   ```
   /etc/init.d/apache2 start
   ```

10.11.5 Configuring the Enterprise Server for SSL Communications with the Web Access Server and Web Admin Server

By default, the Web Browser is configured to communicate via SSL with the iFolder Web Access server/ Web Admin server. The Web Access server/ Web Admin server communicate via SSL channels with the iFolder Enterprise Server. If the iFolder deployment is in a larger scale and the Web Access server or Web Admin server are on different machine than the iFolder enterprise server, then SSL enables you to increase the security between the two servers.

Communications between the two servers are governed by the Web Access server's or Web Admin server's settings for SSL traffic. For information, see Section 14.5.3, "Configuring the Web Access Server for SSL Communications with the Enterprise Server," on page 172.

10.11.6 Configuring an SSL Certificate for the Enterprise Server

For information, see "Managing SSL Certificates for Apache" on page 205.

Managing iFolder Services via Web Admin

11

This section discusses how to manage services for the Novell® iFolder® 3.7 enterprise server by using iFolder Web Admin Console.

11.1 Accessing the Novell iFolder Web Admin

Use the Novell iFolder Web Admin to manage the iFolder system, user accounts, and iFolders.

1. Open a Web browser to the following URL:

   `https://svrname.example.com/admin`

   Replace *`svrname.example.com`* with the actual DNS name or IP address (such as `192.168.1.1`) of the server where iFolder is running.

   IMPORTANT: The URL is case sensitive.

2. If prompted to verify the certificates, review the certificate information, then click *Yes* if it is valid.
3. On the iFolder Web Admin login page, enter the username and password in the *Username* and *Password* field and click the *Log In* button.

11.2 Connecting to the iFolder Server

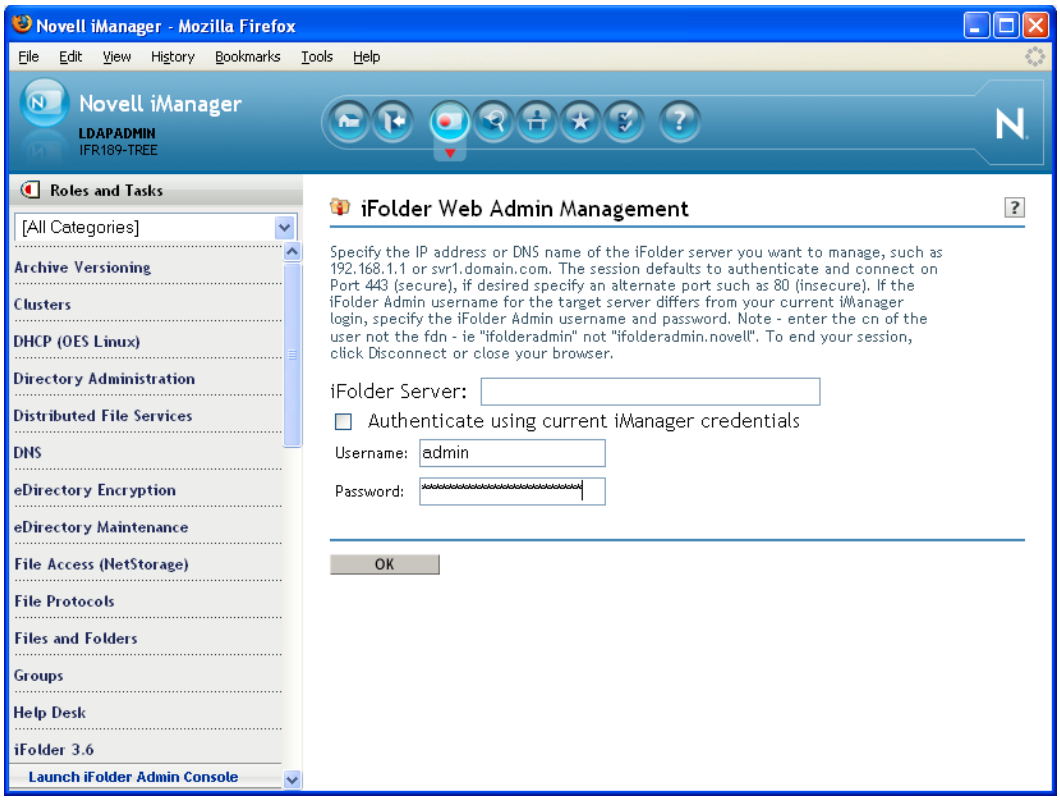
Although you are logged in to iManager, you must provide the iFolder Administrator credentials to authenticate to the specific iFolder servers you want to manage. The iFolder Admin username can be the same LDAP identity as your iManager Admin username, depending on how you configure your iFolder system. Log in with the iFolder Admin username and password for the target server.

NOTE: You cannot manage Novell iFolder 2.*x* servers with the Novell iFolder 3 Web Admin.

To connect to the iFolder server you want manage:

1. If you are not logged in to iManager, log in to iManager in a Web browser.

   For information, see Section 11.1, "Accessing the Novell iFolder Web Admin," on page 135.
2. In *Roles and Tasks*, expand the *iFolder 3.7* role and click *Launch iFolder Admin Console* to launch iFolder Web Admin Management page.



IMPORTANT: Web Admin console does not appear unless you disable the pop up blocker.

3 Specify the DNS name or IP address of the iFolder enterprise server you want to manager.

For example, type `svr1.example.com or 192.168.1.1`.

4 Do one of the following:

- If you logged in to iManager with the same username as the iFolder Admin user of the target server, select *Authenticate Using Current iManager Credentials*.
- If you logged in to iManager with a different username than the iFolder Admin user of the target server, deselect *Authenticate Using Current iManager Credentials,* then specify the iFolder Admin username and password.

5 Click *OK* to connect to the iFolder server.

6 (Conditional) If prompted to accept the server's certificate, review the certificate information, then click *OK* to accept it if it is valid.

Based on the above selection, you are directed to the Web Admin users page.

7 Continue with Section 11.3, "Managing Web Admin Console," on page 137.

When you are done managing the iFolder server, click *logout* (located in the upper right corner) or close your Web browser to disconnect from the iFolder server you are managing. If you do not log out, the connection to the iFolder enterprise server remains open until your session times out, which can be a security risk.

11.3 Managing Web Admin Console

With Web Admin console you can manage iFolder users, LDAPGroups, the iFolder system, servers, iFolders, and the iFolder statistics report. In Web Admin console by default the *Users* page opens to the *Users* tab.

Users Page

NOTE: The term iFolder users refers to both individual users and LDAPGroups.

1. The *Users* tab displays the user's type (Admin user or user), username, user's full name (if available), the server to which the user is provisioned, and the user status (Enabled or Disabled).
2. Use the search functionality to locate the user whose iFolder account you want to manage.
3. Click the user's name link to open the User Details page.

   The User page opens to the Users tab, which displays the user details, iFolders owned, and shared and policy settings for this particular user account. For more information, see Chapter 12, "Managing iFolder Users," on page 153.

Accessing the iFolders Page

1. In the Web Admin console, click the *iFolders* tab.

   iFolders tab displays the iFolder type (Admin user or user), iFolder name, iFolder owner, members, the date the iFolder was last modified.
2. Use the search functionality to locate the iFolder you want to manage.
3. Click the iFolder's link to open the iFolder Details page to the iFolder tab.

   The iFolder Details page displays the iFolder details, list of members who own or share the iFolders and policy settings for this particular iFolder.

Accessing Systems Page

1. In the Web Admin console, click the *Systems* tab.

   The Systems page displays the system settings and list of iFolder Administrators.
2. Locate the iFolder Administrator you want to manage. You can add or delete iFolder Administrator.

   You can also manage the policy settings for the Admin user.
3. Click the Admin user's Name link to open the User Details page.

   The User Details page opens to the Users tab, which displays the user details, iFolders owned, and shared and policy settings for this particular user account. For more information, see Section 11.4.1, "Viewing and Modifying iFolder System Information," on page 138.

Accessing Servers Page

1. In the Web Admin console, click the *Servers* tab.
2. Use the search functionality to locate the Server you want to manage.
3. Click the Server name link to open the Servers Details page.

The Server Details page opens to the Servers tab, which displays server details, server status, server logs, and server reports, and to set the log level.

Accessing Reports Page

1 In the Web Admin console, click *Reports* tab.

2 Configure reporting according to the frequency and time schedule you want, then generate the output as desired.

11.4 Managing the iFolder System

This section discuss how to manage the iFolder 3.7 services for a selected server.

11.4.1 Viewing and Modifying iFolder System Information

1 In Web Admin Console, System page opens to the System tab to view and modify the following information:

Table 11-1 *System Information*

Parameter	Description
System Name	The name assigned to the iFolder domain. To edit the name of the iFolder domain, enter the new name and click *Save*. To cancel the changes made, click *Cancel*.
Description	A short description about the iFolder Domain. To edit the system description, enter the new description and click Save. To cancel the changes made, click *Cancel*.
Enable SSL	Select the check box to enable the SSL communication among the iFolder Servers, iFolder client, iFolder Web Access console and iFolder Web Admin console.
Total Users (view only)	Reports the total number of users in the iFolder domain.
Total iFolders (view only)	Reports total number of iFolders that belongs to the iFolder domain.

11.4.2 Viewing Reprovisioning Status

You can move users across different servers. Click *Reprovision Status* to view the reprovisioning status for each user. You can view the following information:

Table 11-2 Reprovisioning Status

Parameter	Description
Type	 indicates a provisioned user.  indicates a unprovisioned user.
User Name	The username assigned to the user account, such as jsmith or john.smith@example.com.
Current Home	Shows the Home server assigned to a provisioned user.
New Home	Shows the new server to provision for the user.
Completed	Shows the reprovisioning status as a percentage.
Reprovision State	Shows any of the following reprovisioning states: ◆ Initializing ◆ Initialized ◆ Moving iFolder ◆ Resetting Home ◆ Finalizing

11.4.3 Configuring iFolder Administrators

This section discusses the following:

- "Understanding the iFolder Admin User" on page 139
- "Viewing the Admin User Details" on page 140
- "Granting iFolder Admin Right to a User" on page 140
- "Removing the iFolder Admin Right for a User" on page 140

Understanding the iFolder Admin User

The iFolder Admin user is the primary administrator of the iFolder enterprise server. Whenever iFolders are orphaned, ownership is transferred to the iFolder Admin user for re-assignment to another user or for deletion.

The iFolder Admin user must be provisioned to enable the iFolder Admin to perform management tasks. iFolder tracks this user by the LDAP object GUID, allowing it to belong to any LDAP context in the tree, even those that are not identified as search contexts. The user's movement can be tracked anywhere in the tree because it is known by the GUID, not the user DN.

The iFolder Admin right can be assigned to other users so that they can also manage iFolder services for the selected server. Use the User page in the Web Admin console to add or remove the iFolder Admin right for users. Only users who are in one of the contexts specified in the LDAP Search DN are eligible to be equivalent to the iFolder Admin user.

IMPORTANT: You cannot assign the Admin user right to an LDAPGroup

If you assign the iFolder Admin right to other users, those users are governed by the iFolder user list and Search DN relationship. The user is removed from the user list and stripped of the iFolder Admin right if you delete the user, remove the user's context from the list of Search DNs, or move the user to a context that is not in the Search DNs.

Viewing the Admin User Details

The System page displays the following iFolder Admin details for the iFolder domain.

Table 11-3 *Admin User Details*

Parameter	Description
Type	Displays the Admin user icon.
User Name	The username assigned to the Admin user account, such as jsmith or john.smith@example.com.
Full Name	The first and last name of the Admin user account.

To view or edit Admin user details, click the Admin user link to open the User Details page. The User Details page displays the iFolders owned or shared by the user. Click the *All* tab to list all the iFolders, both owned and shared. To view the iFolder owned by the user, click the *Owned* tab. *Shared* tab lists all the shared iFolders for this particular user account. You can also change the policy settings for the selected Admin user.

Granting iFolder Admin Right to a User

You add the iFolder Admin right to one user at a time, but you can assign it to multiple users.

Repeat the following process for each user who you want to become an iFolder Admin user:

1. In the System page, click *Add* to open a list of iFolder Admin users.
2. Search for the user you want to grant Admin rights.
3. Select the *User* check box next to the user, then click *Add*.

   The username is added in the list of users with the iFolder Admin right. You can assign the iFolder Admin right to multiple users.

Removing the iFolder Admin Right for a User

You can delete the iFolder Admin right from all users in the list except the original iFolder Admin user.

IMPORTANT: You cannot delete the Admin user configured during simias server set-up.

If you delete the iFolder Admin right from the username you used to log in to the server, you are immediately disconnected. You must log in to the iFolder server under a different username with the iFolder Admin right to continue managing the server.

You remove the iFolder Admin right for one user at a time. Repeat the following process for each user who you want to remove as an iFolder Admin user:

1. In the *System* page, locate the Admin user you want to delete.
2. Click *Delete* to remove iFolder Admin right from the selected user.

11.4.4 Configuring System Policies

Use the System Policies page to manage system-wide policies.

Viewing the Current System Policies

The following table lists the system policies you can manage for any given iFolder System. Click *Save* to apply the modifications.

Table 11-4 *System Policies*

Parameter	Description
No of iFolders per users	Specifies the maximum number of iFolder allowed per user. After Applying this policy, each user is limited to own a certain number of iFolders. The users who exceed their limit receive an error message about the policy violation. If the limit is zero, users cannot create any iFolders. The policy setting does not affect the number of iFolder a user already owns. If the number of iFolders owned by a user already exceeds the limit that you set, he or she can still own those iFolders
Disk Quotas	The total combined administrative size (in MB) of space allocated for use by all iFolder users on this system. The administrative total can exceed the actual physical size of the system disks. Space is assigned as needed; it is not reserved.
File Size	Specifies the maximum file size (in MB) that iFolder system is allowed to synchronize.
Excluded Files	Specifies a list of file types to include or to exclude from synchronization for all iFolders on the system. For example, to block all `.mp3` files you need to specify `*.mp3`.
Synchronization	If this option is enabled, specifies the minimum interval (in minutes) for synchronizing iFolder data for the system. Larger values are more restrictive. If the option is disabled, the value is No Limit. The interval timer is reset to the Synchronization Interval value at the end of a synchronization session. When the time elapses, another session is started.
Encryption	Specifies the encryption policy for the iFolder system. System-wide settings supersede user policies.
Sharing	Specifies the sharing policy for the iFolder system. System-wide settings supersede user policies.

Modifying iFolder System Policies

1 Select the policy, specify values for the policy, then click *Save* to apply it:

Click *Cancel* to cancel the changes.

Parameter	Description
No of iFolders per users	Specifies the maximum number of iFolder allowed per user. After Applying this policy, each user is limited to own a certain number of iFolders. The users who exceed their limit receive an error message about the policy violation. If the limit is zero, users cannot create any iFolders. The policy setting does not affect the number of iFolder a user already owns. If the number of iFolders owned by a user already exceeds the limit that you set, he or she can still own those iFolders
Disk Quota	Select the check box to enable a system-wide quota, then specify the total space quota (in MB) for the current iFolder domain. Deselect the check box to disable a system-wide quota. If you enable a system-wide quota that is less than a user's current total space for iFolder data, the user's data stops synchronizing until the data is decreased below the limit or until the quota is increased to a value that is larger than the user's total space consumed. Enabling or modifying the system-wide quota does not affect existing individual user quotas. Any existing user quota always overrides system-wide quota, whether the user quota is lower or higher than the system-wide quota. Default value: 100 MB
File Size	Deselect the check box to disable the Maximum File Size Limit policy. If the policy is disabled, the value is reported as No Limit. Select the check box to enable the Maximum File Size Limit policy, then specify the maximum allowed file size in MB. Consider the following demands on your system to determine an appropriate file size limit for iFolders in your environment: ◆ Intended use ◆ How often the largest files are modified ◆ How the applications that use the largest files actually save changes to the file (whole file or deltas) ◆ How frequently the files are synchronized by each member ◆ How many users share an iFolder ◆ Whether users access iFolder on the local network or across WAN or Internet connections ◆ The average and peak available bandwidth Even if you set a very large value as a file size limit and if there is no quota to limit file sizes, the practical limit is governed by the file system on the user's computer. For example, FAT32 volumes have a maximum file size of 4 GB minus 1 byte. Default value: Disabled, No Limit

Parameter	Description
Excluded Files	Specify whether to restrict file types that are synchronized by exclusion filters. Type a file extension, then click *Add* to add it to the list. You can only add or delete file extensions; subsequent editing is not allowed on the entries.
Synchronization	To enable a policy, select the check box, then specify the minimum synchronization interval in minutes. For example, a practical value is 600 seconds (10 minutes). Larger values are more restrictive. To disable the policy, deselect the check box. The value is reported as No Limit. Default value: Disabled The effective minimum synchronization interval is always the largest value of the following settings: ◆ The system policy (default of zero), unless there is a user policy set. If a user policy is set, the user policy overrides the system policy, whether the user policy is larger or smaller in value. ◆ The local machine policy, or the setting on the client machine synchronizing with the server. ◆ The iFolder (collection) policy.
Encryption	Select *On* to enable the encryption feature for the iFolder system. This permits a user to set an encryption policy for his or her iFolders. Select *Enforced* to enable the encryption feature for all users. When it is set to Enforced, a user cannot change the encryption settings for his or her iFolders.
Sharing	**On:** By default, iFolder sharing is enabled. Select *On* to disable sharing for the iFolder system. After applying this policy, users of this iFolder system cannot share his or her iFolders with others. However, you can change the policy settings at the user level for any selected user. **Enforce:** You can enforce both enable sharing and disable sharing. When you enforce disable sharing, policy settings for sharing at iFolder and User level are automatically disabled and you are not allowed to change the settings. However, you are allowed to set the policy for *Revoke* option. **Revoke:** Select *Revoke* to remove the shared members of all the iFolders under the iFolder system.

11.5 Managing iFolder Servers

This section describes how to manage a iFolder server for a multi-server setup.

IMPORTANT: You cannot change the settings of any server from the Web Admin page of a different server.

11.5.1 Searching For Servers

The search functionality help you locate the server you want to manage.

1 In Web Admin, ensure that you are on Servers page.

If you are not, click the Servers tab to open the Servers page.

2 Select a filter criterion (Contains, Begins With, Ends With, Equals).

3 Use one or more of the following search methods, then click Search:

- Type the name of the server in the Search Servers field.
- Type one or more letters in the Search Servers field.
- Type an asterisk (*) in the Search Servers field to return a list of all Servers on the system.
- Leave the Search Servers field empty to return a list of all Servers on the system.

Do not click anywhere in the page until the page completely refreshes, then you can browse, sort, or manage the servers listed in the Search Results report.

Scroll up and down to browse the search results and locate the Server you want to manage.

Accessing and Viewing the Server Details Page

Follow the steps given below:

1 On the Server page, use the search functionality to locate the server.

2 Click the Server's name link to open the Server Details page to the Servers page.

3 View the following server informations:

Parameter	Description
Name	The name assigned to the iFolder enterprise server.
Type	The host portion of the DNS name of the server. For example, in *if3svr.example.com*, *if3svr* is the host name.
DNS Name	The DNS name of the iFolder Enterprise server. For example: *192.168.1.1* or *svr1.domain.com*
Public URL	The public IP address corresponding to the iFolder server. To change the IP address, edit the address given and click *Save* to save the changes you have done.
Private URL	The private URL corresponding to the iFolder server. This allows communication between the servers within the iFolder domain. The private URL and the public URL can be the same. To change the IP address, edit the address given and click *Save* to save the changes you have done.
Master URL (Displayed only for Slave servers)	The IP address corresponding to the iFolder server. Using this address, slave server communicate with the master server in the iFolder domain. To change the IP address, edit the address given and click *Save* to save the changes you have done.

4 Select the report from the drop down list to view the detailed statistics about the user activities.

This option is disabled if the Enable Reporting option on the Report page is left unselected.

5 View the following server log information:

Parameter	Description
System	Select System to view the `simias.log` that tracks all the system activities.
User Access	Select User Access to view `simias.access.log` that tracks the user activities on the selected server.

6 Set the log level information for the *System* or for each *User access*.

6a Select the option from the drop-down list for which you want to set the log level information.

System is selected by default.

6b Click View to view the log level information.

Either you can save it to the machine or open with a desired file format.

Parameter	Description
All	Shows all the server activities that help Novell support resolve the issues.
Debug	Shows the server activities that help Novell support debug the issues. .
Info	Shows the basic server activities that help Novell support resolve the issues. This option is selected by default.
Warn	Shows all the potential system errors.
Error	Shows all the system errors that halt system functioning.
Fatal	Shows the fatal system errors.
Off	Logging is turned off.

7 Set the LDAP Details:

7a You can edit the following LDAP related information. Click *Save* to modify the entries. Click *Cancel* to cancel your modifications.

Parameter	Description
Up since	Shows the date and time of the very first synchronization.
Status	Reports the current LDAP sync engine status.
Cycles	Shows the number of times the synchronization take place.
Identity Sync	Updates iFolder users in the selected iFolder domain from the LDAP information at the interval you select. Specify the time interval in minutes in the Identity Sync field and click *Sync Now* to start synchronizing iFolder users with the LDAP users.

Parameter	Description
Delete member grace interval	Specifies the time interval for the iFolder to remove the user information completely from the iFolder server after the user is deleted from LDAP. For example, if you specify 10 minutes as *Delete member grace interval*, iFolder removes all the user information 10 minutes after the deletion of the user from the LDAP or after the change in LDAP context. However, you can recover all the user data within the specified period. Whenever an LDAP context is changed or some user are deleted from the LDAP context, irrespective of the current grace interval period, the first LDAP sync disables the users. The first LDAP sync can be manual by using the *Sync Now* button, or be scheduled. After the grace interval period, any scheduled or manual LDAP sync removes all the users from iFolder domain and all the user iFolders become orphans. Disabled users are never deleted automatically after the grace interval period. The users continue to exist in a disabled state even after the grace interval period until the next LDAP sync cycle. If the users are again created in the LDAP context or the removed context is configured again within the grace interval period, the user becomes active with all the iFolders.
LDAP Context	Lists all the LDAP contexts. iFolder searches users only from the listed LDAP contexts.

7b You can edit the following LDAP related information. Click *Edit* to open a new page where you can modify the entries. You must be authenticated to the LDAP server before you can edit the entries.

Parameter	Description
LDAP Server	Shows LDAP Server address.
LDAP SSL	Allow you to enable or disable LDAP SSL connection.
Proxy User	The iFolder Proxy user is the identity used to access the LDAP server to retrieve lists of users in the specified containers, groups, or users that are defined in the iFolder LDAP settings. This identity must have the Read right to the LDAP directory. The iFolder Proxy user is created during the iFolder install.
Proxy User Password	The password is used to authenticate the iFolder Proxy user to the LDAP server when iFolder synchronizes users with the LDAP server.
LDAP Context	Lists all the LDAP contexts. iFolder searches users only from the listed LDAP contexts.

7c Authenticate to the LDAP server and modify the LDAP Details, then click *OK* to apply your changes:

Parameter	Description
LDAP Admin DN	Specify the fully distinguished name of the LDAP Admin. This might be the same or different as your iFolder Admin.
LDAP Admin Password	The password is used to authenticate the LDAP Admin user to the LDAP server.Click *OK* to update the password stored in the LDAP settings.
LDAP Server	Specify the DNS name or IP address of the LDAP server. This might be the same or a different server as any of the iFolder servers in the iFolder system.
LDAP SSL	Select Yes to enable LDAP SSL. If SSL is enabled on the server, the value is *Yes*; otherwise, the value is *No*.
Proxy User	The iFolder Proxy user is an existing proxy user identity used to access the LDAP server with Read access to retrieve a list of authorized users. The proxy user is automatically created during the iFolder enterprise server configuration. The username is auto-generated to be unique on the system. Make sure that the user account assigned as the iFolder Proxy user is different than the one used for the iFolder Admin user and other system users. Separating the proxy user from the administrator provides privilege separation and is also important because the proxy user password is stored in the file system on the iFolder server. Specify the fully distinguished name of an existing user that you want to make the iFolder Proxy user. This identity must have the Read right to the LDAP directory. For example: cn=iFolderProxy,o=acme Make sure to also enter the new user's password in the Proxy Password field. After you modify the Proxy user, you might want to immediately synchronize the LDAP user lists, using the new iFolder proxy information; otherwise, it is not tested until the next scheduled synchronization of the user list. Use the *Sync Now* option under LDAP Details on the Server Details page to synchronize the iFolder user list on demand and verify your new Proxy user settings.
Proxy User Password	To modify the iFolder Proxy User password, you can directly use this interface to modify the password.This password must match the password stored in the iFolder Proxy user’s eDirectoryTM object.Specify the password twice, then click *OK* to update the password stored in the LDAP settings.

Parameter	Description
LDAP Context	Specify or edit the LDAP containers, groups, or users where iFolder searches for a list of authorized users to provision for iFolder servers on this enterprise server. LDAP Contexts are entered in LDAP format. For example: cn=group,o=acme#cn=dbgroup,o=acme# To edit a value, select it, make your changes, then click OK to apply the changes. During LDAP synchronization, the iFolder server queries the LDAP server to retrieve a list of users in the DNs (as specified in the LDAP Contexts field) at the specified synchronization interval. The usernames in the iFolder domain are matched against this official LDAP list. Any new user in the specified LDAP contexts are added to the iFolder domain. If a user is no longer in the specified LDAP contexts, the username is removed from the domain, any iFolders the user owns are orphaned and reassigned to the iFolder Admin user, and the user is removed as a member of other iFolders. The iFolder Admin User is provisioned for servers during the install. It is tracked by its GUID, so it is available even if you do not specify a container, group, or user, or if you specify Search DNs that do not contain the Folder Admin user. This identity must be provisioned to enable the iFolder Admin to perform management tasks.

8 Configure the Data store.

Data Store represents the iFolder storage that can span across multiple volumes (mount points) in a given server. By default every iFolder server has a default store which cannot be disabled. With web interface, you can add and configure multiple Data Store across which iFolder data is load balanced. When the user uploads an iFolder, it check for the Data Store with maximum free space, and stores the iFolder data in that particular Data Store thereby balancing the load. You can add as many Data Store as you want. Having multiple Data Store thus makes it possible to scale the data storage capacity in a large deployment to meet the enterprise-level requirements.

You can view the following data store information:

Parameter	Description
Name	Shows the unique name you have specified for the Data Store.
Full Path	Shows the path to the Data Store, where the volume is mounted on. This is the data path that you have specified while adding the data store using the web interface.
Free Space	Shows the space available in the volume.
Enabled	Shows the given Data Store is enabled or not. Default Data Store cannot be disabled.

Deleting a Data Store: You can delete a Data Store if no iFolder is created on it. To delete a Data Store, select the check box next to that Data Store and click *Delete*.

Enable or Disable Data Store: Select the Data Store you want to disable or enable and click Disable or Enable respectively. When the user uploads an iFolder, disabled Data Stores are always skipped while checking for the maximum free space availability for storing the iFolder data.

To add a new Data Store,

8a Specify the following information:

Name: Assign a unique name to the Data Store, such as ifolder-store.

Path: Enter the path where the new volume is mounted. If it is a remote volume (CIFS, NFS, AFP), then ensure that the volume is mounted on every restart for proper functioning and load balancing. You need to check the permissions of the path specified, and change the ownership to Apache-user (wwwrun). Unless you have set the permission for the directory on to which the volume is mounted, you cannot create or sync iFolders on this volume.

Accessing and Viewing the Report Page

Use this interface to enable reporting and generate reports for iFolder and Directories.

It generate reports based on the frequency you select.

1. Select Enable Reporting to enable reporting.
2. Select the frequency from the given options (Daily, Weekly, Monthly).
3. Select the time when you want to generate the report.
4. Select the output option from the given options (Report iFolder, Report Directories)
5. Select the format for generating the report.
6. Click *Save* to save the settings.

   Click *Cancel* to cancel the settings.

11.6 Securing Web Admin Server Communications

This section describes how to configure SSL traffic between the iFolder Web Admin server and other components. HTTPS (SSL) encrypts information transmitted over shared IP networks and the Internet. It helps protect your sensitive information from data interception or tampering.

11.6.1 Using SSL for Secure Communications

In a default deployment, the iFolder 3.7 Web Admin server uses SSL 3.0 for secure communications between components as shown in the following table.

Table 11-5 *SSL 3.0 for Secure Communication*

iFolder Component	Enterprise Server	LDAP Server	Client	Web Browser
Web Admin Server	Yes	Yes	Yes	Yes

For more information about SSL 3.0, see Section 10.11.1, “Using SSL for Secure Communications,” on page 132.

11.6.2 Configuring the SSL Cipher Suites for the Apache Server

To restrict connections to SSL 3.0 and to ensure strong encryption, we strongly recommend the following configuration for the Apache server’s SSL cipher suite settings.

- Use only High and Medium security cipher suites, such as RC4 and RSA.
- Remove from consideration any ciphers that do not authenticate, such as Anonymous Diffie-Hellman (ADH) ciphers.
- Use SSL 3.0, and disable SSL 2.0.
- Disable the Low, Export, and Null cipher suites.

To set these parameters, modify the aliases in the OpenSSL* ciphers command (the SSLCipherSuite directive) in the `/etc/apache2/vhosts.d/vhost-ssl.conf` file.

1. Stop the Apache server: At a terminal console, enter

   ```
   /etc/init.d/apache2 stop
   ```

2. Open the `/etc/apache2/vhosts.d/vhost-ssl.conf` file in a text editor, then locate the SSLCipherSuite directive in the Virtual Hosts section:

   ```
   SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:+LOW:+SSLv2:+EXP:+eNULL
   ```

3. Modify the plus (+) to a minus (−) in front of the ciphers you want to disable and make sure there is a `!` (not) before ADH:

   ```
   SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:-LOW:-SSLv2:-EXP:-eNULL
   ```

4. Save your changes.
5. Start the Apache server: At a terminal console, enter

   ```
   /etc/init.d/apache2 start
   ```

For more information about configuring strong SSL/TLS security solutions, see SSL/TLS Strong Encryption: How-To (http://httpd.apache.org/docs/2.0/ssl/ssl_howto.html) on the Apache.org Web site.

11.6.3 Configuring the Web Admin Server for SSL Communications with the Enterprise Server

By default, the Web Browser is configured to communicate with the iFolder Web Admin server and the iFolder Enterprise server via SSL. If the iFolder deployment is in a large scale and the Web Admin server is on a different machine than the iFolder enterprise server, then SSL enables you to increase the security for communications between the two servers.

The communication between the Web Admin server and the iFolder enterprise server is determined during the configuration of the Web Admin server. Specify an https:// in the URL for the enterprise server for SSL (HTTPS) communications between the servers. Traffic between the two servers is secure. If you specify an http:// in the URL, HTTP is used for communications between the servers and traffic is insecure.

The setting is stored in the `/usr/lib/simias/webAdmin/Web.config` file under the following tag:

```
<add   key="SimiasUrl" value="https://localhost"   />

<add key="SimiasCert" value=<raw certificate data in base 64 encoding>   />
```

If you disable SSL between Web Admin server and the enterprise server and if the two servers are on different machines, you must also disable the iFolder server SSL requirement. Because the enterprise SSL setting also controls the traffic between the enterprise server and the client, all Web traffic between servers and between the clients and the enterprise server would be insecure.

IMPORTANT: Do not disable SSL on the Web Admin server if the servers are on different machines.

If the two servers are running on the same machine and you want to disable SSL, rerun the YaST configuration, and specify `http://localhost` as the URL for the enterprise server.

11.6.4 Configuring the Web Admin Server for SSL Communications with Web Browsers

The iFolder 3.7 Web Admin server requires a secure connection between the user's Web browser and the Web Admin server. The SSL connection supports the secure exchange of data. For most deployments, this setting should not be changed because iFolder uses HTTP BASIC for authentication, which means passwords are sent to the server in the clear. Without SSL encryption, the iFolder data is also sent in the clear.

The following Rewrite parameters control this behavior and are located in the `/etc/apache2/conf.d/ifolder_web.conf` file:

```
LoadModule rewrite_module /usr/lib/apache2/mod_rewrite.so

RewriteEngine On

RewriteCond %{HTTPS} !=on

RewriteRule ^/ifolder/(.*) https://%{SERVER_NAME}/ifolder/$1 [R,L]
```

To disable the requirement for SSL connections, you can comment out these Rewrite command lines in the `ifolder_web.conf` file. Placing a pound sign (`#`) at the beginning of each line renders it as a comment.

WARNING: Without an SSL connection, traffic between a user's Web browser and the Web Admin server is not secure.

To disable the SSL requirement:

1. Stop the iFolder Web Admin services.
2. Edit the `/etc/apache2/conf.d/ifolder_web.conf` file to comment out the Rewrite command lines.

   For example:

   ```
   #LoadModule rewrite_module /usr/lib/apache2/mod_rewrite.so

   #RewriteEngine On
   ```

```
#RewriteCond %{HTTPS} !=on

#RewriteRule ^/ifolder/(.*) https://%{SERVER_NAME}/ifolder/$1 [R,L]
```

3 Start the iFolder Web Admin services.

11.6.5 Configuring an SSL Certificate for the Web Admin Server

For information, see “Managing SSL Certificates for Apache” on page 205.

Managing iFolder Users

12

This section discusses how to manage iFolder users with Novell® iFolder® 3.7 enterprise server.

12.1 Provisioning / Reprovisioning Users and LDAP Groups for iFolder

In a multi-server environment, each user or LDAPGroup member is provisioned to a home server when he or she logs in to the iFolder for the first time. When a user logs in for the first time, iFolder checks whether the user is already provisioned to a server manually.

If manual provisioning is not done, iFolder checks whether the user is provisioned to a server as specified in the LDAP attribute. It checks whether the LDAP home server attribute is set for the user or any of the user's LDAPGroups. If LDAP home server attribute is set, user is provisioned based on that.

If all of the above cases fail to provision the user, iFolder automatically select a server in the iFolder system and provision to the user on a round-robin basis.

NOTE: Provisioning a user or an LDAP Group to a slave server does not reflect immediately in the Web Admin console of the slave server. This is because you have done the provisioning at the Master server-level. The slave server receives the data only after a minimum of 30 seconds depending upon the network load and the Master server load for it to reflect in the Web Admin console of the slave server.

12.1.1 Manual Provisioning

Use the iFolder Web Admin console to provision users for iFolder servers.

1. Log in to the iFolder Web Admin console and open *Users* page.
2. Do either of the following:
   - Locate and select the user, select the server from the drop-down list, then click *Save*.
   - Locate and select the users, then click *Provision* to open a new page. From the drop-down list in the new page, select the server and click *Provision/Reprovision*.

12.1.2 Manual Reprovisioning

With reprovisioning functionality, you can reassign a new server to an already provisioned user. Thus, you can manually move the users across different servers in any given iFolder domain.

1. Log in to the iFolder Web Admin console and open *Users* page.
2. Perform the following:
   - Locate and select the users, then click *Provision* to open a new page. From the drop-down list in the new page, select the new server and click *Provision / Reprovision*.

12.1.3 Round-Robin Provisioning

If users and LDAPGroups are not provisioned either through the LDAP attribute or manually, they are automatically provisioned to iFolder servers on a round-robin basis. When a new user or member of an LDAPGroup logs in to iFolder for the first time, iFolder checks for the server with the fewest number of users provisioned to it, and provisions the user to that server.

For example, suppose your iFolder system has three servers named `server A`, `server B` and `server C` and each server has users provisioned to it. If `server A` has 10 users, `server B` has 5 users, and `server C` has 12 users and a new iFolder user joins, the user is automatically provisioned to `server B,` which has the fewest users. Provisioning users to `server B` continues until it has 10 users, which is equal to the number of users provisioned to `server A,` so that `server B` gets the next new user. When all the three servers are provisioned with an equal number of users, the next new user is provisioned to any of these servers.

12.2 Searching for a User Account

NOTE: The term iFolder users refers to both individual users and LDAPGroups.

1. In Web Admin console, enable the *Users* tab.
2. Select a name criterion (*User Name*, *First Name*, *Last Name, Home Server*).
3. Select a filter criterion (*Contains*, *Begins With*, *Ends With*, *Equals*).
4. Use one or more of the following search methods, then click *Search*:
   - Type the name of the user in the *Search Users* field.
   - Type one or more letters in the *Search Users* field.
   - Type an asterisk (`*`) in the *Search Users* field to return a list of all Users on the system.
   - Leave the *Search Users* field empty to return a list of all Users on the system.

   Do not click anywhere in the page until the page completely refreshes.
5. Browse or sort the list of users to locate the one you want to manage.
6. Click the *User Name* link to view or set policies and manage its iFolders.

Locating the Users in the Search Results

Scroll up and down to browse the search results and locate the user you want to manage. The combination of the username, first name, and last name should help you locate the user.

- **Type:** Shows the member type of the user currently logged in. If the user is an individual user the interface also display an option for User Groups. If the user is a member of an LdapGroup, the interface lists all the members of the LdapGroup under the option for Group Members. An icon indicate whether the user has the iFolder Admin right (user wearing a referee-striped uniform) or is a normal user (user icon).
- **User Name:** The username assigned to the user account, such as `jsmith`.
- **Full Name:** The first and last name of the user account.
- **LDAP Context:** The LDAP tree context is used for provisioning users in to iFolder.
- **Last Login Time** The time when the user last logged in to the iFolder system.
- **User Groups (applicable only for individual users):** Lists all the groups that the selected user belongs to.
- **Group Members (applicable only for LDAPGroups):** Lists all the members who belong to the selected LDAPGroup.

Click the user's name to manage User policies and iFolders for the user.

12.3 Accessing And Viewing General User Account Information

The Web Admin console opens to the User Page which displays the user's type (Admin user or user), username, user's full name (if available), the server to which the user is provisioned and the user status (Enabled or Disabled).

Follow the steps given below to access the Users Details Page:

1. On the iFolder user page, use the search functionality to locate the user whose iFolder account you want to manage.
2. Click the user's name link to open the User Details page to the Users tab.

The User Details page will display the following user details for the selected user's iFolder account.

Table 12-1 *User Details*

Parameter	Description
User Name	The username assigned to the user account, such as jsmith or john.smith@example.com.
Full Name	The first and last name of the user account.
LDAP Context	The LDAP tree context is used for provisioning users in to iFolder.
Last Login Time	The last time the user logging in to the iFolder system.
User Groups (applicable only for individual users)	Lists all the groups that the selected user belongs to.

Parameter	Description
Group Members (applicable only for LDAPGroups)	Lists all the members who belong to the selected LDAPGroup.

The User Details page displays the iFolders owned or shared by the user. Click the *All tab* to list all the iFolders both owned and shared. To view the iFolder owned by the user, click the *Owned* tab. The *Shared* tab lists all the shared iFolders for this particular user account.

12.3.1 Enabling or Disabling an iFolder For an User Account

Follow the steps given below to enable or disable an iFolder for a given user account:

1. Locate the iFolder you want to manage, then select the check box next to the iFolder.
2. Click Enable to enable the iFolder.

   This allows the user to log in and synchronize iFolders.
3. Click Disable to disable the iFolder.
4. If the user is logged in when you make this change, the user's session continues until the user logs out. The policy takes effect the next time the user attempts to log in to the account. To have the lockout take effect immediately, you must restart the Apache services for the iFolder server, which disconnects all active sessions, including the user's session.

12.3.2 Deleting An iFolder

To delete an iFolder:

1. Locate the iFolder you want to delete, then select the check box next to the iFolder.
2. Click *Delete*.

12.4 Configuring User Account Policies

12.4.1 Viewing the Current User Account Policies

1. In Web Admin console, select *Users* tab to view a list of current iFolder users.
2. Click the link for the user's name to open the User page for that user account.
3. You can view the following information below Policies:

Parameter	Description
Account	Specifies whether the user is currently allowed to log in to synchronize iFolders. You can select the check box to disable the User login.

Parameter	Description
No of iFolder per users	Specifies the maximum number of iFolder that a user can own. After Applying this policy, the user is limited to own a certain number of iFolders.The user who exceeds his or her usage limit receives an error message about the policy violation. If the limit is zero, the user cannot create any iFolders.
Disk Quota	**Limit:** Specifies the maximum space allotted on the server for this selected user. **Used:** Specifies the total space currently in use on the server for all iFolders owned by this selected user. **Available:** Specifies the difference between any space restrictions on the account and the space currently in use. If no quota is in effect, the value is No Limit. **Effective:** Effective space allocated on the server.
File size	Specifies the maximum total space (in MB) that a user's iFolder file is allowed to use, across all iFolders the user owns. A user quota supersedes a system-wide quota, whether the user quota is larger or smaller than the system-wide quota. The user quota can then be limited, but not increased by a policy on an iFolder. **IMPORTANT:** Users cannot successfully synchronize files of a size that would cause a quota to be exceeded. If they try to do so, only part of the file is synchronized, resulting in data corruption. If the total space consumed by iFolder file is nearing an effective quota (system, user, or iFolder), the user should stop synchronizing files until one or more of the following tasks results in enough space to safely synchronize the user's files in the iFolder where the file resides: ◆ The system-wide quota, user quota for the iFolder owner, and the iFolder quota are modified as needed. ◆ Files are moved from any of the iFolders owned by the user to another location where they no longer affect the effective quota, or files are deleted to clear space. ◆ Files are moved from the iFolder to another location where they no longer affect the effective quota, or its files are deleted to clear space.
Excluded files	Specifies to allow all file types or lists the file types to exclude from synchronization for the selected user's account. The file manager files called `thumbs.db` and `.DS_Store` are never synchronized. You do not need to keep these files, and synchronizing them results in repeated file conflict errors. If you have not set any individual restrictions for this user, this field reports `thumbs.db` and `.DS_Store` as part of the system-wide file-type restrictions. After you set individual file-type restrictions for the user, the user's settings are displayed instead. Even if the `thumbs.db` and `.DS_Store` restrictions are not displayed, they always apply; you cannot override them.

Parameter	Description
Synchronization	Specifies the minimum interval (in minutes) that a user's client can check iFolder data on the server and iFolder data on local iFolders to identify files that need to be downloaded or uploaded. Longer interval limits are more restrictive than shorter ones. **Interval:** If a user policy is set, it overrides the system policy, whether the user's interval is shorter or longer in value. **Effective:** Specifies the current synchronization interval. For example, if the user sets a synchronization interval that is less than (more frequent) than the system minimum, the system setting applies. The effective minimum synchronization interval is always the largest value from the following settings: ◆ The system policy (default of zero (0)), unless there is a user policy set. If a user policy is set, the user policy overrides the system policy, whether the user policy is larger or smaller in value. ◆ The local machine policy, or the setting on the client machine synchronizing with the server. ◆ The iFolder (collection) policy.
Encryption	Specifies the encryption policy for the selected iFolder user.
Sharing	Specifies the sharing policy for the selected iFolder user.

12.4.2 Modifying User Account Policies

1. In Web Admin console click the user name link listed under User's tab to open the user page
2. On the User page opened for that user account, you can select or deselect the following:

Parameter	Description
Account	Select the *Disable User Login* check box to disable the account for login. Deselect the value to enable the account for login. If the user is logged in when you make this change, the user's session continues until the user logs out. The policy takes effect the next time the user attempts to log in to the account. To have the lockout take effect immediately, you must restart the Apache services for the iFolder server, which disconnects all active sessions, including the user's session. Default Value: Enabled, Yes

Parameter	Description
No of iFolder per users	Specifies the maximum number of iFolder that a user can own. After Applying this policy, the user is limited to own a certain number of iFolders.The user who exceeds his or her usage limit receives an error message about the policy violation. If the limit is zero, the user cannot create any iFolders. Select *Limit* to enable the iFolder per users limit, and specify the number in the field. The policy setting does not affect the number of iFolders that the user already owns. If the number of iFolders owned by the user already exceeds the limit that you set, he or she can still own those iFolders. User level policy overrides LDAPGroup level and system level policy. Default Value: Disabled, no value set
Disk Quota	Specifies the maximum space allotted on the server for this selected user. Deselect *Limit* if there is no individual user quota, or to accept the system-wide quota for the selected user account. Select *Limit* to enforce a user quota, then specify the total space quota (in MB) for the selected user account.
File size	Specifies the maximum total space (in MB) that a user's iFolder data is allowed to use, across all iFolders the user owns for the selected user account. Deselect *Limit* if there is no individual user quota, or to accept the system-wide quota for the selected user account. Select *Limit* to enforce a user quota, then specify the total space quota (in MB) for the selected user account. If you enable a user space limit that is less than a user's current total space for iFolder data, the user's data stops synchronizing until the data is decreased below the limit or until the quota is increased to a value that is larger than the user's total space consumed. Default Value: Disabled or the system-wide quota if it is set.
Excluded Files	You can restrict some file types for this user, then specify the exclusion filters that determine the file types that can be synchronized for the user account. To add a file extension to exclusion filter, type the extension (such as `.mpg`), then click *Add* to apply the filter. To exclude a file type from the restricted file types, select the check box adjacent to the file type, then click *Allow*. Default Value: The System-wide settings.
Synchronization	Select the check box to enable a minimum synchronization interval, then specify the minimum interval (in minutes). For example, a practical value is 600 seconds (10 minutes). Deselect the check box to set no synchronization interval or to accept the system-wide setting for the user account. If no value is set for system-wide or user policies, the value reported is `No Limit`. Default Value: Disabled, System-wide policy.

Parameter	Description
Encryption	You have two options for encryption to select from: *On* and *Enforced* **On:** Select *On* to enable Encryption. With this, user is allowed to set encryption policy for his or her iFolder files. User will have the control over the sharing of his iFolder data. **Enforced:** Select *Enforced* to enable encryption policy for the iFolder files of the selected user account. **IMPORTANT:** This option is enabled only if the system level encryption policy is set to *On*.
Sharing	You have three options for *Sharing* to select from: *On*, *Enforced* and *Revoke*. **On:** By default, iFolder sharing is enabled. Select *On* to disable sharing for the selected user. After applying this policy, user is not allowed to share his or her iFolders with others. However, you can still change the policy settings at iFolder level. **Enforce:** Select *Enforce* to enforce the policy set for the selected user. After applying this policy, the user cannot share his or her iFolders with others. **Revoke:** Select *Revoke* to remove the shared members of all the iFolders that belong to the selected user.

12.5 Enabling and Disabling iFolder User Accounts

Disabling a user's account temporarily, as opposed to deleting the user account, turns off the ability of that user to log in to the iFolder server. The user remains a valid iFolder user, can be shared with, and his or her iFolders are not orphans. The user cannot log in and, therefore, cannot synchronize (up or down) any data until the account is again enabled.

1. In Web Admin console, select *Users* tab.
2. Search for the user whose account you want to enable or disable for login.
3. Do one of the following:
   - Enable login for the user account by selecting *Enable*.
   - Disable login for the user account by selecting *Disable*.

Managing iFolders

13

This section discusses how and administrator can manage iFolders on the Novell® iFolder® 3.7 enterprise server, using the Novell iFolder Web Admin console.

13.1 Viewing Details And Configuring Policies for an iFolder

This section discusses the following:

13.1.1 Accessing the iFolders Details Page

1. Use the search functionality to locate the iFolder you want to manage.
2. Click the name of the iFolder to open the iFolder Details page.

   For more details on search, see “Locating the iFolders in the Search Results” on page 163.

   The iFolder Details page will display the iFolder details, a list of members who own or share the iFolders, and policy settings for this particular iFolder.

13.1.2 Viewing The iFolder Details

You can view the following information:

Parameter	Description
Type	Normal iFolder 
	Encrypted iFolder 
	Shared iFolder 
Name	The name assigned to the iFolder.
Description	A short description about the iFolder. You can edit this information.
	Click *Save* to save the changes.

Parameter	Description
Owner	The username of the owner of the selected iFolder. For orphaned iFolders, the iFolder Admin user is made the owner until the iFolder can be reassigned or deleted. The iFolder owner has the Full Control right to the iFolder. The owner manages membership and access rights for users, and can remove the Full Control right for any member. With an enterprise server, the disk space used by the owner's iFolders counts against the owner's user account quotas on the enterprise server. Click the username link to view the details of the iFolder owner.
Path	The actual location of the iFolder and its data on the server. For example: **/var/opt/novell/ifolder3/simias/SimiasFiles/e84fdc6e-3d51-49df-ae3f-8c9213c76994/<iFolder_Name>** In this example, **e84fdc6e-3d51-49df-ae3f-8c9213c76994** is the unique ID of the iFolder share.
Modified	The last modified time and date of the iFolder.
Directories	Total number of directories in the iFolder.
Files	Total number of files in the iFolder.
Orphan	Shows the selected iFolder is orphaned or not. For orphaned iFolders, the iFolder Admin becomes the owner until the iFolder can be reassigned to a new owner or is deleted.

13.1.3 Searching for an iFolder

1. Use one of the following methods to get a list of iFolders:
   - Click the *All* tab on the iFolders page.
   - Click the *Orphan* tab on the iFolders page to retrieve a list of orphaned iFolders.
2. Use one or more of the following search methods, then click Search:
   - Select *Equals* as the filter criterion, then type the name of the iFolder you want to locate in the Search iFolders field.
   - Select a filter criterion (*Begins With*, *Ends With*, *Contains, Equals*) for the name of the iFolder, then type one or more letters in the *Search iFolder*s field.
   - Type an asterisk (*) in the *Search iFolders* field to return a list of all iFolders on the system.
   - Leave the *Search* field empty to return a list of all iFolders on the system.

   Do not click anywhere in the page until the page completely refreshes, then you can browse or manage the iFolders listed in the Search Results report.
3. Browse the list of iFolders to locate the iFolder you want to manage.
4. Click the iFolder's name link to view its details, change the owner, configure its policies, share the iFolder, or modify members' access rights.

Locating the iFolders in the Search Results

Scroll up and down to browse the search results and locate the iFolder you want to manage. The combination of the iFolder's name and owner help to identify the iFolder you seek.

13.1.4 Managing iFolder Members

You can view the members' name, type and access rights assigned to them. You are allowed to add or delete an owner, assign ownership, and set access rights to a selected member. For more information, see Section 13.1.5, "Managing an iFolder," on page 163.

13.1.5 Managing an iFolder

Use the *iFolder* tab to manage membership in an iFolder.

In iFolder 3.2 and earlier, when an owner adds a user to an iFolder, the user does not become a member until he or she accepts the iFolder on at least one computer. After the user accepts the invitation and sets up the iFolder, the user shows up in the member list. But with iFolder 3.7 and above versions, if you add the user or a LDAPGroup as a member of an iFolder from the Web Access console, then the user or each LDAPGroup member is automatically becomes a member. The user and the iFolder will show up in the Web access interface without the user setting up a local iFolder on his or her computer.

Adding a Member

1. On the iFolder Details page, click *Add*.
2. Search for the user you want to make a member, select the check box next to the user's name, then click *OK*.

   The user is given Read Only access to the iFolder.
3. (Optional) Select the check box next to the user, then specify the Access right as *Admin*, *Read Write*, or *Read Only* right.
4. Click *Set*.

   Wait for the page to refresh. The *Rights* column should reflect the new access right. A notification message inviting the user to participate is sent to the user's account.

Understanding iFolder Access Rights

For an overview of access rights, see Section 1.4.8, "iFolder Access Rights," on page 22.

NOTE: Members of an LDAPGroup inherit the access rights set for that LDAPGroup.

The following table describes the capabilities associated with each level of access for users.

Capabilities	Owner	Full Control	Read/Write	Read Only
Transfer ownership of an iFolder to another iFolder user	Yes	No	No	No
Set a quota for the iFolder	Yes	No	No	No
Make the iFolder available to other users (sharing)	Yes	Yes	No	No
Make the iFolder unavailable to other users (stop sharing)	Yes	Yes, except the owner	No	No
Assign access rights for other users	Yes	Yes, except the owner	No	No
Read directories and files in the iFolder	Yes	Yes	Yes	Yes
Add, modify, or delete directories and files in the iFolder	Yes	Yes	Yes	No
Rename directories and files in an iFolder	Yes	Yes	Yes	Yes
Rename the iFolder	No	No	No	No
Set up an iFolder on multiple computers	Yes	Yes	Yes	Yes
Revert an iFolder (do not participate on a local computer)	Yes	Yes	Yes	Yes
Delete an available iFolder to decline participating	Yes	Yes	Yes	Yes
Delete the iFolder and delete the iFolder and its files from the server (make it a normal folder again and no longer share it with others)	Yes	No	No	No

Setting the iFolder Access Right for a Member

1. On the iFolder Details page, locate the iFolder user you want to manage.
2. Select the check box next to that iFolder user.
3. Select the Rights drop-down menu, then select the desired right (*Admin*, *Read/Writ*e, or *Read Only* right).

   Wait for the page to refresh. The user's icon should reflect the new access right.

Removing a Member

1. Locate the iFolder you want to manage, then click the iFolder's name link to open the iFolder Details page to the iFolder tab.
2. On the *iFolder Details* page, select the check box next to the member user's name.
3. Select the *Members* tab, then select the check box next to the member user's name.
4. Click *Delete*.

The user's local copy of the data remains on the user's computer, but the user no longer has access to the server copy of the iFolder data.

Transferring Ownership of an iFolder

When you change the owner of an iFolder, the existing owner becomes a member of the iFolder and is assigned the Read/Write right. For orphaned iFolders, the iFolder Admin user becomes the owner.

1. On the iFolder Details page, search for the user you want to assign as the new owner of the iFolder.
2. Select the check box next to the user's name, then click *Owner*.

Managing Orphaned iFolders

An iFolder becomes orphaned when its owner is no longer provisioned for iFolder services. Orphaned iFolders are automatically assigned to the iFolder Admin user, who serves as a temporary owner until the iFolder can be assigned or deleted. Meanwhile, the members of the iFolder can continue to use it under the policies and access controls that were in place at the time the iFolder became orphaned.

1. On the iFolder details page, click *Orphan* tab to open the list of orphaned iFolders.
2. Browse to locate the orphaned iFolder you want to manage.
3. Click the iFolder name link to open the iFolder Details page.

   Under the title *iFolder details*, the iFolder details page display the property *Orphan:Yes*.
4. Click *Adopt* to select the owner for the Orphaned iFolder.
5. Select an owner for the owner from the list of iFolder members

   When you click Adopt, the iFolder details page lists all the members of that domain. The default owner for the orphaned iFolder is the Admin, who can assign himself or herself as the owner of the iFolder.

   The name of the orphaned owner also is listed, if he or she is present in the current domain, and you can be re-assigned the orphaned owner as the owner.

   The ownership is removed from you (default owner) after a member is selected as the owner of the orphaned iFolder. The specified user becomes the iFolder's owner and has the Full Control right to the iFolder. The Admin user, then will have only read permissions on that iFolder.

   The orphaned property is deleted for that iFolder and it becomes a normal iFolder.

13.1.6 Managing iFolder Policies

Use the iFolder Policy tab to view and manage the policies for an iFolder.

1. Select *iFolders* or *Orphaned iFolders*.
2. Locate the iFolder you want to manage, then click the iFolder's name link to open the iFolder management page to the General tab.
3. Click the *Policy* tab, then click *Modify*.
4. Configure one or more of the following values, then click *Save* to apply the new settings:

Parameter	Description
Disable Synchronization	Select this to disable the synchronization of data in the iFolder. Deselect this to turn on synchronization, usually temporarily. Default Value: Enabled, Yes
Disk Quota	Select the Limit check box, then specify the maximum size (in MB) for the selected iFolder. If you enable a system-wide iFolder quota, a user's account quota overrides it, whether the user quota is lower or higher than the system quota. Default Value: Disabled, 100MB
Used (View only)	Reports how much space the iFolder data currently consumes.
Available (View only)	Reports how much space is available on the server for the iFolder data.
Effective (View only)	Reports effective space available on the server for the iFolder data.
File Size	**Limit:** Specifies the maximum total file size (in MB) that an iFolder user is allowed to use, across all iFolders the user owns for the selected user account. **Effective:** Effective file size allocated for the user. **IMPORTANT:** Users cannot successfully synchronize files of a size that would cause a quota to be exceeded. If they try to do so, only part of the file is synchronized, resulting in data corruption.
Excluded Files	Specifies a list of file types to include or to exclude from synchronization for the selected iFolder. The file manager files called `thumbs.db` and `.DS_Store` are never synchronized. To add a file extension to an inclusion or exclusion filter, type the extension (such as *.mpg), then click *Add* to apply the filter. To exclude a file type from the restricted file types, select the check box adjacent to the file type, then click *Delete*. Default Value: Disabled, Allow all file types or the System-wide settings.

Parameter	Description
Synchronization	Select the *Synchronization Interval* check box to enable a minimum interval setting for the selected iFolder, then specify the minimum value in minutes that users are allowed to set on their clients. To disable the setting, deselect the *Synchronization Interval* check box. If the option is disabled, the value reported is `No Limit`. If this option is enabled, the minimum synchronization interval specifies the minimum interval in minutes that a user's client can check iFolder data on the server and local iFolders to identify files that need to be downloaded or uploaded. If the iFolder is locked by an active system process (such as backup), you receive an Already Locked Exception (`AlreadyLockedException`) error. You cannot enable or disable synchronization for the iFolder until that process ends; try again later. The effective minimum synchronization interval is always the largest value from the following settings: ◆ The system policy (default of 5 minutes), unless there is a user policy set. If a user policy is set, the user policy overrides the system policy, whether it is larger or smaller in value ◆ The local machine policy, or the setting on the client system synchronizing with the server ◆ The iFolder policy Default Value: 5 minutes. You can lower it to a minimum of 5 seconds.
Sharing	**On:** By default, iFolder sharing is enabled. Deselect *On* to disable sharing for the selected iFolder. After applying this policy, iFolder cannot be shared either by the Admin or by the Owner of the iFolder. **Revoke:** Select *Revoke* to remove all the members from the list of shared members for the selected iFolder. **IMPORTANT:** Both of these option are disabled if you enable the *Disable Sharing* option at System level, LDAPGroup level or User level.

13.1.7 Enabling and Disabling an iFolder

1. Click iFolders tab to open iFolders page.
2. Locate the iFolder you want to manage, then select the check box next to the iFolder name.
3. Select an action to perform on the iFolder:
   - Click Enable to enable the iFolder.

     This allows the user to access the iFolder and synchronize the files in it. By default, all iFolders are enabled.
   - Click *Disable* to disable the iFolder.

     If the user is logged in when you make this change, the user's session continues until the user logs out. The policy takes effect the next time the user attempts to log in to the account. To have the lockout take effect immediately, you must restart the Apache services for the iFolder server, which disconnects all active sessions, including the user's session.

NOTE: Disabling synchronization temporarily, as opposed to deleting or disabling the entire user account, turns off the ability of the selected iFolder to synchronize.

Managing an iFolder Web Access Server

14

This section describes how to manage your Novell® iFolder® 3.7 Web Access server.

14.1 Starting iFolder Web Access Services

iFolder Web Access services start whenever you reboot the system or whenever you start Apache services.

As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 start
```

14.2 Stopping iFolder Web Access Services

iFolder services stop whenever you stop the system or whenever you stop Apache services.

As a root user, enter the following command at the terminal console:

```
/etc/init.d/apache2 stop
```

14.3 Distributing the Web Access Server URL to Users

After you install and configure the iFolder Web Access server, distribute the URL of the server Login page to users.

14.4 Configuring the HTTP Runtime Parameters

Two HTTP runtime parameters—Execution Time-Out (`executionTimeout`) and Maximum Request Length (`maxRequestLength`)—can affect the successful upload of a file to the Web Access server. The following table defines these run time parameters and their default values:

Parameter	Description
`executionTimeout`	The interval of time in seconds to wait between the command to upload a file and the successful execution where the file is stored on the iFolder enterprise server. Default Value: 720 (in seconds)

Parameter	Description
maxRequestLength	The maximum file size in bytes that a user is allowed to upload to the server via the Web Access server. The default maximum size is 1 GB for Web access. Default Value: 1048576 (in KB)

Using Web Access, a user can upload a local file to the user's iFolder on the enterprise server. If the file does not upload successfully before the interval times out or if the file size exceeds the allowed maximum, the upload is stopped and reported as a failure. Because the Web browser is controlling the errors, a problem of timing out or exceeding the maximum size might result in a Bad Request or other generic error.

The Execution Time-Out and Maximum Request Length parameters must be configured with compatible settings in the `/usr/lib/simias/web/web.config file` for the iFolder enterprise server and in the `/usr/lib/simias/webaccess/Web.config` file for the Web Access server. The settings in `Web.config` for the enterprise server must be the same size or larger than the settings in `../webaccess/Web.config` for the Web Access server.

For example, the following code is the httpRuntime element with the default settings in the `../webaccess/Web.config` file for Web Access:

```
<httpRuntime

     executionTimeout="720"

     maxRequestLength="1048576"

/>
```

To modify the httpRuntime parameters:

1. Stop iFolder.
2. Set the httpRuntime parameters on the iFolder Web Access server by editing the values in the `/usr/lib/simias/webaccess/Web.config` file.
3. If necessary, set the httpRuntime parameters on the iFolder enterprise server by editing the values in the `/usr/lib/simias/web/web.config` file.
4. Start iFolder.

For example, to set the time-out to 5 minutes (300 seconds) and the maximum file size to 5 megabytes (5120 KB) for the Web Access server, modify its httpRuntime parameter values in the `../webaccess/Web.config` file:

```
<httpRuntime

     executionTimeout="720"

     maxRequestLength="1048576"

/>
```

If the `webaccess/Web.config` values exceed the values in `web/web.config` for the enterprise server, you must also increase the sizes of runtime parameters in that file.

14.5 Securing Web Access Server Communications

This section describes how to configure SSL traffic between the iFolder Web Access server and other components. HTTPS (SSL) encrypts information transmitted over shared IP networks and the Internet. It helps protect your sensitive information from data interception or tampering.

For information on how to configure SSL traffic on the iFolder enterprise server, see Section 10.11, "Securing Enterprise Server Communications," on page 131.

14.5.1 Using SSL for Secure Communications

In a default deployment, the iFolder 3.7 Web Access server uses SSL 3.0 for secure communications between components as shown in the following table.

iFolder Component	Enterprise Server	LDAP Server	Client	Web Browser
Web Access Server	Yes	Yes	No	Yes

For more information about SSL 3.0, see Section 10.11.1, "Using SSL for Secure Communications," on page 132.

14.5.2 Configuring the SSL Cipher Suites for the Apache Server

To restrict connections to SSL 3.0 and to ensure strong encryption, we strongly recommend the following configuration for the Apache server's SSL cipher suite settings.

- Use only High and Medium security cipher suites, such as RC4 and RSA.
- Remove from consideration any ciphers that do not authenticate, such as Anonymous Diffie-Hellman (ADH) ciphers.
- Use SSL 3.0, and disable SSL 2.0.
- Disable the Low, Export, and Null cipher suites.

To set these parameters, modify the aliases in the OpenSSL* ciphers command (the SSLCipherSuite directive) in the `/etc/apache2/vhosts.d/vhost-ssl.conf` file.

1 Stop the Apache server: At a terminal console, enter

```
/etc/init.d/apache2 stop
```

2 Open the `/etc/apache2/vhosts.d/vhost-ssl.conf` file in a text editor, then locate the SSLCipherSuite directive in the Virtual Hosts section:

```
SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:+LOW:+SSLv2:+EXP:+eNULL
```

3 Modify the plus (+) to a minus (−) in front of the ciphers you want to disable and make sure there is a `!` (not) before ADH:

```
SSLCipherSuite ALL:!ADH:RC4+RSA:+HIGH:+MEDIUM:-LOW:-SSLv2:-EXP:-eNULL
```

4 Save your changes.

5 Start the Apache server: At a terminal console, enter

```
/etc/init.d/apache2 start
```

For more information about configuring strong SSL/TLS security solutions, see SSL/TLS Strong Encryption: How-To (http://httpd.apache.org/docs/2.0/ssl/ssl_howto.html) on the Apache.org Web site.

14.5.3 Configuring the Web Access Server for SSL Communications with the Enterprise Server

The setting is stored in the `/usr/lib/simias/webaccess/Web.config` file under the following tag:

```
<add   key="SimiasUrl" value="https://localhost"   />

<add key="SimiasCert" value=<raw certificate data in base 64 encoding>   />
```

If you disable SSL between Web Access server and the enterprise server and if the two servers are on different machines, you must also disable the iFolder server SSL requirement. Because the enterprise SSL setting also controls the traffic between the enterprise server and the client, all Web traffic between servers and between the clients and the enterprise server would be insecure.

IMPORTANT: Do not disable SSL on the Web Access server if the two servers are on different machines.

If the two servers are running on the same machine and you want to disable SSL, rerun the configuration, and specify `http://localhost` as the URL for the enterprise server. By default, the Web Browser is configured to communicate with the iFolder Web Access server and the iFolder Enterprise server via SSL. iFolder uses HTTP BASIC for authentication, which means passwords are sent to the server in the clear. If the iFolder deployment is in large scale and the Web Access server is on a different machine than the iFolder enterprise server, an Administrator could reconfigure to enable SSL between the Web Access Server and the iFolder Enterprise Server, which would increase the security for communications between the two servers. This is a recommended setting

14.5.4 Configuring the Web Access Server for SSL Communications with Web Browsers

The iFolder 3.*x* Web Access server requires a secure connection between the user's Web browser and the Web Access server. The SSL connection supports the secure exchange of data. For most deployments, this setting should not be changed because iFolder uses HTTP BASIC for authentication, which means passwords are sent to the server in the clear. Without SSL encryption, the iFolder data is also sent in the clear.

The following Rewrite parameters control this behavior and are located in the `/etc/apache2/conf.d/ifolder_web.conf` file:

```
LoadModule rewrite_module /usr/lib/apache2/mod_rewrite.so

RewriteEngine On

RewriteCond %{HTTPS} !=on

RewriteRule ^/ifolder/(.*) https://%{SERVER_NAME}/ifolder/$1 [R,L]
```

To disable the requirement for SSL connections, you can comment out these Rewrite command lines in the `ifolder_web.conf` file. Placing a pound sign (#) at the beginning of each line renders it as a comment.

WARNING: Without an SSL connection, traffic between a user's Web browser and the Web Access server is not secure.

To disable the SSL requirement:

1. Stop the iFolder Web Access services.
2. Edit the `/etc/apache2/conf.d/ifolder_web.conf` file to comment out the Rewrite command lines.

   For example:

   ```
   #LoadModule rewrite_module /usr/lib/apache2/mod_rewrite.so

   #RewriteEngine On

   #RewriteCond %{HTTPS} !=on

   #RewriteRule ^/ifolder/(.*) https://%{SERVER_NAME}/ifolder/$1 [R,L]
   ```
3. Start the iFolder Web Access services.

14.5.5 Configuring an SSL Certificate for the Web Access Server

For information, see "Managing SSL Certificates for Apache" on page 205.

Troubleshooting Tips For Novell iFolder 3.7

A

This section gives you a list of troubleshooting suggestions that can help you resolve some of the iFolder issues.

A.1 Web Admin Console Fails to Start Up

If the iFolder Web Admin console does not start on your first attempt:

1. Open a terminal console.
2. Run `/etc/init.d/apache2 stop` to stop the Apache process.
3. Run `ps -ef|grep mono` to check if any Mono process for iFolder is still running on the server side.
4. Run `kill <process id of the process>` to end the Mono process for iFolder.
5. Restart Apache.

A.2 Login to the Web Consoles Fails

If you cannot log in to Web Admin or Web Access console, consider the following cause:

- You are using a DSfW server as the LDAP server.

The workaround for this issue is to ensure the following:

- iFolder Admin and iFolder proxy users are created on the DSfW server.
- iFolder is configured by using command line script `simias-server-setup`.
- Use port 1389 for non-SSL and port 1636 for SSL communications.

A.3 Enabling a Large Number of Users at the Same Time Times Out

In the Web Admin console, if enabling a large number of users at the same time throws a time-out error message, consider the following cause:

- The Web Admin console is opened by using Internet Explorer.

The workaround for this issue is to open the Web Admin console by using Mozilla Firefox.

A.4 Changes Are Not Reflected After Identity Sync Interval

The changes you have made in the iFolder domain, such as adding a new user to the iFolder domain from the LDAP, are not reflected even after the identity sync interval. The workaround is to click the *Sync Now* button after you make the changes.

A.5 Synchronizing a Large Number of Files Randomly Requires Multiple Sync Cycles

When you attempt to synchronize a large number of files, a few files are not synchronized in the first sync cycle. Complete synchronization of the files requires multiple sync cycles.

A.6 iFolder Data Does Not Sync and Cannot be Removed from the Server

In some cases, an iFolder fails to synchronize, and when you attempt to revert the iFolder to a normal folder, you get an exception error.

Although you can successfully revert that iFolder to a normal folder from other machines, the original client machine you used to upload the iFolder shows the same iFolder on the machine.

A.7 Samba Connection to the Remote Windows Host Times out

If Samba connection to the remote Windows host times out when you execute `samba mount` command, you must check whether the Windows firewall is enabled or not. If it is enabled, add the Samba port to the list of permitted ports in the firewall configuration.

A.8 Exception Error while Configuring iFolder on a Samba Volume

If iFolder server throws an exception when you configure the iFolder 3.7 server on a Samba volume, check the properties of the folder in Windows. You must provide the read-write permission to the network users. In other words, you must ensure that the *Read Only* check box is deselected

A.9 LDAP Users Are Not Reflected in iFolder

If the LDAP users are not synchronized immediately in iFolder, check to see if the default interval to synchronize the LDAP server with iFolder servers is 24 hours.

To reflect the changes immediately, you can use the *Sync now* option in the *Server details* page of the Web Admin console.

A.10 Directory Access Exception on Creating or Synchronizing iFolders

If the system throws Directory Access exception error when the user create or synchronize iFolder, check the owner and group of the directory in which the iFolder has been created. Ensure that you have set that to *wwwrun:www*.

A.11 Changing Permission to the Full Path Fails

If you cannot change the permission to the full path specified while configuring a multi-volume setup, use the following procedure:

1. Run `chown -R <apache user>:<apache group> <Data/store/path/simias>`.
2. Change the permission that has already been set.

A.12 List of Items Fails to Synchronize

If a list of items fails to synchronize, consider the following causes:

- You excluded the non-synchronized file types in the Web Admin console policy.
- The disk space restriction has been exceeded for the specified user or the specified iFolder.
- The user has the file or files open in an application. In this case, users must close the application and re-sync the iFolder.

A.13 Access Permission Error While Logging in Through Web Access

If the user cannot log in to iFolder Web Access, consider the following actions:

- Check the permission for the Apache user to the data store path of iFolder, and change permissions as necessary.
- Run `chown -R <apache user>:<apache group> <Data/store/path/simias>`.

A.14 Web Admin and Web Access Show a Blank Page

If the Web Admin console and Web Access console show blank pages, ensure that the Simias server and Web Access server are up and running.

A.15 On running simias-server-setup, the setup fails while configuring SSL

If you select the default options while running the `simias-server-setup` and if the setup fails while configuring SSL, you must ensure that Apache is SSL-enabled and configured to point to an SSL certificate on an iFolder server. For more information, see Section F.3, “Configuring Apache to Point to an SSL Certificate on an iFolder Server,” on page 206

A.16 Error while managing system policies for any given iFolder System

Using Web admin console, when you try to manage system policies for an iFolder system, the parameters for system policies are not set. When you attempt for the second time to set the parameters, you get the following error:

```
ArgumentOutOfRangeException

Index is less than 0 or more than or equal to the list count.

Parameter name: index

1
```

As a workaround for this issue, you must upgrade the version of Mono on your system to 1.2.6.

A.17 iFolder linux client fails to startup if the datapath does not have any contents

For iFolder linux client, if the client datapath contains an empty simias folder, the ifolder client does not startup.

As a workaround to this issue, you must delete the empty simias folder from the location: `$HOME/.local/share/` and then restart the client.

Caveats for Implementing iFolder 3.7 Services

B

This section presents a few pointers for avoiding common iFolder 3.7 implementation problems.

The list that follows is not comprehensive. Rather, it simply outlines some of the more common problems reported by network administrators. To ensure successful service implementations, you should always follow the instructions in the documentation for the services you are implementing.

This section discusses the caveats to consider after installing and before implementing the iFolder 3.7 services.

B.1 Loading Certificates to the Recovery Agent Path

If the path to the key Recovery agent certificates is set during iFolder configuration, you must ensure that the certificates are copied to this location. The location is *datapath*`/simias/Simias.config` under the `RAPath` section.

For more information on the Recovery agent, refer to the Section 7.6, "Recovery Agent Certificates," on page 91

B.2 Using a Single Proxy User for a Multi-Server Setup

By default, each server creates its own Proxy user for role separation. However, you can use single Proxy user for both master and slave servers. You can provide the Proxy DN and Proxy password for the master server configuration and for the slave configurations. You must not use the default configuration for the Proxy user.

B.3 Slave Configuration

Selecting *Install into existing Domain* during configuration is considered to be a slave configuration. If the option is not selected, the server you are configuring is considered to be a master.

B.4 Novell iFolder Admin User

By default, the LDAP admin assumes the iFolder Administrator position. You must change this default setting during the master server configuration to have a better role separation.

Clustering iFolder 3.7 Servers with Novell Cluster Services for Linux

C

This section discusses how to configure a Novell® iFolder® 3.7 server cluster, using Novell Cluster Services™ (NCS) for Linux.

For information about Novell Cluster Services (NCS), see the *OES 2 SP1: Novell Cluster Services 1.8.4 for Linux Administration Guide*.

C.1 Prerequisites for Clustering iFolder 3.7 Services

Each node in your iFolder 3.7 cluster must satisfy the following requirements:

- "Prerequisites and Guidelines" on page 43 for iFolder 3.7.
- Prerequisites and requirements for Novell Cluster Services for Linux. For information, see "Installing Novell Cluster Services on OES 2 Linux" in the *OES 2 SP1: Novell Cluster Services 1.8.4 for Linux Administration Guide*.

C.2 Installing Novell Cluster Services for Linux

For each node in the planned cluster:

IMPORTANT: If you are using iSCSI for shared disk system access, ensure that you have configured iSCSI initiators and targets prior to installing Novell Cluster Services.

---

1. Make sure each node in the cluster satisfies the requirements in Section C.1, "Prerequisites for Clustering iFolder 3.7 Services," on page 181.
2. Install and configure Novell Cluster Services (NCS) on the Open Enterprise Server (OES) Linux 2 servers you plan to use in the iFolder 3.7 cluster.

   For information on installing NCS, see the section "Installing Novell Cluster Services on OES 2 Linux" in the *OES 2 SP1: Novell Cluster Services 1.8.4 for Linux Administration Guide*.
3. Ensure that there is at least one shared storage setup that is cluster enabled, either Linux POSIX Volume(s) or NSS volume(s).

For more information, see

4 Continue with Section C.3, “Configuring iFolder 3.7 Servers on an NCS for Linux Cluster,” on page 182.

C.3 Configuring iFolder 3.7 Servers on an NCS for Linux Cluster

The following procedure describes how to configure Novell iFolder 3.7 services on a Novell Cluster Services for Linux cluster. You can optionally add iFolder 3.7 Web Access and iFolder 3.7 Web Admin servers to the cluster.

IMPORTANT: Do not create an iFolder Cluster Resource at this time; it is configured after you finish setting up iFolder services on the cluster.

---

1 For each node in the cluster, install iFolder services:

1a In YaST, install iFolder 3.7, iFolder 3.7 Web Admin (optional) and iFolder 3.7 Web Access (optional), but do not configure services at this time.

For information, see Section 7.1, “Installing iFolder on an Existing OES 2 Linux SP1 Server,” on page 67.

1b Repeat the install on each node in the cluster, then continue with Step 2 on page 182.

2 Ensure that the configured shared storage resource is online on the Master node, then configure the iFolder server by using the steps given below.

2a Ensure that the shared resource is mounted on the Master node.

For example:`/media/nss/NSSVOL`.

Mounting will not be done, if the resource is on a different node. Migrate that resource to the Master node.

For more information, see “Migrating Cluster Resources to Different Nodes” in the *OES 2 SP1: Novell Cluster Services 1.8.4 for Linux Administration Guide*.

2b In YaST, configure the iFolder 3.7 enterprise server.

For information, see Section 7.2, “Deploying iFolder Server,” on page 69.

For the System Store Path, specify the mount point of the shared volume that you created in Step 2a on page 182.

At the end of the configuration, allow YaST to start Apache, then open your Web browser to the iFolder server to make sure it is running.

`http://192.168.1.1/simias10/Simias.asmx`

Replace *192.168.1.1* with the IP address of the server node you are configuring. If everything is working properly, you should get an authentication prompt.

2c If you are using an NSS volume to store user data, you must set up NSS file system trustee rights for the Web server user object wwwrun before restarting your web server.

2c1 At a terminal console prompt, log in as the root user or equivalent, then enter

```
rights -f /media/nss/NSSVOL/iFolder_Data -r rwfcem
trustee wwwrun.ou.o.treename
```

/media/nss/NSSVOL: The `/media/nss/NSSVOL` is the cluster shared storage resource of the Master node.

iFolder_Data: It is the directory that is configured in Step 2b on page 182 to be used as the iFolder store location.

wwwrun.ou.o.treename: This is the FDN of the configured apache user that is LUM enabled to be used with the Apache Web Server.

2c2 Open your Web browser and enter `http://192.168.1.1/simias10/Simias.asmx` to make sure iFolder Server is running.

Replace 192.168.1.1 with the IP address of the cluster resource you have made online or migrated in Step 2a on page 182. If everything starts working properly, you get an authentication prompt.

2c3 Close the Web Browser without entering any credentials.

2c4 To configure Web Access in YaST:

- For the Web Access Alias, specify an alias such as `/ifolder`. Use the same alias on all nodes when you configure them later.
- For the iFolder Server URL, specify SSL (by using https in the URL) and specify `localhost` as the location.

  For example:

  ```
  https://localhost
  ```

2c5 To configure Web Admin in YaST:

- For the Web Admin Alias, specify an alias such as `/admin`. Use the same alias on all nodes when you configure them later.
- For the iFolder Server URL, specify SSL (by using https in the URL) and specify `localhost` as the location.

  For example:

  ```
  https://localhost
  ```

3 Configure iFolder services on each of the remaining nodes in the cluster by doing the following:

3a Skip iFolder configuration and copy the following configuration files from the first node.

- `/etc/apache2/conf.d/simias.conf`

Ensure that you configure Web Admin and Web Access for other nodes by using YaST.

3b Open a terminal console and run the following command:

```
certmgr -ssl -m ldaps://ipaddress of eDir:port
```

3c Copy `/etc/ssl/servercerts/servercert.pem` from the master node to the respective location.

For more information about SSL certificates, see Section F.1, “Generating an SSL Certificate for the Server,” on page 205.

3d Start Apache on this node.

```
/etc/init.d/apache2 start
```

3e Repeat Step 3 on page 183 to configure any additional nodes in your iFolder cluster.

C.4 Creating the iFolder 3.7 Cluster Resource

1. In iManager Roles and Tasks, expand the *Clusters* role, then select *Cluster Options*.
2. Specify the cluster name, or browse and select the *Cluster* object.
3. Click *New*.
4. Specify Resource as the resource type you want to create by clicking the *Resource* radio button, then click *Next*.
5. Enter the name of the resource you want to create, such as `iFolder3`.

   Do not use periods in cluster resource names. Novell clients interpret periods as delimiters. If you use a space in a cluster resource name, that space is converted to an underscore.
6. Browse for the *Generic_IP_Service to Inherit From*.
7. Select *Define Additional Properties*, then click *Next*.
8. For the cluster *Load Script*, use one of the sample load scripts as a guide, then click *Next*.

   For information, see Section C.6, “Sample Load Scripts for iFolder 3.7 Clusters,” on page 184.
9. For the cluster *Unload Script*, use one of the sample unload scripts as a guide, then click *Next*.

   For information, see Section C.7, “Sample Unload Scripts for iFolder 3.7 Clusters,” on page 186.
10. Complete the remaining screens, then click *Finish*.
11. Continue with Section C.5, “Managing the iFolder 3.7 Cluster Resource,” on page 184.

C.5 Managing the iFolder 3.7 Cluster Resource

In iManager Roles and Tasks, expand the *Clusters* role, then click *Cluster Manager* to manage the iFolder 3.7 resource and bring it online.

For information, see “Managing Clusters” in the *OES 2 SP1: Novell Cluster Services 1.8.4 for Linux Administration Guide*.

C.6 Sample Load Scripts for iFolder 3.7 Clusters

C.6.1 Linux POSIX File System

If your shared volume uses a Linux POSIX file system, use the following load script as a guide:

```
##### Linux Traditional File System Sample Load Script #####

#!/bin/bash

. /opt/novell/ncs/lib/ncsfuncs

#define the IP address

RESOURCE_IP=a.b.c.d

#define the file system type
```

```
MOUNT_FS=reiserfs
#define the container name
container_name=name
#define the device
MOUNT_DEV=/dev/evms/$container_name/ifolder
#define the mount point
MOUNT_POINT=/mnt/ifolder
#activate the container
exit_on_error activate_evms_container $container_name $MOUNT_DEV $NCS_TIMEOUT
#mount the file system
exit_on_error mount_fs $MOUNT_DEV $MOUNT_POINT $MOUNT_FS
#add the IP address
exit_on_error add_secondary_ipaddress $RESOURCE_IP
#start iFolder
exit_on_error /etc/init.d/apache2 graceful
#return status
exit 0
################################################
```

C.6.2 NSS File System

If your shared volume uses the NSS file system, use the following load script as a guide:

```
##### NSS File System Sample Load Script #########
#mount the file system
##MYPOOL is the name of your NSS pool
##MYVOL is the name of your NSS volume
nss /poolactivate=MYPOOL
exit_on_error nssmount -n MYVOL
#add the IP address
##xx.xx.xx.xx is your 'highly available' IP address
exit_on_error add_secondary_ipaddress xx.xx.xx.xx
# start the service
exit_on_error /etc/init.d/apache2 graceful
#return status
exit 0
```

```
################################################
```

C.7 Sample Unload Scripts for iFolder 3.7 Clusters

C.7.1 Linux POSIX File System

If your shared volume uses a Linux POSIX file system, use the following unload script as a guide:

```
##### Linux Traditional File System Sample Unload Script #####

#!/bin/bash

. /opt/novell/ncs/lib/ncsfuncs

#define the IP address

RESOURCE_IP=a.b.c.d

#define the file system type

MOUNT_FS=reiserfs

#define the container name

container_name=name

#define the device

MOUNT_DEV=/dev/evms/$container_name/ifolder

#define the mount point

MOUNT_POINT=/mnt/ifolder

#stop iFolder

ignore_error mod-mono-server --filename /tmp/mod-mono-server_simias10 --terminate

ignore_error mod-mono-server --filename /tmp/mod-mono-server_admin --terminate

ignore_error mod-mono-server --filename /tmp/mod-mono-server_ifolder --terminate

#del the IP address

ignore_error del_secondary_ipaddress $RESOURCE_IP

#umount the file system

sleep 10 # if not using SMS for backup, please comment out this line

exit_on_error umount_fs $MOUNT_DEV $MOUNT_POINT $MOUNT_FS

#deactivate the container

exit_on_error deactivate_evms_container $container_name $NCS_TIMEOUT
```

```
#return status

exit 0

################################################
```

C.7.2 NSS File System

If your shared volume uses the NSS file system, use the following unload script as a guide:

```
##### NSS File System Sample Unload Script ###################

#!/bin/bash

. /opt/novell/ncs/lib/ncsfuncs

#stop iFolder

ignore_error mod-mono-server --filename /tmp/mod-mono-server_simias10 --terminate

ignore_error mod-mono-server --filename /tmp/mod-mono-server_admin --terminate

ignore_error mod-mono-server --filename /tmp/mod-mono-server_ifolder --terminate

#del the IP address

##xx.xx.xx.xx is your 'highly available' IP address

ignore_error del_secondary_ipaddress xx.xx.xx.xx

#umount the file system

##MYPOOL is the name of your NSS pool

##MYVOL is the name of your NSS volume

umount /media/nss/MYVOL

nss /pooldeactivate=MYVOL

#return status

exit 0

################################################
```

C.7.3 Troubleshooting

Linux does not allow you to umount a volume if any file is currently open. If your system is going comatose when you try to unload the cluster, it is probably because you have open user connections and files on the volume. You need to allow enough time for the connections to be closed before the umount is executed.

Add the following lines between the request to stop service and deleting the IP address:

```
#stop service otherwise

sleep 10

ignore_error fuser -k /$MOUNT-POINT

sleep 5
```

Replace */$MOUNT-POINT* with the actual path of the mount point of your iFolder data store. For example, if the mount point is `/var/opt/novell/ifolder3/data`, add:

```
#stop service otherwise

sleep 10

ignore_error fuser -k /var/opt/novell/ifolder3/data

sleep 5
```

Tune the script until the cluster no longer goes comatose under an operational load when the unload script is called. If the system goes comatose under a full load, increase the sleept time until the cluster is able to successfully execute the unload instead of going comatose.

C.8 Sample Monitor Scripts for iFolder 3.7 Clusters

C.8.1 Linux POSIX File System

If your shared volume uses a Linux POSIX file system, use the following monitor script as a guide:

```
#!/bin/bash

. /opt/novell/ncs/lib/ncsfuncs

function check_ifolder {

result=`ps -f -U wwwrun | awk '/mod-mono-server_(admin|ifolder|simias10)/
{i++;}END{print i}'`;

if [[ $result -ne '3' ]];then return 1; else return 0; fi;

}

# define the IP address

RESOURCE_IP=a.b.c.d

# define the file system type

MOUNT_FS=reiserfs

#define the container name

container_name=name

# define the device

MOUNT_DEV=/dev/evms/$container_name/ifolder

# define the mount point

MOUNT_POINT=/mnt/ifolder

# check the file system
```

```
exit_on_error status_fs $MOUNT_DEV $MOUNT_POINT $MOUNT_FS

# check the IP address

exit_on_error status_secondary_ipaddress $RESOURCE_IP

# check iFolder

exit_on_error check_ifolder

# return status

exit 0
```

C.8.2 NSS File System

If your shared volume uses the NSS file system, use the following monitor script as a guide:

```
# define the IP address

RESOURCE_IP=a.b.c.d

#check the file system

##MYPOOL is the name of your NSS pool

exit_on_error status_fs /dev/evms/MYPOOL /opt/novell/nss/mnt/.pools/MYPOOL nsspool

##MYVOL is the name of your NSS volume

exit_on_error ncpcon volume MYVOL

# check the IP address

exit_on_error status_secondary_ipaddress $RESOURCE_IP

# check iFolder

exit_on_error check_ifolder

#return status

exit 0
```

Decommissioning a Slave Server

D

To remove a slave server that has users provisioned to it from an iFolder domain:

1. Reprovision all the users on the slave server to a different server.
2. In the slave server, open a terminal prompt.
3. Enter `rcapache2 stop` to bring down the slave server.
4. Enter `/usr/bin/simias-server-setup --remove` and follow the on-screen instructions.

Configuration Files

E

E.1 Simias.config File

The default locations of the `Simias.config` file is `<datapath>/simias/Simias.config`.

```
<configuration>

  <section name="EnterpriseDomain">

    <setting name="SystemName" value="iFolder" />

    <setting name="Description" value="iFolder Enterprise System" />

    <setting name="AdminName" value="cn=admin,o=novell" />

  </section>

  <section name="Server">

    <setting name="Name" value="npsdt-val-3" />

    <setting name="PublicAddress" value="https://192.168.1.1:443/simias10" />

    <setting name="PrivateAddress" value="https://192.168.1.1:443/simias10" />

    <setting name="RAPath" value="/var/simias/data/simias" />

  </section>

  <section name="Authentication">

    <setting name="SimiasAuthNotRequired" value="Registration.asmx, Login.ashx,
    Simias.asmx:PingSimias, DomainService.asmx:GetDomainID, pubrss.ashx,
    pubsfile.ashx, Simias.asmx:GetRAList, Simias.asmx:GetRACertificate" />

    <setting name="SimiasRequireSSL" value="no" />

  </section>

  <section name="Identity">

    <setting name="Assembly" value="Simias.LdapProvider" />

    <setting name="ServiceAssembly" value="Simias.Server" />

    <setting name="Class" value="Simias.LdapProvider.User" />

    <!--

      <setting name="Assembly" value="Simias.SimpleServer" />
```

```
      <setting name="Class" value="Simias.SimpleServer.User" />
      -->
    <!--
      <setting name="Assembly" value="Simias.MdbSync" />
      <setting name="Class" value="Simias.MdbSync.User" />
      -->
  </section>
  <section name="StoreProvider">
    <setting name="Assembly" value="SimiasLib.dll" />
    <setting name="Type" value="Simias.Storage.Provider.Flaim.FlaimProvider" />
    <setting name="Path" value="/var/simias/data/simias" />
  </section>
  <section name="LdapAuthentication">
    <setting name="LdapUri" value="ldaps://192.168.1.1/" />
    <setting name="ProxyDN" value="cn=iFolderProxy,o=novell" />
  </section>
  <section name="LdapProvider">
    <setting name="NamingAttribute" value="cn" />
    <setting name="Search">
      <Context dn="o=novell" />
    </setting>
  </section>
</configuration>
```

E.2 Web.config File for the Enterprise Server

By default, the `web.config` file for the enterprise server is in the `/usr/lib/simias/web/Web.config` directory. The following is an example of a configured file.

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
<!-- Enable this if you want gzip compression. Also uncomment the <mono.aspnet>
section below
  <configSections>
     <sectionGroup name="mono.aspnet">
```

```
     <section name="acceptEncoding"
        type="Mono.Http.Configuration.AcceptEncodingSectionHandler,
              Mono.Http, Version=1.0.5000.0,
              PublicKeyToken=0738eb9f132ed756" />

     </sectionGroup>

  </configSections>

-->

<system.web>

   <customErrors mode="Off"/>

   <httpRuntime

       executionTimeout="3400"

       maxRequestLength="2097152"

   />

<!-- take this out until we need it

  <webServices>

    <soapExtensionTypes>

      <add type="DumpExtension, extensions" priority="0" group="0" />

      <add type="EncryptExtension, extensions" priority="1"
           group="0" />

    </soapExtensionTypes>

  </webServices>

-->

  <authentication mode="None">

  </authentication>

  <httpModules>

    <add name="AuthenticationModule"

       type="Simias.Security.Web.AuthenticationModule, SimiasLib"/>

  </httpModules>

  <httpHandlers>

     <add verb="*" path="admindata/*.log"

        type="Simias.Server.ReportLogHandler,Simias.Server"/>

     <add verb="*" path="admindata/*.csv"

        type="Simias.Server.ReportLogHandler,Simias.Server"/>

  </httpHandlers>

</system.web>
```

```
<system.net>

  <connectionManagement>

    <add address="*" maxconnection="10" />

  </connectionManagement>

</system.net>

<!--

<mono.aspnet>

   <acceptEncoding>

   <add encoding="gzip"
        type="Mono.Http.GZipWriteFilter, Mono.Http, Version=1.0.5000.0,
            PublicKeyToken=0738eb9f132ed756" disabled="no" />

   </acceptEncoding>

</mono.aspnet>

-->

<appSettings>

    <add key="MonoServerDefaultIndexFiles" value="index.aspx,
              Default.aspx,default.aspx, index.html, index.htm" />

    <add key="SimiasCert" value="" />

</appSettings>

</configuration>
```

E.3 Web.config File for the Web Admin Server

By default, the Web.config file for Web Admin server is in the `/usr/lib/simias/admin`. The following is an example of a configured file.

```
<?xml version="1.0" encoding="utf-8"?>

<configuration>

  <system.web>

    <httpRuntime executionTimeout="180" maxRequestLength="10240" />

<!--  DYNAMIC DEBUG COMPILATION

      Set compilation debug="true" to enable ASPX debugging.

      Otherwise, setting this value to false will improve runtime

         performance of this application.Set compilation debug="true"

         to insert debugging symbols (.pdb information)into the

          compiled page. Because this creates a larger file that

         executes more slowly,you should set this value to true
```

```
      only when debugging and to false at all other times.
      For more information, refer to the documentation about
      debugging SP.NET files.

-->

<compilation defaultLanguage="C#" debug="true" />

<!--  CUSTOM ERROR MESSAGES

      Set customErrors mode="On" or "RemoteOnly" to enable custom

      error messages, "Off" to disable.

      Add <error> tags for each of the errors you want to handle.

      "On" Always display custom (friendly) messages.

      "Off" Always display detailed ASP.NET error information.

      "RemoteOnly" Display custom (friendly) messages only to users

      not running on the local Web server. This setting is

      recommended for security purposes, so that you do not display

     application detail information to remote clients.

-->

<customErrors defaultRedirect="Error.aspx" mode="On" />

<!--  AUTHENTICATION

      This section sets the authentication policies of the

      application. Possible modes are

      "Windows", "Forms", "Passport" and "None".

      "None" No authentication is performed.

      "Windows" IIS performs authentication (Basic, Digest, or

      Integrated Windows) according to its settings for the

      application. Anonymous access must be disabled in IIS.

      "Forms" You provide a custom form (Web page) for users to

      enter their credentials, and then you authenticate them in

      your application. A user credential token is stored

      in a cookie.

      "Passport" Authentication is performed via a centralized

      authentication service provided by Microsoft that offers a

      single logon and core profile services for member sites.

-->

<authentication mode="Forms">
```

```
    <forms name="iFolderWebAuth" loginUrl="Login.aspx" timeout="20"
           slidingExpiration="true"  />
  </authentication>
 <!--  AUTHORIZATION
        This section sets the authorization policies of the
        application. You can allow or deny access to application
        resources by user or role.
        Wildcards:
          "*" mean everyone,
          "?" means anonymous (unauthenticated) users.
  -->
  <authorization>
    <deny users="?" />
  </authorization>
  <!--  APPLICATION-LEVEL TRACE LOGGING
        Application-level tracing enables trace log output for every
        page within an application.
        Set trace enabled="true" to enable application trace logging.
        If pageOutput="true", the trace information will be displayed
        at the bottom of each page.  Otherwise, you can view the
        application trace log by browsing the "trace.axd" page from
        your web application root.
  -->
  <trace enabled="false" requestLimit="10" pageOutput="false"
         traceMode="SortByTime" localOnly="true" />
  <!--  SESSION STATE SETTINGS
        By default ASP.NET uses cookies to identify which requests
        belong to a particular session. If cookies are not available,
        a session can be tracked by adding a session
        identifier to the URL. To disable cookies, set
        sessionState cookieless="true".
  -->
  <sessionState mode="InProc" cookieless="false" timeout="20" />
  <httpHandlers>
```

```
      <add verb="*" path="tail/*.log"
           type="Novell.iFolderWeb.Admin.LogTailHandler,Novell.iFolderAdmin" />

      <add verb="*" path="*.log"
           type="Novell.iFolderWeb.Admin.ReportLogHandler,Novell.iFolderAdmin" />

      <add verb="*" path="*.csv"
           type="Novell.iFolderWeb.Admin.ReportLogHandler,Novell.iFolderAdmin" />

    </httpHandlers>

    <!--  GLOBALIZATION

          This section sets the globalization settings of the

          application.

    -->

    <globalization requestEncoding="utf-8" responseEncoding="utf-8" />

  </system.web>

  <appSettings>

    <add key="SimiasUrl" value="https://localhost" />

    <add key="SimiasCert" value="a_certification_key_goes_here" />

  </appSettings>

  <location path="Default.aspx">

    <system.web>

      <authorization>

        <allow users="*" />

      </authorization>

    </system.web>

  </location>

  <location path="Error.aspx">

    <system.web>

      <authorization>

        <allow users="*" />

      </authorization>

    </system.web>

  </location>

</configuration>
```

E.4 Web.config File for the Web Access Server

By default, the `Web.config` file for the Web Access server is in the `/usr/webaccess/` directory. The following is an example of a configured file.

```
<?xml version="1.0" encoding="utf-8"?>

<configuration>

  <system.web>

    <httpRuntime executionTimeout="3400" maxRequestLength="2097152" />

    <!--  DYNAMIC DEBUG COMPILATION

          Set compilation debug="true" to enable ASPX debugging.

          Otherwise, setting this value to false will improve runtime

          performance of this application. Set compilation

          debug="true" to insert debugging symbols (.pdb information)

          into the compiled page. Because this creates a larger file

          that executes more slowly, you should set this value to true

           only when debugging and to false at all other times. For more

          information, refer to the documentation about debugging

          ASP.NET files.

    -->

    <compilation defaultLanguage="C#" debug="true" />

    <!--  CUSTOM ERROR MESSAGES

          Set customErrors mode="On" or "RemoteOnly" to enable custom

          error messages, "Off" to disable.

          Add <error> tags for each of the errors you want to handle.

          "On" Always display custom (friendly) messages.

          "Off" Always display detailed ASP.NET error information.

          "RemoteOnly" Display custom (friendly) messages only to users

          not running on the local Web server. This setting is

          recommended for security purposes, so that you do not display

         application detail information to remote clients.

    -->

    <customErrors defaultRedirect="Error.aspx" mode="RemoteOnly" />

    <!--  AUTHENTICATION

          This section sets the authentication policies of the
```

```
        application. Possible modes are
        "Windows", "Forms", "Passport" and "None".
        "None" No authentication is performed.
        "Windows" IIS performs authentication (Basic, Digest, or
        Integrated Windows) according to its settings for the
        application. Anonymous access must be disabled in IIS.
        "Forms" You provide a custom form (Web page) for users to
        enter their credentials, and then you authenticate them in
        your application. A user credential token is stored
        in a cookie.
        "Passport" Authentication is performed via a centralized
        authentication service provided by Microsoft that offers a
        single logon and core profile services for member sites.
    -->
    <authentication mode="Forms">
      <forms name="iFolderWeb" loginUrl="Login.aspx" timeout="20"
             slidingExpiration="true"  />
    </authentication>
   <!--  AUTHORIZATION
        This section sets the authorization policies of the
        application. You can allow or deny access to application
        resources by user or role.
        Wildcards:
          "*" mean everyone,
          "?" means anonymous (unauthenticated) users.
    -->
    <authorization>
      <deny users="?" />
    </authorization>
    <!--  APPLICATION-LEVEL TRACE LOGGING
        Application-level tracing enables trace log output for every
        page within an application.
        Set trace enabled="true" to enable application trace logging.
        If pageOutput="true", the trace information will be displayed
```

```
        at the bottom of each page.  Otherwise, you can view the
        application trace log by browsing the "trace.axd" page from
        your web application root.
    -->
    <trace enabled="false" requestLimit="10" pageOutput="false"
           traceMode="SortByTime" localOnly="true" />
    <!--  SESSION STATE SETTINGS
        By default ASP.NET uses cookies to identify which requests
        belong to a particular session. If cookies are not available,
        a session can be tracked by adding a session
        identifier to the URL. To disable cookies, set
        sessionState cookieless="true".
    -->
    <sessionState mode="InProc" cookieless="false" timeout="30" />
    <!--  GLOBALIZATION
        This section sets the globalization settings of the
        application.
    -->
    <globalization requestEncoding="utf-8" responseEncoding="utf-8" />
    <httpModules>
      <add name="UploadModule" type="Novell.iFolderApp.Web.UploadModule,
           Novell.iFolderWeb" />
    </httpModules>
  </system.web>
  <appSettings>
    <add key="SimiasUrl" value="https://localhost" />
    <add key="SimiasCert" value="a_certification_key_goes_here" />
  </appSettings>
  <location path="Default.aspx">
    <system.web>
      <authorization>
        <allow users="*" />
      </authorization>
    </system.web>
```

```
  </location>
  <location path="ICLogout.aspx">
    <system.web>
      <authorization>
        <allow users="*" />
      </authorization>
    </system.web>
  </location>
</configuration>
```

Managing SSL Certificates for Apache

F

This section discusses how to acquire and manage SSL certificates for your Novell® iFolder® 3.7 servers.

F.1 Generating an SSL Certificate for the Server

Using SSL requires that you install an SSL certificate form on each iFolder enterprise server, Web Admin server and Web Access server in your domain. Users accept the certificates to enable communications with the servers.

The certificate can be a self-signed certificate or a certificate froma trusted certificate authority. A self-signed certificate is usually used only for internal iFolder services, where the server’s identity is not likely to be spoofed. The trusted CA signature on the certificate attests that the public key contained in the certificate belongs to the person, organization, server, or other entity noted in the certificate. It assures users that they are accessing a valid, non-spoofed resource. If the information does not match or the certificate has expired, an error message warns the user.

Browsers are typically preconfigured to trust well-known certificate authorities. If you use a Certificate Authority that is not configured into browsers by default, it is necessary to load the Certificate Authority certificate into the browser, enabling the browser to validate server certificates signed by that Certificate Authority.

To acquire SSL certificates for use in an operational public-key infrastructure (PKI), use one of the following methods, depending on your network needs:

- Use the self-signed certificate that is created and enabled for the server by default during the server install.
- Use the services of a third-party certificate authority to get trusted certificate, then use it instead of accepting the default certificate during the sever install.

Whichever method you use, the certificate is automatically used for the Apache Web Server configuration. If it does not automaticially configure the certificate for the Apache Web Server, see the following:

- Section F.3, “Configuring Apache to Point to an SSL Certificate on an iFolder Server,” on page 206
- Section F.4, “Configuring Apache to Point to an SSL Certificate on a Shared Volume for an iFolder Cluster,” on page 207

F.2 Generating a Self-Signed SSL Certificate for Testing Purposes

You can use theYaST CA Management plug-in or OpenSSL tools to create a self-signed certificate. If iFolder is deployed in a trusted environment, use YaST. The YaST CA Management interface contains modules for the basic management of X.509 certificates. This mainly involves the creation of CAs, sub-CAs, and their certificates. For more information, see the following:

- Section 6.3.2, "Creating a YaST-based CA," on page 56
- Section 6.3.3, "Creating Self-Signed Certificates Using YaST," on page 58
- Section 6.3.4, "Exporting Self-Signed Certificates," on page 60
- Section 7.6.2, "Creating a YaST-based CA," on page 93
- Section 7.6.3, "Creating Self-Signed Certificates Using YaST," on page 95
- Section 7.6.4, "Exporting Self-Signed Certificates," on page 97

For detailed information about how to manage and update certificates, see Managing X.509 Certification (http://www.novell.com/documentation/sles10/sles_admin/data/cha_yast_ca.html) in the *SUSE Linux Enterprise Server 10 Installation and Administration Guide* (http://www.novell.com/documentation/sles10/sles_admin/data/bookinfo_book_sles_admin.html).

For information about configuring Apache to point to the self-signed certificate, see the following:

- Section F.3, "Configuring Apache to Point to an SSL Certificate on an iFolder Server," on page 206
- Section F.4, "Configuring Apache to Point to an SSL Certificate on a Shared Volume for an iFolder Cluster," on page 207

F.3 Configuring Apache to Point to an SSL Certificate on an iFolder Server

1. Get an SSL certificate from a trusted certificate authority.
2. Create a shared key directory. At a terminal console, enter

   ```
   mkdir /etc/sharedkey/
   ```

   Replace `sharedkey` with the actual name of your key directory.
3. Do either of the following:
   - Copy the private key (`.key` file) and the certificate (`.cert` file) to the shared key directory location. At a terminal console, enter

     ```
     cp ./filename.key /etc/sharedkey/
     ```

     ```
     cp ./filename.cert /etc/sharedkey/
     ```

     Replace *`filename`* with the actual file name of your `.key` and `.cert` files. Replace the destination path with the shared key directory location where you want to store the `.key` and `.cert` files.
   - If you have received a single `.pem` file from the trusted authority, copy that to the shared key directory location. At a terminal console, enter

     ```
     cp ./filename.pem /etc/sharedkey/
     ```

4 Perform either of the following:

4a Edit the Apache SSL configuration file (`/etc/apache2/vhosts.d/vhost-ssl.conf`) to point to the `.key` file and `.cert` file by modifying the values for the following parameters:

```
SSLCertificateKeyFile=/etc/sharedkey/filename.key

SSLCertificateFile=/etc/sharedkey/filename.cert
```

Replace the path to the files with the actual location and filenames.

4b Edit the Apache SSL configuration file (`/etc/apache2/vhosts.d/vhost-ssl.conf`) to point to the `.pem` file by modifying the values for the following parameters:

```
SSLCertificateKeyFile=/etc/sharedkey/filename.pem

SSLCertificateFile=/etc/sharedkey/filename.pem
```

WARNING: Ensure that there are no duplicate entries for `SSLCertificateKeyFile` and `SSLCertificateFile` in the Apache SSL configuration file.

---

5 Restart the Apache server.

F.4 Configuring Apache to Point to an SSL Certificate on a Shared Volume for an iFolder Cluster

1 Mount the shared volume. At a terminal console, enter

```
mnt /dev/sda1 /mnt/ifolder3
```

Replace */dev/sda1* with the actual disk or partition containing the file system. Replace */mnt/ifolder3* with the mount point (directory path) of the shared volume.

2 Do either of the following:

- Copy the private key (`.key` file) and the certificate (`.cert` file) to a location on the mounted shared volume. At a terminal console, enter

```
cp ./filename.key /mnt/ifolder3/sharedkey/

cp ./filename.cert /mnt/ifolder3/sharedkey/
```

Replace *filename* with the actual file name of your `.key` and `.cert` files. Replace the destination path with the location where you want to store the shared key and certificate files.

- If you have received a single `.pem` file from the trusted authority, copy that to the shared keydirectory location. At a terminal console, enter

```
cp ./filename.pem /mnt/ifolder3/sharedkey/
```

3 Do either of the following:

- Edit the Apache SSL configuration file (`/etc/apache2/vhosts.d/vhost-ssl.conf`) to point to the `.key` file and `.cert` file by modifying the values for the following parameters:

```
SSLCertificateKeyFile=/mnt/ifolder3/sharedkey/filename.key
```

`SSLCertificateFile=/mnt/ifolder3/sharedkey/filename.cert`

Replace the path to the files with the actual location and filename on the shared volume.

- Edit the Apache SSL configuration file (`/etc/apache2/vhosts.d/vhost-ssl.conf`) to point to the `.pem` file by modifying the values for the following parameters:

  `SSLCertificateKeyFile=/mnt/ifolder3/sharedkey/filename.pem`

  `SSLCertificateFile=/mnt/ifolder3/sharedkey/filename.pem`

  WARNING: Ensure that there are no duplicate entries for `SSLCertificateKeyFile` and `SSLCertificateFile` in the Apache SSL configuration file.

4 Restart the Apache server.

NOTE: Ensure that the shared volume is mounted before you start the Apache server.

Frequently Asked Questions

G

This section answers typical questions asked by the administrators of iFolder® 3.7 server software, including the following:

For an additional listing of questions and answers that have been submitted by administrators and iFolder users, see the following:

- *Novell iFolder 3.7 Cross-Platform User Guide*
- iFolder 3 Web site (http://www.ifolder.com/index.php/FAQ)

G.1 iFolder 3.7 Server

This section addresses the following issues:

G.1.1 Is iFolder 3.7 supported on a 64-bit OS?

Yes. Both the server and iFolder client for Linux work on 64-bit systems.

G.1.2 Is iFolder going to support non-eDirectory related platforms as an identity source?

Yes, it already does. Any open LDAP-based directory works seamlessly with iFolder 3.7.

G.2 iFolder 3.7 Client

This section addresses the following issues:

- Section G.2.5, “There was a 10 MB file limitation using Web Access? Is it still applicable for iFolder 3.7?,” on page 210
- Section G.2.6, “I deleted a file accidentally. Can I recover it?,” on page 210

G.2.1 Is iFolder 3.7 supported on Windows Vista?

iFolder 3.7 supports Windows Vista.

G.2.2 Is iFolder 3.7 supported on the Macintosh platform?

iFolder 3.7 supports Macintosh client.

G.2.3 Can I use the iFolder 3.*x* client to connect to the iFolder 3.7 server?

No. When you install the iFolder 3.7 client, it overwrites the iFolder 3.*x* client if it is already installed and performs an in-place upgrade of the local store.

G.2.4 Can I can use iFolder 3.7 on different operating systems on different workstations to access and share the files?

Yes. You can use iFolder for different operating systems on different workstations to access and share the files. For example, you can use an iFolder client on a Windows workstation at home and on a Linux workstation at the office to share the same files.

G.2.5 There was a 10 MB file limitation using Web Access? Is it still applicable for iFolder 3.7?

No. iFolder 3.7 Web Access no longer has this file size limitation. For more information on the Web Access console, see “Using Novell iFolder 3.7 Web Access” in the *Novell iFolder 3.7 Cross-Platform User Guide*.

G.2.6 I deleted a file accidentally. Can I recover it?

Currently iFolder does not support this functionality.

G.3 iFolder 3.7 Administration

This section addresses the following issues:

- Section G.3.1, “What is the management console for iFolder 3.7?,” on page 211
- Section G.3.2, “What are the new features in the Web Admin console?,” on page 211
- Section G.3.3, “Can the administrator control the ability to encrypt iFolder files?,” on page 211
- Section G.3.4, “Are there any enhancements for how bulk users are enabled for iFolder?,” on page 211
- Section G.3.5, “How can the iFolder administrator manage the data owned by an iFolder user who has been removed from the iFolder domain?,” on page 211

G.3.1 What is the management console for iFolder 3.7?

The management console for iFolder 3.7 is the Web Admin console. For more information on the Web Admin console, see Chapter 11, “Managing iFolder Services via Web Admin,” on page 135.

G.3.2 What are the new features in the Web Admin console?

You can manage the multi-server and multi-volume features from the Web Admin console. You can generate reports at a granular level and export them to a text file for later viewing or offline management. You can manage policy settings for the iFolder system, users, and for iFolders. For more information on the Web Admin console, see Chapter 11, “Managing iFolder Services via Web Admin,” on page 135

G.3.3 Can the administrator control the ability to encrypt iFolder files?

Yes, the administrator can manage the encryption policy settings through the Web Admin console. For more information, see Section 11.4.4, “Configuring System Policies,” on page 141.

G.3.4 Are there any enhancements for how bulk users are enabled for iFolder?

iFolder users can be provisioned based on LDAP groups and containers. The users are provisioned during their first login. The client transparently redirects to the appropriate server in a Multi-server environment. For more information, see Section 2.5, “iFolder User Account Considerations,” on page 28.

G.3.5 How can the iFolder administrator manage the data owned by an iFolder user who has been removed from the iFolder domain?

If a user is deleted as a user for the iFolder system, the iFolders owned by the user are orphaned. Orphaned iFolders are assigned temporarily to the iFolder Admin user, who becomes the owner of the iFolder. These iFolders later can be assigned to other users by using the Web administration console. Membership and synchronization continue while the iFolder Admin user determines whether an orphaned iFolder should be deleted or assigned to a new owner. For more information, see “Managing Orphaned iFolders” on page 165.

Product History of iFolder 3

H

This section compares the different versions of Novell® iFolder® 3.*x* to clarify which operating systems, directories, and other components are supported in each.

For a comparison of features in 2.1*x* and 3.*x*, see Chapter 4, “Comparing Novell iFolder 2.x and 3.7,” on page 35.

H.1 Version History

Table H-1 *Version History*

Version	Type	Description
3.0	Bundled	A new code base in this next-generation version supports multiple iFolders and member-based sharing. For information, see Section 3.5, “What’s New in Novell iFolder 3.0,” on page 34. The server is supported for Novell Open Enterprise Server on Linux servers. The client supports Linux, Windows, and Macintosh desktops.
3.1	Bundled	Section 3.4, “What’s New in Novell iFolder 3.1,” on page 34Adds support for Open Enterprise Server (OES) SP1 Linux servers and repairs known defects. For information, see .
3.2	Bundled	Adds support for OES SP2 Linux servers and repairs known defects. For information, see Section 3.3, “What’s New in Novell iFolder 3.2,” on page 34.
3.6	Bundled	Adds support for OES 2 Linux servers. Adds support to upgrade from previous iFolder 3.x clients to an iFolder 3.7 client and migrate from iFolder 2.*x* clients to an iFolder 3.7 client.
3.7	Bundled	Adds support for Multi-server, UserMove, SSL and client enhancement like Mac and Vista support

H.2 Network Operating Systems Support

Table H-2 *Network Operating Systems*

Network Operating System	3.0	3.1	3.2	3.6	3.7
OES Linux	Yes	Yes, but it does not support NSS volumes because of a kernel defect. Requires a Mono® update.	Yes, but it does not support NSS volumes because of a kernel defect. Requires a Mono update.	No	No
OES SP1 Linux	No	Yes	Yes Requires a Mono update.	No	No
OES SP2 Linux	No	No	Yes	No	No
OES 2.0 Linux	No	No	No	Yes	Yes

H.3 Directory Services Support

Table H-3 *Directory Sevices Support*

LDAP Directory Service	iFolder 3.7
Openldap	2.3

H.4 Workstation Operating Systems Support for the iFolder Client

Table H-4 *Workstation Operating Systems*

Workstation Operating System	iFolder 3.0	iFolder 3.1	iFolder 3.2	iFolder 3.4	iFolder 3.6	iFolder 3.7
Novell Linux Desktop	v9	v9	v9 and later	No	No	No
SUSE® Linux Enterprise Desktop 10	No	No	No	Yes	No	No

Workstation Operating System	iFolder 3.0	iFolder 3.1	iFolder 3.2	iFolder 3.4	iFolder 3.6	iFolder 3.7
SUSE Linux Enterprise Desktop 10 SP1	No	No	No	No	Yes	Yes
Windows 2000/XP/ 2003	Yes	Yes	Yes	No	Windows XP SP2/2000 Professional SP4	Windows XP SP2/2000 Professional SP4
Macintosh OS X v10.3 and later	Yes	Yes	Yes	No	No	v10.4
OpenSuSe 10.3	No	No	No	No	No	Yes
OpenSuSe 11.1	No	No	No	No	No	Yes
SUSE Linux Entrprise Desktop 11	No	No	No	No	No	Yes

H.5 Web Server Support

Table H-5 *Web Server Support*

Web Server	3.0	3.1	3.2	3.6	3.7
Apache	2 (worker mode)	2 (worker mode)	2 (worker mode)	2 (worker mode)	2 (worker mode)

H.6 iFolder User Access Support

Table H-6 *iFolder User Access Support*

iFolder User Access Method	3.0	3.1	3.2	3.6	3.7
iFolder client	Yes	Yes	Yes	Yes	Yes
iFolder client, using a proxy	No	Yes	Yes	yes	Yes
Novell iFolder 3.x Web Access	IE 6.0	IE 6.0	IE 6.0	IE 6.0/7.0	IE 6.0/7.0
	Firefox	Firefox	Firefox	Firefox	Firefox
	Safari (Macintosh)	Safari (Macintosh)	Safari (Macintosh)	Safari	Safari

iFolder User Access Method	3.0	3.1	3.2	3.6	3.7
Novell iFolder Web Admin	No	No	No	IE 6.0/7.0 Firefox Safari	IE 6.0/7.0 Firefox Safari

H.7 Management Tools Support

Table H-7 *Management Tools Support*

iFolder Management Interfaces	3.0	3.1	3.2	3.6	3.7
Simias Log	Yes	Yes	Yes	Yes	Yes
Simias Access Log	No	Yes	Yes	Yes	Yes

Documentation Updates

This section contains information about documentation content changes made to the *Novell iFolder 3.x Administration Guide*. If you are an existing user, review the change entries to readily identify modified content. If you are a new user, simply read the guide in its current state.

Refer to the publication date, which appears on the front cover and the Legal Notices page, to determine the release date of this guide. For the most recent version of the *Novell iFolder 3.7 Administration Guide*, see the Novell iFolder 3.*x* documentation Web site (http://www.novell.com/documentation/ifolderos/index.html).

In this section, content changes appear in reverse chronological order, according to the publication date. Within a dated entry, changes are grouped and sequenced, according to where they appear in the document itself. Each change entry provides a link to the related topic and a brief description of the change.

This document was updated on the following dates:

I.1 October 2008

Updates were made to the following section. The changes are explained below.

I.1.1 LDAPGroup Support

The following change was made to this section:

Table I-1 *LDAP Group Support*

Location	Change
Section 2.5.3, "Synchronizing LDAPGroup Accounts with LDAP," on page 29	Added a new section on synchronizing LDAP Groups with the LDAP server.
Section 1.1.12, "LDAPGroup Support," on page 18	Added support for LDAP Groups.
Section 12.1, "Provisioning / Reprovisioning Users and LDAP Groups for iFolder," on page 153	Provisioning users and LDAP Groups.

Location	Change
Table 12-1 on page 155	Update the table with information on user groups and group members.

I.1.2 Recovery Agent Certificates

The following change was made to this section:

Table I-2 *Recovery Agent Certificates*

Location	Change
Section 7.6, “Recovery Agent Certificates,” on page 91Section 6.3, “Recovery Agent Certificates,” on page 55	Added a new section on Recovery Agent Certificates. This section describes how to create a recovery agent certificate and the process for recovering the key.

I.1.3 Recovering iFolder Data from File System Backup

The following change was made to this section:

Table I-3 *Recovering iFolder Data*

Location	Change
Section 10.8.1, “Recovering a Regular iFolder,” on page 128	Added a new section.
Section 10.8.2, “Recovering Files and Directories from an Encrypted iFolder,” on page 129	Added a new section.

I.1.4 Viewing Reprovisioning Status

The following change was made to this section:

Table I-4 *Reprovisioning Status*

Location	Change
Section 11.4.2, “Viewing Reprovisioning Status,” on page 138	Added a new section on viewing the reprovisioning status of the users by using the Web Admin console.

I.1.5 SSL Communications

The following change was made to this section:

Table I-5 SSL Communications

Location	Change
Section 10.11.5, “Configuring the Enterprise Server for SSL Communications with the Web Access Server and Web Admin Server,” on page 134	Added a new section on configuring iFolder server for SSL communications with the Web consoles.
Section 11.6.3, “Configuring the Web Admin Server for SSL Communications with the Enterprise Server,” on page 150	Added new section on configuring Web Admin server for SSL communication with iFolder server.
Section 11.6.4, “Configuring the Web Admin Server for SSL Communications with Web Browsers,” on page 151	Added new section on configuring Web Admin server for SSL communication with Web Browsers.
Section 11.6.5, “Configuring an SSL Certificate for the Web Admin Server,” on page 152	Added new section on configuring SSL certificate for Web Admin server.

I.1.6 Simias.config File

The following change was made to this section:

Table I-6 simias.config files

Location	Change
Section E.1, “Simias.config File,” on page 193	Updated the simias.config file.

I.1.7 Web.config File for the Web Admin Server

The following change was made to this section:

Table I-7 Web Config Files

Location	Change
Section E.3, “Web.config File for the Web Admin Server,” on page 196	Added a new section for Web.config files for the Web Admin server.