

Installation Guide

Novell® Messenger

2.1

May 28, 2010

www.novell.com



Legal Notices

Novell, Inc., makes no representations or warranties with respect to the contents or use of this documentation, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.

Further, Novell, Inc., makes no representations or warranties with respect to any software, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to make changes to any and all parts of Novell software, at any time, without any obligation to notify any person or entity of such changes.

Any products or technical information provided under this Agreement may be subject to U.S. export controls and the trade laws of other countries. You agree to comply with all export control regulations and to obtain any required licenses or classification to export, re-export or import deliverables. You agree not to export or re-export to entities on the current U.S. export exclusion lists or to any embargoed or terrorist countries as specified in the U.S. export laws. You agree to not use deliverables for prohibited nuclear, missile, or chemical biological weaponry end uses. See the [Novell International Trade Services Web page \(http://www.novell.com/info/exports/\)](http://www.novell.com/info/exports/) for more information on exporting Novell software. Novell assumes no responsibility for your failure to obtain any necessary export approvals.

Copyright © 2007-2010 Novell, Inc. All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the publisher.

Novell, Inc.
404 Wyman Street, Suite 500
Waltham, MA 02451
U.S.A.
www.novell.com

Online Documentation: To access the latest online documentation for this and other Novell products, see the [Novell Documentation Web page \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

Novell Trademarks

For Novell trademarks, see [the Novell Trademark and Service Mark list \(http://www.novell.com/company/legal/trademarks/tmlist.html\)](http://www.novell.com/company/legal/trademarks/tmlist.html).

Third-Party Materials

All third-party trademarks are the property of their respective owners.

Contents

About This Guide	7
1 What Is Novell Messenger?	9
2 Novell Messenger Hardware and Software Requirements	11
2.1 Messenger System Requirements	11
2.1.1 Messenger Server Requirements	11
2.1.2 Installation User Rights Requirements	12
2.2 Messenger Client Workstation Requirements	12
2.2.1 Windows Client	12
2.2.2 Linux Client	12
2.2.3 Mac Client	13
2.3 Supported Environments	13
2.3.1 IPV6 Support	13
2.3.2 Clustering Support	13
2.3.3 Virtual Machine Support	13
2.3.4 Citrix Support	14
3 Installing a Novell Messenger System	15
3.1 Planning Your Novell Messenger System	15
3.1.1 Determining Installation Locations	15
3.1.2 Planning Your Novell Messenger System	16
3.1.3 Planning the Novell Messenger Agents	20
3.2 Installing and Setting Up Your Novell Messenger System	23
3.2.1 Installation Prerequisites	23
3.2.2 Installing and Setting Up a Messenger System on NetWare or Windows	24
3.2.3 Installing and Setting Up a Messenger System on Linux	29
3.2.4 Setting Up the High Availability Service	33
3.2.5 Setting Up Non-root Access on an NSS Volume on Novell Open Enterprise Server Linux	35
3.3 Monitoring Novell Messenger with GroupWise Monitor	37
3.4 What's Next	37
3.5 Novell Messenger Worksheet	38
4 Installing the Messenger Client	41
4.1 Downloading and Installing the Messenger Client from Your Web Browser	41
4.2 Starting the Messenger Client	42
4.3 Additional Client Installation Methods	43
5 Updates	45
5.1 What's New in Novell Messenger 2x	45
5.1.1 Novell Messenger Administration	45
5.1.2 Novell Messenger Clients	49
5.2 Understanding the Update Process	50
5.2.1 Extending the Novell eDirectory Schema	50
5.2.2 Installing the Novell Messenger Software	50

5.2.3	Updating the Novell Messenger Client	50
5.2.4	Updating the Novell Messenger Agents	51

6 Migration 53

6.1	Migrating eDirectory to Linux	53
6.2	Moving Messenger Agents to Linux	53
6.2.1	Making a NetWare or Windows Server Visible from Linux	54
6.2.2	Copying the Startup Files	54
6.2.3	Client/Server SSL Certificates	55
6.2.4	Trusted Root Certificates	55
6.2.5	Installing the Messenger Agents on Linux	56
6.2.6	Enabling Messenger Agent Monitoring on Linux	56
6.3	Copying System Data	56
6.3.1	Copying the Archive Store and Archive Indexes	57
6.3.2	Copying the Archive Queue	57
6.3.3	Copying the Messaging Queue	58
6.3.4	Copying the Archive Agent Log Files	58
6.3.5	Copying the Messaging Agent Log Files	59
6.4	ConsoleOne Verification	59

A Third-Party Materials 63

A.1	OpenSSL	63
A.2	NET-SNMP Open Source Package	65
A.2.1	---- Part 1: CMU/UCD copyright notice: (BSD like) ----	65
A.2.2	---- Part 2: Networks Associates Technology, Inc copyright notice (BSD) ----	65
A.2.3	---- Part 3: Cambridge Broadband Ltd. copyright notice (BSD) ----	66
A.2.4	---- Part 4: Sun Microsystems, Inc. copyright notice (BSD) ----	67
A.3	Libegg	67
A.4	JRE	68

About This Guide

This Novell *Messenger 2.1 Installation Guide* helps you install a new Novell Messenger system. The guide is intended for network administrators who install and administer Messenger and is divided into the following sections:

- ♦ Chapter 1, “What Is Novell Messenger?,” on page 9
- ♦ Chapter 2, “Novell Messenger Hardware and Software Requirements,” on page 11
- ♦ Chapter 3, “Installing a Novell Messenger System,” on page 15
- ♦ Chapter 4, “Installing the Messenger Client,” on page 41
- ♦ Chapter 5, “Updates,” on page 45
- ♦ Appendix A, “Third-Party Materials,” on page 63

Audience

This guide is intended for Novell Messenger 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 Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the *Messenger 2.1 Installation Guide*, visit the [Novell Messenger 2.1 documentation Web site \(http://www.novell.com/documentation/novell_messenger21\)](http://www.novell.com/documentation/novell_messenger21)

Additional Documentation

For additional Messenger documentation, see the [Novell Novell Messenger 2.1 documentation Web site \(http://www.novell.com/documentation/novell_messenger21\)](http://www.novell.com/documentation/novell_messenger21).

What Is Novell Messenger?

1

Novell Messenger is a corporate, cross-platform instant messaging product that is based on Novell eDirectory. Your Messenger system can be set up on NetWare, Linux, or Windows.

Messenger features include the following:

- ◆ Sending instant messages in a secure environment (user authentication through eDirectory and SSL encryption of messages)
- ◆ Creating a contact list and displaying user information from the contact list (based on user information already available in eDirectory)
- ◆ Displaying user presence (online, busy, away, idle, and so on)
- ◆ Blocking others from seeing your presence
- ◆ Creating custom statuses to define your presence
- ◆ Participating in multi-user conversations
- ◆ Saving personal conversations
- ◆ Creating and searching a corporate-level conversation archive
- ◆ Broadcasts
- ◆ Personal history
- ◆ Chat rooms

A Messenger system consists of three software components (Messaging Agent, Archive Agent, and Messenger snap-in to ConsoleOne) and various eDirectory objects where Messenger configuration information is stored. This *Messenger 2.1 Installation Guide* lists system requirements, helps you plan and install your Messenger system, and describes the easiest way to distribute the Novell Messenger client software to users. The *Novell Messenger 2.1 Administration Guide* describes your Messenger system in detail and helps you configure and manage your Messenger system to meet your users' needs.

Novell Messenger Hardware and Software Requirements

2

- ♦ [Section 2.1, “Messenger System Requirements,” on page 11](#)
- ♦ [Section 2.2, “Messenger Client Workstation Requirements,” on page 12](#)
- ♦ [Section 2.3, “Supported Environments,” on page 13](#)

2.1 Messenger System Requirements

Before installing Messenger, make sure that your system meets the following server installation requirements:

- ♦ [Section 2.1.1, “Messenger Server Requirements,” on page 11](#)
- ♦ [Section 2.1.2, “Installation User Rights Requirements,” on page 12](#)

2.1.1 Messenger Server Requirements

- ❑ 32-bit/x86 processor or 64-bit/x86 processor running in 32-bit mode
- ❑ Any of the following server operating systems for the Messenger agents:
 - ♦ Novell Open Enterprise Server (NetWare or Linux version), plus the latest Support Pack
 - ♦ NetWare 6, or NetWare 6.5, plus the latest Support Pack for your version of NetWare
 - ♦ SUSE Linux Enterprise Server (SLES) 10, or SUSE Linux Enterprise Server 11, plus the latest Support Pack
 - ♦ Windows Server 2000, Windows Server 2003, Windows Server 2003 R2, or Windows Server 2008, plus the latest Service Pack for your version of Windows
- ❑ Adequate server memory as required by the operating system.
- ❑ eDirectory 8.7 or later, plus the latest Support Pack
- ❑ ConsoleOne 1.3.6h or later, with the LDAP snap-in installed
 - On Linux, ConsoleOne requires Java Virtual Machine (JVM) 1.4.2, plus the X Window System, version X11R6 or later. If necessary, you can download ConsoleOne for Linux from the [Novell Product Downloads site \(http://download.novell.com\)](http://download.novell.com).
 - On Windows, ConsoleOne also requires the Novell Client. ConsoleOne 1.3.6h requires version 4.91 SP3 or later of the Novell Client. If necessary, you can download the latest Novell Client from the [Novell Product Downloads site \(http://download.novell.com\)](http://download.novell.com).
- ❑ Windows 2000, Windows 2003, and the Novell Client on any administrator Windows machine where you run ConsoleOne or the Messenger Installation program
 - If necessary, you can download the Novell Client from the [Novell Product Downloads site \(http://download.novell.com\)](http://download.novell.com).

The Messenger agents are highly scalable. If you are setting up a large Messenger system, you should run the Messaging Agent on a dedicated server with dual processors speeds of 3 GHz and with 4 GB of RAM. The Messaging Agent has been tested to easily support 1000 active conversations on such hardware. If you assume that 2% of Messenger users might be conversing simultaneously, you could plan on your Messenger system including as many as 50,000 users.

2.1.2 Installation User Rights Requirements

- ❑ You must have the following rights when you run the Messenger Installation program:
 - ◆ Supervisor rights at the root of the eDirectory tree to extend the eDirectory schema
 - ◆ Read and Create rights in any containers where Messenger objects will be created
 - ◆ File, Super user, or Administrator rights (depending on the operating system) to the server or workstation where the Messenger snap-in to ConsoleOne and the Messenger agents will be installed
- ❑ Additionally, if you run the Messenger Windows Installation program from a Windows workstation, you must have the following:
 - ◆ Access to the eDirectory tree
 - ◆ Windows XP workstation
 - ◆ Novell Client

2.2 Messenger Client Workstation Requirements

- ◆ [Section 2.2.1, “Windows Client,” on page 12](#)
- ◆ [Section 2.2.2, “Linux Client,” on page 12](#)
- ◆ [Section 2.2.3, “Mac Client,” on page 13](#)

2.2.1 Windows Client

- ◆ 32-bit/x86 processor or 64-bit/x86 processor running in 32-bit mode
- ◆ Any of the following desktop operating systems for the Novell Messenger Windows client
 - ◆ Windows XP on a 300 MHz or higher workstation with at least 128 MB of RAM
 - ◆ Windows XP Professional on a Pentium 300 or higher with at least 128 MB of RAM
 - ◆ Windows Vista on a 1 GHz or higher workstation with at least 1 GB of RAM
 - ◆ Windows 7 on a 1 GHz or higher workstation with at least 1 GB of RAM
 - ◆ 20 MB of free disk space on each user’s workstation to install the Windows client
 - ◆ An additional 10 MB of free disk space if you store Personal History locally

2.2.2 Linux Client

- ◆ 32-bit/x86 processor or 64-bit/x86 processor running in 32-bit mode
- ◆ SUSE Linux Enterprise Desktop 10, or SUSE Linux Enterprise Desktop 11, plus the KDE desktop or the GNOME desktop
- ◆ 91 MB of free disk space for the client

2.2.3 Mac Client

- ♦ 32-bit/x86 processor or 64-bit/x86 processor running in 32-bit mode; PowerPC
- ♦ Any of the following desktop operating systems:
 - ♦ Mac OS 10.4 (Tiger), Mac OS 10.5 (Leopard), Mac OS 10.6 (Snow Leopard)
 - ♦ Mac OS X for Intel
 - ♦ Mac OS X for PowerPC
- ♦ Apple Java Virtual Machine (JVM) 1.5 or later
- ♦ 86 MB of free disk space for the Java Virtual Machine version 2.5.0
- ♦ An additional 10 MB of free disk space if you store Personal History locally

2.3 Supported Environments

- ♦ [Section 2.3.1, “IPV6 Support,” on page 13](#)
- ♦ [Section 2.3.2, “Clustering Support,” on page 13](#)
- ♦ [Section 2.3.3, “Virtual Machine Support,” on page 13](#)
- ♦ [Section 2.3.4, “Citrix Support,” on page 14](#)

2.3.1 IPV6 Support

The Messaging Agent and Archive Agent support the IPV6 protocol when it is available on the server. If IPV6 is available, the agent detects it and supports it by default, along with IPV4.

As you configure your Messenger system and specify the network address of an IPV6 server, you must specify its DNS hostname. IP Address fields in ConsoleOne do not accommodate IPV6 address format.

IPV6 support is available on Linux and Windows. IPV6 support is not currently available on NetWare.

2.3.2 Clustering Support

You can set up your Messenger system in many different clustering environments, as described in the *GroupWise 8 Interoperability Guide* (http://www.novell.com/documentation/gw8/gw8_interop/data/a20gkue.html).

If you are using one of these clustering environments, follow the installation instructions in the *GroupWise 8 Interoperability Guide* (http://www.novell.com/documentation/gw8/gw8_interop/data/a20gkue.html), rather than the installation instructions in this guide.

2.3.3 Virtual Machine Support

You can install components of your Messenger system in virtual environments where a software program enables one physical server to function as if it were two or more physical servers. The following virtualization software is supported:

- ♦ Xen virtualization on SUSE Linux Enterprise Server 10, or Xen virtualization on SUSE Linux Enterprise Server 11

- ♦ VMware GSX Server, an enterprise-class virtual infrastructure for x86-based servers
- ♦ VMware ESX Server, a data-center-class virtual infrastructure for mission-critical environments

For more information, see the [VMware Web site \(http://www.vmware.com\)](http://www.vmware.com).

2.3.4 Citrix Support

Any version of the Novell Messenger client runs successfully on any 32-bit version of Citrix.

Installing a Novell Messenger System

3

The following sections present the background information and installation instructions you need to successfully implement your Novell Messenger system.

- ♦ [Section 3.1, “Planning Your Novell Messenger System,” on page 15](#)
- ♦ [Section 3.2, “Installing and Setting Up Your Novell Messenger System,” on page 23](#)
- ♦ [Section 3.3, “Monitoring Novell Messenger with GroupWise Monitor,” on page 37](#)
- ♦ [Section 3.4, “What’s Next,” on page 37](#)
- ♦ [Section 3.5, “Novell Messenger Worksheet,” on page 38](#)

3.1 Planning Your Novell Messenger System

The Messenger Installation program helps you install and set up your Messenger system. The Installation program also provides information to guide you through the process.

Review the following sections while filling out [Section 3.5, “Novell Messenger Worksheet,” on page 38](#). The worksheet lists all the information you are prompted for as you run the Installation program.

- ♦ [Section 3.1.1, “Determining Installation Locations,” on page 15](#)
- ♦ [Section 3.1.2, “Planning Your Novell Messenger System,” on page 16](#)
- ♦ [Section 3.1.3, “Planning the Novell Messenger Agents,” on page 20](#)

3.1.1 Determining Installation Locations

The Installation program prompts you for information about the eDirectory tree where you will create Messenger objects and the network server locations where you will create Messenger directories and install files. The following sections prepare you to supply the required information:

- ♦ [“eDirectory” on page 15](#)
- ♦ [“ConsoleOne” on page 16](#)

eDirectory

Messenger is administered through eDirectory, the Novell directory service. All Messenger components and users are configured through objects in eDirectory. You need to make sure that you have eDirectory installed in your environment. See [“Novell Messenger Hardware and Software Requirements” on page 11](#) for more information.

Extending the eDirectory Tree’s Schema

The Installation program must extend the schema of the eDirectory tree where you are going to create your Messenger system. Because all objects in a Messenger system must reside in the same eDirectory tree, only one tree needs to be extended.

WORKSHEET

Under [Item 4: Tree Name](#), enter the eDirectory tree where you will create the Messenger objects.

ConsoleOne

Messenger administration is performed through ConsoleOne. When you install Messenger, the Messenger snap-in files are copied into an existing ConsoleOne installation. The Messenger snap-in files extend the functionality of ConsoleOne to let you administer Messenger. ConsoleOne considerations differ by platform:

- ♦ **NetWare and Windows:** For a Messenger system on NetWare or Windows, you need to decide which ConsoleOne location you want to use to administer Messenger. This can be a ConsoleOne location on a network server or it can be on a local workstation. ConsoleOne 1.3.6 is included in the downloaded *Novell Messenger 2.1* image, so you can update your ConsoleOne installation if necessary. If you plan to use ConsoleOne on a local workstation, you need to perform the Messenger installation from that workstation.
- ♦ **Linux:** If you will be administering a Messenger system on Linux, ConsoleOne must be installed before you set up Messenger. GroupWise 8 for Linux includes eDirectory 8.8.3 for Solaris, Linux, and AIX, from which you can install ConsoleOne. ConsoleOne is typically installed to `/usr/ConsoleOne`. Make sure that ConsoleOne is installed on the Linux server where you plan to create your Messenger system.

WORKSHEET

Under [Item 14: Admin Configuration](#), indicate whether or not you need to update your ConsoleOne installation and specify the path to the ConsoleOne software directory.

After your initial Messenger installation, you can install ConsoleOne and the Messenger snap-in to additional locations as needed.

3.1.2 Planning Your Novell Messenger System

Your Novell Messenger system is a collection of eDirectory objects to which the Messenger agents need access. In addition, the Messenger agents need access to all User objects that will be included in your Messenger system. The following sections help you decide how to implement your Messenger system in eDirectory:

- ♦ [“Messenger System Location” on page 16](#)
- ♦ [“Messenger User Locations” on page 17](#)
- ♦ [“eDirectory Access and Authentication” on page 18](#)
- ♦ [“Messenger System Security” on page 19](#)

Messenger System Location

You can create your Messenger system in any context in your eDirectory tree, except at the root of the tree. Within the Messenger system container you will have server, agent, policy, scope profile, LDAP profile, host, and chat objects.

The default name of the object that represents your Messenger system is MessengerService. The default object name for the server where you install the Messenger agents is the server's DNS hostname with SERVER appended to it. You can change these object names, if necessary.

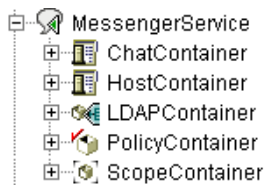
WORKSHEET

Under [Item 5: Messenger System Context](#), specify the eDirectory context where you want to create your Messenger system. Make sure that the context exists in your eDirectory tree.

Under [Item 6: Messenger System Objects](#), provide alternate names for the Messenger system and server objects if you do not want to use the default names.

After you have completed installation of your Messenger system, the following structure is created in eDirectory:

Figure 3-1 Messenger Service Container and Contents



These objects are explained in “[Understanding Your Novell Messenger System](#)” in the *Novell Messenger 2.1 Administration Guide*.

Messenger User Locations

The Messenger agents scan eDirectory to obtain information about users. During installation, you can specify one or more eDirectory contexts where User objects are located. You can include subcontexts if necessary. The list of contexts you supply establishes the initial scope of your Messenger system.

User objects located in those contexts are considered part of your Messenger system and their associated users can communicate with each other by using the Messenger client. User objects located outside those contexts are not considered part of your Messenger system and their associated users cannot use Messenger.

NOTE: GroupWise External Entity objects are not treated as User objects and are not considered part of your Messenger system.

WORKSHEET

Under [Item 11: User Configuration](#), list the eDirectory contexts where User objects are located and mark whether you want to include subcontexts.

On Linux, you cannot automatically include subcontexts during installation. You must list each subcontext separately or use ConsoleOne after installation to include subcontexts, as described in “[Editing the Default Scope Profile to Include Additional eDirectory Users](#)” in “[Managing Messenger Client Users](#)” in the *Novell Messenger 2.1 Administration Guide*.

Using the information you provide during installation, the Installation program creates a Scope Profile object in your Messenger system. When you view the properties of this object in the tree, you see the contexts you specified during installation. You can change the scope of your Messenger system as needed after installation, as described in “[Adding Users to Your Messenger System](#)” in “[Managing Messenger Client Users](#)” in the *Novell Messenger 2.1 Administration Guide*.

eDirectory Access and Authentication

Messenger is a directory-based application. Messenger agent configuration information, user information, and settings are stored in eDirectory. You can choose between two different methods of eDirectory access:

- ♦ **Direct Access:** The Messenger agents can log directly into eDirectory to obtain the information they need. An advantage of direct access is fast access to a local eDirectory replica.
- ♦ **LDAP Access:** The Messenger agents can be configured to access eDirectory through an LDAP server. Advantages of LDAP access include running the NetWare agents in protected mode and providing secure access to a remote eDirectory replica through SSL encryption.

WORKSHEET

Under [Item 9: Directory Access](#), mark whether you want the Messenger agents to use direct access or LDAP access to eDirectory.

If you are installing the Messenger agents on a Windows or Linux server, specify the IP address of an eDirectory replica. You can use only an IPV4 IP address for the eDirectory replica. If you are installing the Messenger agents on a NetWare server, you do not need to specify this information because there is an eDirectory replica on the NetWare server.

If you want to use LDAP access, specify the hostname and port number where the Messenger agents can communicate with the LDAP server. The default port number is 389 for non-SSL and 636 for SSL.

The initial eDirectory access method that you set up during installation determines how Messenger agents access eDirectory to obtain their configuration information and how the Messaging Agent accesses eDirectory on behalf of Messenger users when they log in to Messenger, search for contacts, establish conversations, and so on. Additional directory access alternatives can be configured after installation, as described in “[Customizing eDirectory Access for Users](#)” in the *Novell Messenger 2.1 Administration Guide*.

During installation, you must provide an eDirectory username and password for the Messenger agents to use when accessing eDirectory. The simplest approach is to let them log in as an Admin equivalent user.

If you do not want to let the Messenger agents log into eDirectory as an Admin equivalent user, you must set up an eDirectory user that meets specific requirements. The user must:

- ♦ Be visible to the Messenger agents using the eDirectory access method you have selected (direct or LDAP)
- ♦ Be a trustee of your Messenger system object (MessengerService, by default) and have the following rights as a trustee in order to access the Messenger agent objects:

Property	Rights
[All Attribute Rights]	<ul style="list-style-type: none"> ◆ Compare, Read, and Write ◆ Inheritable
[Entry Rights]	<ul style="list-style-type: none"> ◆ Browse, Create, Rename, and Delete ◆ Inheritable

- ◆ Be a trustee of the eDirectory tree object or of the highest-level container object that contains all User objects that will be part of your Messenger system, and have the following rights as a trustee in order to access User objects:

Property	Rights
[All Attribute Rights]	<ul style="list-style-type: none"> ◆ Compare, Read, and Write ◆ Inheritable
[Entry Rights]	<ul style="list-style-type: none"> ◆ Browse ◆ Inheritable
nnmBlocking nnmBlockingAllowList nnmBlockingDenyList nnmClientSettings nnmContactList nnmCustomStatusList nnmLastLogin	<ul style="list-style-type: none"> ◆ Compare, Read, and Write ◆ Inheritable

Without sufficient rights to the Messenger system object, the Messenger agents cannot access their configuration information in eDirectory. Without sufficient rights to User objects, the Messaging Agent cannot access users' contact lists, Messenger client settings, and other user-specific information.

WORKSHEET

Under [Item 10: Directory Authentication](#), supply the username and password that the Messenger agents can use to authenticate to eDirectory with the required rights.

For step-by-step instructions on setting up the required rights, see “[Assigning Required Rights for eDirectory Access](#)” in “[Managing Messenger Client Users](#)” in the *Novell Messenger 2.1 Administration Guide*.

Messenger System Security

By default, communication between the Messenger agents and eDirectory, between the Messaging Agent and Messenger clients, and between the Messaging Agent and the Archive Agent is not secure. Information obtained from eDirectory, messages passing between Messenger users, and messages passing from the Messaging Agent to the Archive Agent are not encrypted. Messages stored in the Messenger archive are encrypted by the Archive Agent as they are archived.

If you want to enable SSL encryption between the Messenger agents and eDirectory, you must use LDAP access, not direct access, to eDirectory. The Messenger agents must communicate with the LDAP server on the LDAP SSL port of 636, rather than on the default LDAP port of 389.

For additional security between the Messenger agents and eDirectory when using LDAP access, you can reference the root certificate for the server where the eDirectory replica accessed by the agents is located. Typically, the root certificate is named `rootcert.der`. On a NetWare server, it is located in `sys:\public`. On a Linux or Windows server, it is exported to a user-specified location after installation of eDirectory.

IMPORTANT: If you do not specify a root certificate, your LDAP server must be configured to accept clear text passwords. Root certificates can be exported from ConsoleOne at any time after eDirectory is installed.

In order to enable SSL encryption between the Messaging Agent and Messenger clients and between the Messaging Agent and the Archive Agent, you must have a public certificate file and a private key available on your system.

WORKSHEET

Under [Item 9: Directory Access](#), specify 636 as the LDAP port number and, if desired, provide the full path to the root certificate.

Under [Item 15: Security Configuration](#), specify the full path to the public certificate file, your private key file (if separate from the certificate file), and the private key password.

If you are not already familiar with SSL, or if SSL is not already set up on your system, you can add SSL security to your Messenger system after installation, as described in “[Establishing Messaging Security with SSL Encryption](#)” in “[Managing the Messaging Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

3.1.3 Planning the Novell Messenger Agents

Your Novell Messenger system can include two agents:

- ♦ **Messaging Agent:** Your Messenger system requires one Messaging Agent. The Messenger client communicates with the Messaging Agent for messaging, presence, and searching for users to add to the Messenger Contact List. The Messaging Agent also manages the queue for archiving conversations.
- ♦ **Archive Agent:** If you want to enable archiving, your Messenger system requires one Archive Agent. The Archive Agent archives conversations, indexes conversations, and performs searches on the archive when contacted by an authorized Messenger user.

The following sections prepare you to supply the information required when installing the Messenger agents. Depending on the operating system you are installing to, some of these options might not apply:

- ♦ “[Agent Platform](#)” on page 21
- ♦ “[Agent Software Location](#)” on page 21
- ♦ “[Agent Network Address and Ports](#)” on page 21
- ♦ “[Clustering Option for the Messenger Agents](#)” on page 22

- ◆ “Linux Agent High Availability” on page 22
- ◆ “Windows Server Options for the Windows Messenger Agents” on page 22

Agent Platform

The agents are available as NetWare NLM programs, Linux executables, and Windows executables.

WORKSHEET

Under [Item 1: Server Information](#), mark the type of agents (NetWare, Linux, or Windows) that you want to install.

Agent Software Location

On NetWare or Windows, you can specify where you want to install the Messenger agents. By default, they are installed to `drive:\novell\nm` where *drive* represents a mapped drive letter from the perspective of the Windows machine where you will run the Messenger Installation program.

NOTE: If you install to NetWare, you cannot use long filenames in paths.

On Linux, the Messenger agents are always installed to the `bin` and `lib` subdirectories of `/opt/novell/messenger`.

WORKSHEET

Under [Item 3: Installation Path](#), specify the full path to the directory where you want to install the Windows or NetWare Messenger agent software. If the directory does not exist, it will be created.

Agent Network Address and Ports

The Messenger Installation program obtains the IP address and DNS hostname of the server where you want to install the Messenger agents based on the agent software location you provide. If the server has multiple IP addresses and DNS hostnames associated with it, you can specify different information from what the Installation program obtained automatically.

In addition to the IP address and DNS host name information, the Installation program also establishes the ports on which the Messenger agents listen for service requests. By default, the Messaging Agent listens for the Messenger client on client/server port 8300, meaning that conversations take place on port 8300. By default, the Archive Agent listens for the Messenger client on client/server port 8310, meaning that archive searches take place on port 8310. If a default port number is already in use on the server, select a different port number.

If you are using IPV6 for your Messenger agents, you must use the DNS hostname instead of the IP address for the agents.

WORKSHEET

Under [Item 12: Server Address](#), list the IP address or DNS host name of the server where you want to install the Messenger agents. If the default port numbers are in use on the server, specify unique port numbers for the Messenger agents.

Clustering Option for the Messenger Agents

Novell Cluster Services is a server clustering system that ensures high availability and manageability of critical network resources including applications (such as the Messaging Agent and the Archive Agent) and volumes (where the Messenger queues and archive reside). Novell Cluster Services supports failover, failback, and migration of individually managed cluster resources. Novell Cluster Services is only available for NetWare and OES Linux.

The Messenger agents can be configured to take advantage of the fault-tolerant environment provided by Novell Cluster Services. The Installation program adds a /cluster switch to the Messenger agent startup files. This tells the Messenger agents to use the cluster virtual server name rather than the specific server name in pathnames obtained from the Agent object properties in eDirectory or from startup switches.

In addition to Novell Cluster Services, Messenger also supports PolyServe and Heartbeat clusters. For additional information on how to install and configure PolyServe and Heartbeat clusters, see the [GroupWise 8 Interoperability Guide](#).

WORKSHEET

Under [Item 13: Configure Agents for Clustering](#), mark whether or not you want to configure the Messenger agents for clustering.

For more information on clustering Messenger, see the [GroupWise 8 Interoperability Guide](#).

Linux Agent High Availability

The GroupWise High Availability service makes sure that if the Messaging Agent or the Archiving Agent goes down for any reason, it starts again automatically. On NetWare, this capability is provided by using a restartable protected address space. On Windows, Microsoft Clustering Services automatically restarts a service that is not responding. On Linux, Novell Cluster Services does not include this capability, so it is built into the Novell Messenger Linux agents.

The GroupWise High Availability service (gwha) must be installed from the downloaded *GroupWise 7* image or the downloaded *GroupWise 8* image, depending on what version of GroupWise you are running. After the gwha service has been installed, it starts when your server boots and makes sure that the Messaging Agent and the Archiving Agent are running. If it detects that one of these agents is no longer running, it immediately issues the command to start it. The High Availability service uses the GroupWise Monitor Agent to periodically check the status of the agents that it is responsible for restarting. For instructions on how to set up the High Availability service, see [Section 3.2.4, “Setting Up the High Availability Service,” on page 33](#). For information on configuring Monitor for the Novell Messaging agents, see “[Monitoring Messaging Agent Status](#)” in the [Novell Messenger 2.1 Administration Guide](#).

Windows Server Options for the Windows Messenger Agents

You can run the Windows Messenger agents as Windows applications or as Windows services. When you run the agents as Windows services, they can run under a specific Windows user account, or they can run under the local system account, with no username or password required. As with all Windows services, you can start the agents manually or have them start automatically each time the Windows server starts.

WORKSHEET

Under [Item 2: Windows Server Options](#), select *Install Agents as Windows Services* if you want to run the Messenger agents as Windows services.

If you will run the agents as Windows services, under [Item 8: Windows Service Options](#), record the account the agents will run under (unless they will run under the local system account), and if necessary, the password for the account. Also select whether you want the service to start automatically or manually.

If you want to use an SNMP manager program, such as the Management and Monitoring Services component of Novell ZENworks for Servers, to monitor the Windows Messenger agents, you must install some SNMP components along with the Windows Messenger agent software.

WORKSHEET

Under [Item 2: Windows Server Options](#), select *Install and Configure SNMP for Novell Messenger Agents* if you want to use an SNMP manager program.

If this option is dimmed during installation, the SNMP service has not been set up on the Windows server where you are installing the Messenger agents. If you want to monitor the agents from an SNMP management program, the SNMP service must be enabled so you can select this option. For information about setting up SNMP on a Windows server, see “[Using SNMP Monitoring Programs](#)” in “[Managing the Messaging Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

3.2 Installing and Setting Up Your Novell Messenger System

You should have already reviewed [Section 3.1, “Planning Your Novell Messenger System,”](#) on [page 15](#) and filled out the [worksheet](#). The following sections guide you through the installation process:

- ◆ [Section 3.2.1, “Installation Prerequisites,”](#) on [page 23](#)
- ◆ [Section 3.2.2, “Installing and Setting Up a Messenger System on NetWare or Windows,”](#) on [page 24](#)
- ◆ [Section 3.2.3, “Installing and Setting Up a Messenger System on Linux,”](#) on [page 29](#)
- ◆ [Section 3.2.4, “Setting Up the High Availability Service,”](#) on [page 33](#)
- ◆ [Section 3.2.5, “Setting Up Non-root Access on an NSS Volume on Novell Open Enterprise Server Linux,”](#) on [page 35](#)

3.2.1 Installation Prerequisites

Before starting the Messenger Installation program, make sure that your system has been prepared for the Messenger system configuration for which you have planned:

- ◆ Make sure that the container object exists where you want to create your Messenger system.

- ♦ If you are planning to have the Messenger agents use LDAP access to eDirectory but you are not providing a root certificate, make sure that your LDAP server supports clear text passwords. In ConsoleOne, check the properties of the LDAP Group object that your LDAP server is a part of. Depending on your version of eDirectory, the *Allow Clear Text Passwords* option should be selected or the *Require SSL/TSL* option should be deselected.
- ♦ If you are planning to install the Windows Messenger agents as Windows services and you do not want them to run under the local system account, make sure that the account you want them to use has been created on the Windows server.
- ♦ If you are running the Messenger Installation program at a Windows workstation or server, make sure that you are logged in as an Admin equivalent to the eDirectory tree where you are planning to create your Messenger system. If you are installing the Messaging agents on a Windows server, you should run the Installation program at that server.

Follow the setup instructions for the platform where you are creating your Messenger system:

- ♦ [Section 3.2.2, “Installing and Setting Up a Messenger System on NetWare or Windows,” on page 24](#)
- ♦ [Section 3.2.3, “Installing and Setting Up a Messenger System on Linux,” on page 29](#)

3.2.2 Installing and Setting Up a Messenger System on NetWare or Windows

- ♦ [“Starting the Messenger Installation Program” on page 24](#)
- ♦ [“Creating Your Messenger System” on page 24](#)
- ♦ [“Installing the Messenger Software” on page 29](#)

Starting the Messenger Installation Program

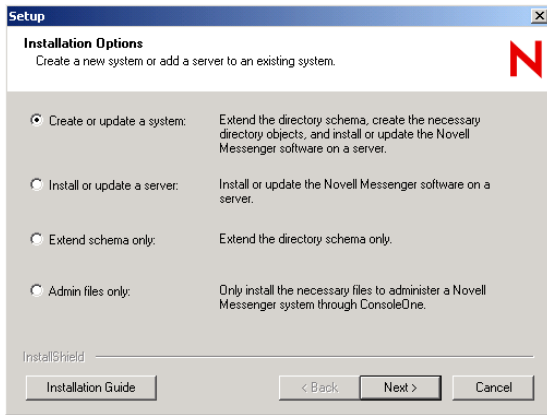
- 1 At a Windows workstation or server, download the *Novell Messenger 2.1* image.
- 2 In the `server` directory, run the `setup.exe` file to start the installation program.
- 3 Select the language in which you want to run the Installation program, then click *OK*.
- 4 Click *Yes* to accept the License Agreement.
- 5 Continue with [Creating Your Messenger System](#).

Creating Your Messenger System

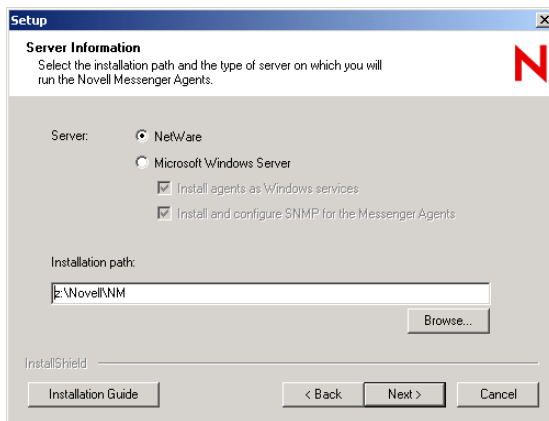
The Installation Options page lets you select what type of installation you want to perform.

Throughout the installation process, you can refer to the *Installation Guide* by clicking *Installation Guide* in the lower left corner of each Installation program page.

Figure 3-2 Installation Options Dialog Box



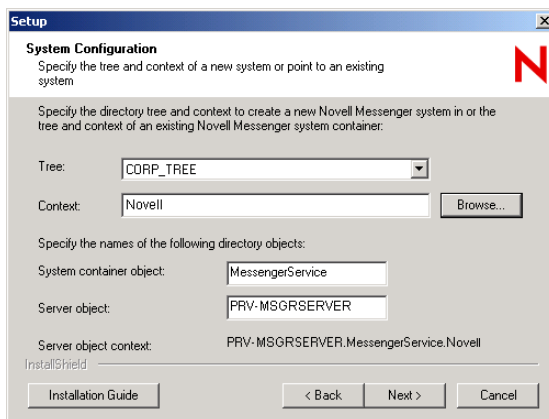
1 Select *Create or Update a System*, then click *Next* to display the Server Information page.



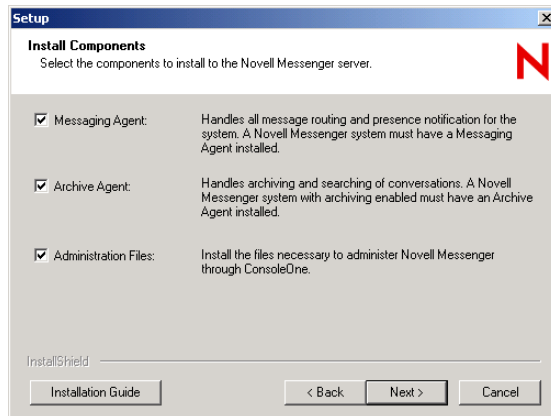
2 Select *NetWare* or *Microsoft Windows Server*.

3 If you selected *Microsoft Windows Server*, set the Windows server options as planned under [item 2](#) of the [worksheet](#).

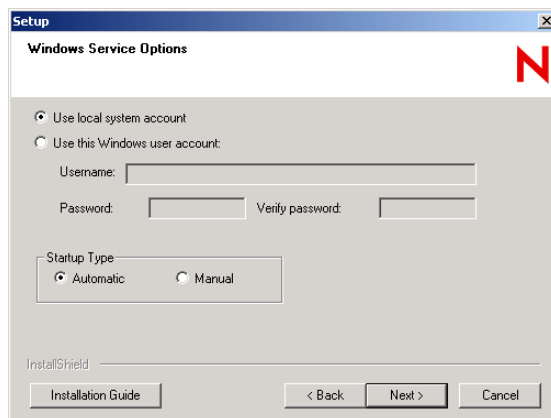
4 Specify the directory path or browse to and select the directory where you want to install the Messenger agents as planned under [item 3](#) of the [worksheet](#), then click *Next* to display the System Configuration page.



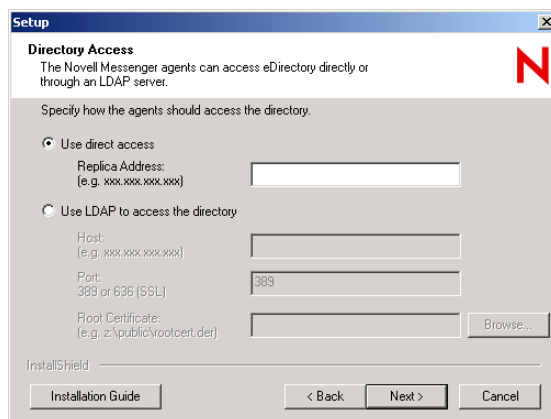
- 5 Provide the Messenger system configuration information as planned under [item 4](#) through [item 6](#) of the [worksheet](#), then click *Next* to display the Installation Components page.



- 6 Leave all the components selected for your initial Messenger installation, then click *Next*. If you are installing the Windows Messenger agents and selected to install them as Windows services, the Windows Service Options page appears.

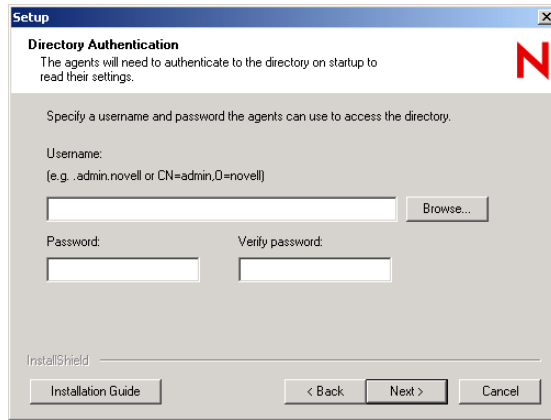


- 7 For the Windows Messenger agents, provide the Windows service information as planned under [item 8](#) of the [worksheet](#), then click *Next* to display the Directory Access page.



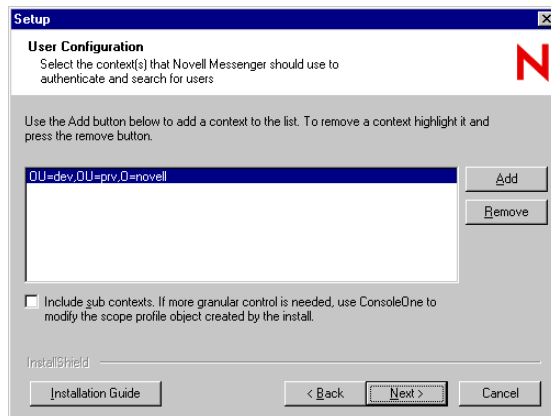
For NetWare installs, the *Replica Address* field does not appear.

- 8 Provide the eDirectory access information as planned under [item 9](#) of the [worksheet](#), then click *Next* to display the Directory Authentication page.



- 9 Provide the eDirectory authentication information as planned under [item 10](#) of the [worksheet](#), then click *Next* to display the User Configuration page.

If you are installing Messenger 2.0.2 Hot Patch 1 or later, the screen text for the Directory Authentication page might be different.

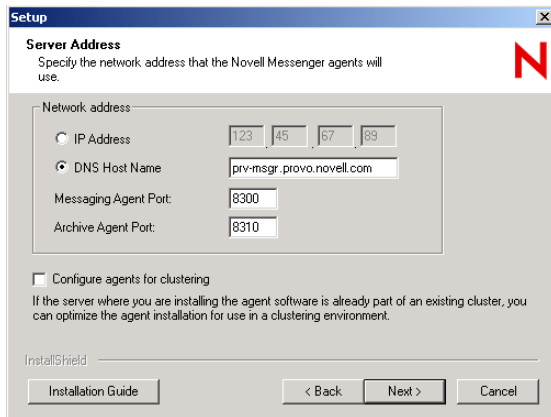


The context of the eDirectory user is automatically added to the context list.

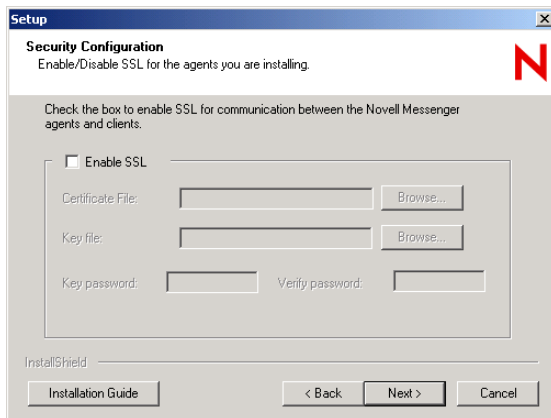
- 10 If necessary, click *Add*, then browse to and select another user context as planned under [item 11](#) of the [worksheet](#).
- 11 Select *Include subcontexts* if User objects exist in nested container objects beneath the selected context.

IMPORTANT: If you do not select *Include subcontexts*, User objects in containers beneath the selected context are not considered part of your Messenger system.

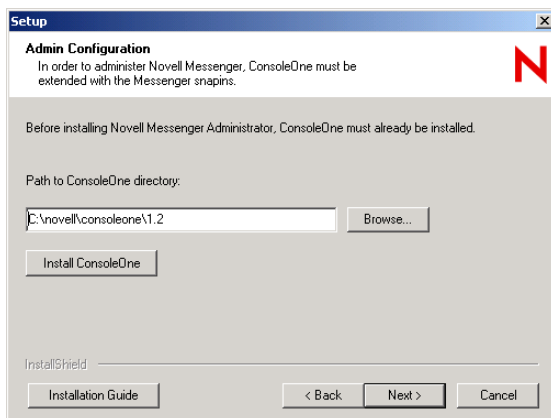
- 12 Click *OK* to add the context to the contact list.
- 13 Repeat [Step 10](#) through [Step 12](#) for each context where User objects reside, then click *Next* to display the Server Address page.



- 14 Verify the IP address or DNS host name of the server where the agents will run, and the port number that each agent will use as planned under [item 12](#) of the [worksheet](#).
If you are using IPV6 for the agents, you must use the DNS hostname instead of the IP address.
- 15 If the NetWare server you are installing to is already part of an existing cluster, select *Configure Agents for Clustering*.
- 16 Click *Next* to display the Security Configuration page.



- 17 If planned under [item 15](#) on the [worksheet](#), select *Enable SSL* and specify the necessary information, then click *Next* to display the Admin Configuration page.

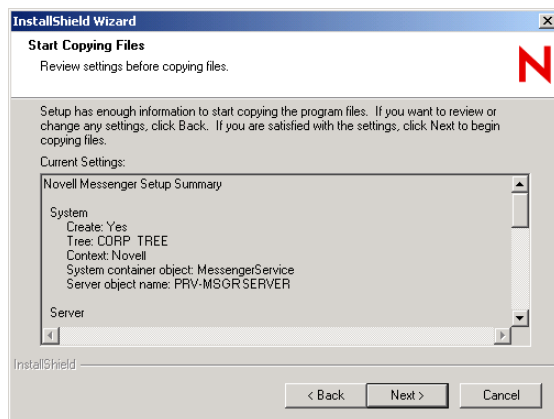


- 18 Verify the path to ConsoleOne.
- 19 Click *Next*.
- 20 If you are installing Messenger in a cluster, see the appropriate section of the [GroupWise 8 Interoperability Guide](#) for additional instructions.
- 21 Continue with [“Installing the Messenger Software” on page 29](#).

Installing the Messenger Software

The installation summary lets you review the information you have provided before the installation actually begins.

Figure 3-3 *Installation Summary Dialog Box*



- 1 Review the summary of the selections you have made.
If necessary, click *Back* to change information as needed before proceeding with the installation.
- 2 Click *Next* to begin the installation.
When the installation is complete, you can choose to view the Readme, start the Messenger agents immediately, and, for the NetWare Messenger agents, update the `autoexec.ncf` file so that the Messenger agents start automatically whenever the server restarts.
- 3 Select the post-installation options you want, then click *Finish*.
- 4 Continue with [Section 3.4, “What’s Next,” on page 37](#).

3.2.3 Installing and Setting Up a Messenger System on Linux

- ♦ [“Starting the Messenger Installation Program on Linux” on page 29](#)
- ♦ [“Configuring Your Messenger System on Linux” on page 30](#)
- ♦ [“Configuring the Linux Messenger Agents for SSL” on page 31](#)
- ♦ [“Starting the Linux Messenger Agents” on page 33](#)

Starting the Messenger Installation Program on Linux

- 1 At the Linux server, become `root` by entering `su` and the root password.
- 2 Change to the `/server` directory on the downloaded *Messenger 2.1* image.

- 3 Ensure that the `install.sh` file has execute permissions. If it does not, enter `chmod +x install.sh`.
- 4 Enter the following:

```
./install.sh
```
- 5 Press Enter to continue and display the license agreement.
- 6 Press Enter or the Spacebar to scroll through the license agreement. At the end of the license agreement, enter `y` to accept the agreement, or enter `n` to not accept the license agreement.
- 7 If you accept the license agreement, the necessary `.rpm` files are installed to the server. Enter `y` to continue with the installation.
- 8 Continue with [Configuring Your Messenger System on Linux](#).

Configuring Your Messenger System on Linux

- 1 After the packages are installed, enter `y` to configure the Messenger system.
The following options are displayed:
 - 1) *Create a new system*
 - 2) *Install a new server to an existing system*
 - 3) *Extend schema only*
- 2 Enter 1 to create a new system.
If you are installing from a support pack file:
Enter `Y` when asked *Are you installing to a cluster? (y/n)*. For additional clustering configuration steps, see the [GroupWise 8 Interoperability Guide](#).
The following options are displayed:
 - 1) *Use LDAP to access eDirectory*
 - 2) *Use eDirectory libraries for direct access*
- 3 Enter 1 or 2 ([worksheet item 9](#)).
If eDirectory is not installed on the Linux server, only the option for using LDAP is displayed.
- 4 If you selected LDAP in [Step 3](#), specify the following information:
 - ♦ The IP address of the LDAP server
 - ♦ `y` or `n` to select whether or not to use SSL
 - ♦ The port of the LDAP server ([worksheet item 9](#))
 - ♦ If you select to use SSL, you next need to enter the path to the LDAP server's root certificate ([worksheet item 15](#)). For more information, see "Messenger System Security" on page 19or
If you selected direct access, specify the name of the eDirectory tree to extend and create objects in, and the replica address for that tree (IP address of the server running eDirectory) ([worksheet item 9](#)).
- 5 Specify the context to create the objects in, for example, `ou=linuxsystem,o=novell` ([worksheet item 5](#)).
- 6 Specify the Messenger system object name ([worksheet item 6](#)).
You can press Enter to accept the default name of MessengerService.

- 7** Specify the Messenger server object name ([worksheet item 6](#)).
You can press Enter to accept the default name, which is the Linux server name plus the word *server*.
- 8** Specify the full context of the directory user object that will be used to extend the schema and create the objects. For example, `cn=admin,ou-linuxsystem,o=novell`.
This user must have rights to extend the schema and create objects in eDirectory. This user is not saved to disk and is deleted from memory after the installation.
You see this step only if you are installing Messenger 2.0.2 Hot Patch 1 or later.
- 9** Specify the full context of the directory user object that will be used by the agents to access the directory, for example, `cn=admin,ou=linuxsystem,o=novell` ([worksheet item 10](#)).
For more information, see “[eDirectory Access and Authentication](#)” on page 18.
- 10** Enter the password for this user twice ([worksheet item 10](#)).
- 11** Specify the default contexts where Messenger will authenticate and search for users. For example, `ou=linuxsystem,o=novell` ([worksheet item 11](#)).
For more information, see “[Messenger User Locations](#)” on page 17.
- 12** Specify the IP address of the Linux server ([worksheet item 12](#)).
- 13** Specify `y` or `n` to select whether or not to use SSL.
If you select to use SSL, specify the path to the server’s root certificate and the path to the server’s root certificate key, then enter the password for the server’s root certificate.
- 14** Enter a non-`root` system user for the Messenger service to run as.
You can press Enter to accept the default name of `nvlmsgr`.
If you are installing to an NSS volume, select `root` as the default user. For additional information on configuring Novell Messenger for an NSS volume, see [Section 3.2.5, “Setting Up Non-root Access on an NSS Volume on Novell Open Enterprise Server Linux,”](#) on page 35.
A summary of the information you supplied is displayed.
- 15** Enter `y` to continue with the installation.
- 16** After the installation and configuration are complete, enter `n` to not start the agents at this time.
- 17** Continue with [Configuring the Linux Messenger Agents for SSL](#).

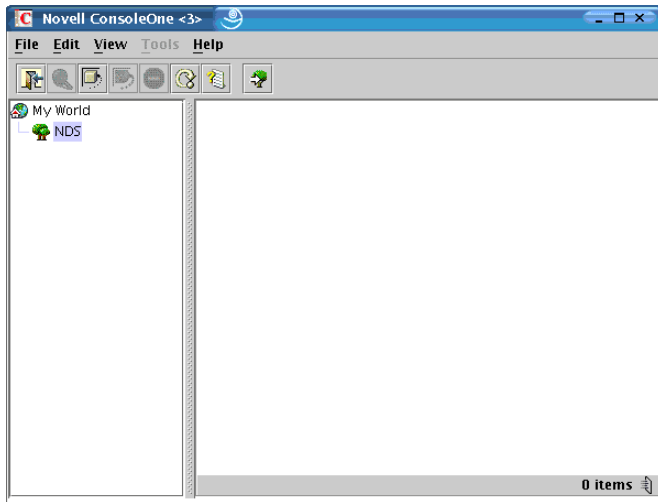
Configuring the Linux Messenger Agents for SSL

The Messenger Cross-Platform client requires an SSL connection with the Messenger agents. If you are not already familiar with SSL, or if SSL is not already set up on your system, you can add SSL security to your Messenger system, as described in “[Establishing Messaging Security with SSL Encryption](#)” in “[Managing the Messaging Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

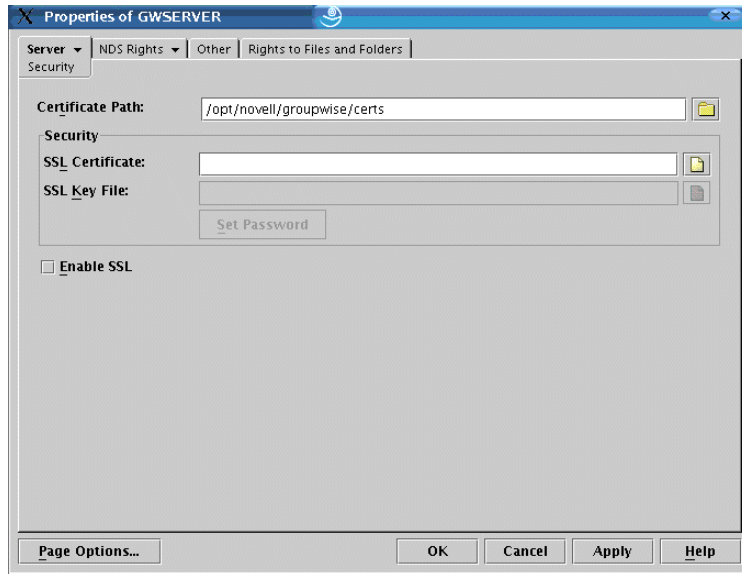
NOTE: The Messenger Windows client does not require an SSL connection with the Messenger agents.

The required SSL connection is most easily configured in ConsoleOne. On Linux, ConsoleOne does not automatically authenticate to any eDirectory trees when it starts, so the NDS object is not immediately expandable.

Figure 3-4 ConsoleOne on Linux



- 1 In ConsoleOne, select *NDS*, then click *File > Authenticate*.
- 2 Fill in the following fields:
 - Login Name:** Provide a Novell eDirectory username that has rights to modify eDirectory objects.
 - Password:** Provide the password for the username.
 - Tree:** Type or select the eDirectory tree where you created your Messenger system.
If the eDirectory tree is located on a Windows server, you might need to specify the IP address of the server instead of the tree name.
 - Context:** Provide the full context of the User object associated with the username you provided.
- 3 Click *Login*.
- 4 Under the *NDS* object, select the tree where you created your Messenger system.
- 5 Browse to and right-click the *Server* object in your Messenger system, then click *Properties*.
- 6 Click *Server > Security*.



- 7 Fill in the fields ([worksheet item 15](#)).
- 8 Click *OK* to save the security settings.
- 9 Continue with [Starting the Linux Messenger Agents](#).

Starting the Linux Messenger Agents

To start the agents manually, use the startup scripts provided in the `/etc/init.d` directory.

- 1 At the Linux server, become root by entering `su` and the root password.
- 2 Change to the `/etc/init.d` directory.
- 3 To start the Messaging Agent, enter the following command:
- 4 To start the Archive Agent, enter the following command:

```
./novell-nmma start
```

```
./novell-nmaa start
```

You can also use the stop, restart, and status options for these agents from the same directory.

Messenger agent log files are created in `/var/opt/novell/log/messenger` directory. The Messenger agents can be monitored by using the agent Web consoles from your Web browser, as described in “[Using the Messaging Agent Web Console](#)” in “[Managing the Messaging Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

For additional agent startup alternatives, see “[Starting the Messaging Agent](#)” and “[Starting the Archive Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

- 5 Skip to [Section 3.4, “What’s Next,”](#) on page 37.

3.2.4 Setting Up the High Availability Service

- 1 Become root by entering `su` and the root password.
- 2 Copy the `novell-groupwise-gwha` RPM file to your local drive.

- 3 From the location that you copied the `novell-groupwise-gwha rpm`, enter the following command to install the `gwha` service.

```
rpm -Uvf novell-groupwise-gwha-7.0.xxxxxxxx.i386.rpm
```

- 4 Modify the GroupWise High Availability service file (`gwha`):

- 4a Change to the `/etc/xinetd.d` directory.

- 4b Edit the `gwha` file in a text editor.

- 4c In the `port =` field, specify a unique port number, for example 8303.

- 4d Save the file, then exit the text editor.

- 5 If you use SSL, you need to modify the High Availability service configuration file.

- 5a Change to the `/etc/opt/novell/groupwise` directory.

- 5b Edit the `gwha.conf` file in a text editor.

- 5c Under the `[gwha]` section, fill in the fields as follows:

```
[gwha]
ssl      = yes
key      = filename.key
cert     = filename.crt
password = password
```

- 5d Save the file, then exit the text editor.

- 6 Enable the High Availability service:

- 6a In YaST, click *Network Services > Network Services (inetd)*.

- 6b If necessary, select *Enable* to activate the list of services.

- 6c Scroll down to the `gwha` line, select it, then click *Toggle Status (On or Off)* to change the status to On.

- 6d Click *Finish*.

- 7 Start the agents as daemons.

- 7a Change to the `/etc/init.d` directory.

- 7b Enter the following commands to start the Messaging Agent and the Archiving Agent:

```
./novell-nmma start
./novell-nmaa start
```

- 7c If the agents started correctly, a message displays indicating “Done.”

- 8 Create a new user and associated password on your Linux server to represent the High Availability service.

You might name it `gwha`.

- 9 Test your configuration of the High Availability service.

NOTE: If you configured the High Availability service for SSL, you cannot use a telnet session to test it. The connection will be refused. You can try to test it by killing the PID for the Agents and watch for Monitor to restart the Agents.

- 9a Telnet into the High Availability server.

For example, on the Linux server where you have configured the High Availability service, you could use the following command:

```
telnet localhost port_number
```

Use the unique port number you specified in [Step 4c](#).

9b Specify the username and password you set up in [Step 8](#).

If telnet returns 000 Ok, then the gwaha service is configured correctly.

9c To exit the telnet session, press Ctrl+].

3.2.5 Setting Up Non-root Access on an NSS Volume on Novell Open Enterprise Server Linux

When the Novell Messenger agents are located on a Novell Open Enterprise Server (OES) Linux NSS volume, you must create an eDirectory user for the agents to run as, and you must LUM-enable that user. On OES Linux, you can use Novell iManager to accomplish these tasks.

After you have installed the agents on OES Linux, you need to configure the agents to switch users after startup and provide access to an NSS volume.

- ♦ [“Creating an eDirectory User” on page 35](#)
- ♦ [“Enabling a LUM User” on page 35](#)
- ♦ [“Configuring Novell Messenger for the NSS Volume” on page 36](#)

Creating an eDirectory User

You might want to create a new user specifically for the Novell Messenger service, perhaps named `novellmsgr`.

- 1** On the Open Enterprise Server Welcome page in your Web browser, expand Network Management, then click *iManager 2.5.x*.
- 2** In the *iManager Links* box, click *Open Novell iManager 2.5*.
- 3** To log in to iManager, specify a username, a password, and a tree.
- 4** In the left pane, expand *Users*, then click *Create User*.
- 5** Provide the required information, then click *OK*.
The user does not need a password.

Enabling a LUM User

To LUM-enable the user you just created:

- 1** In the left pane, expand *Linux User Management*, then click *Enable User for LUM*.
- 2** Browse to and select the user you just created, then click *OK*.
- 3** Browse to and select a primary group for the LUM user.
- 4** Select `/bin/false` as the desired shell (because the LUM user does not need a shell), then click *OK*.

Configuring Novell Messenger for the NSS Volume

After you have finished LUM-enabling the eDirectory user, you need to set the user as the default user for the Novell Messenger service. In addition, you need to change the store path, queue path, and log path to be on the NSS volume

- ♦ [“Changing the Service User” on page 36](#)
- ♦ [“Changing the Store Path” on page 36](#)
- ♦ [“Changing the Messenger Agent Queue Path” on page 36](#)
- ♦ [“Changing the Archive Agent Queue Path” on page 36](#)
- ♦ [“Changing the Messenger Agent Log Path” on page 36](#)
- ♦ [“Changing the Archive Agent Log Path” on page 37](#)
- ♦ [“Granting Access to the LUM-Enabled User” on page 37](#)

Changing the Service User

- 1 In a terminal window, enter the following command:

```
cd /etc/opt/novell/messenger
```

- 2 Using a text editor, edit the `uid.conf` file, remove `root` as the user, and add the LUM-enabled user.

Changing the Store Path

- 1 In ConsoleOne, log in to the eDirectory tree containing your Novell Messenger service.
- 2 Browse to the File Module object, right-click it, then select *Properties*.
The File Module object is located at *eDirectory Tree > Messenger Service > Messenger server > Archive Agent > File Module*.
- 3 Change the *Store Path* to the NSS volume, then click *OK*.

Changing the Messenger Agent Queue Path

- 1 In ConsoleOne, log in to the eDirectory tree containing your Novell Messenger service.
- 2 Browse to the Messenger Agent object, right-click it, then select *Properties*.
- 3 Change the *Queue Path* to the NSS volume, then click *OK*.

Changing the Archive Agent Queue Path

- 1 In ConsoleOne, log in to the eDirectory tree containing your Novell Messenger service.
- 2 Browse to the Archive Agent object, right-click it, then select *Properties*.
- 3 Change the *Queue Path* to the NSS volume, then click *OK*.

Changing the Messenger Agent Log Path

- 1 In ConsoleOne, log in to the eDirectory tree containing your Novell Messenger service.
- 2 Browse to the Messenger Agent object, right-click it, then select *Properties*.
- 3 Change the *Log Path* to the NSS volume, then click *OK*.

Changing the Archive Agent Log Path

- 1 In ConsoleOne, log in to the eDirectory tree containing your Novell Messenger service.
- 2 Browse to the Archive Agent object, right-click it, then select *Properties*.
- 3 Change the *Log Path* to the NSS volume, then click *OK*.

Granting Access to the LUM-Enabled User

The new LUM-enabled user must have rights to the store, queue, and log paths on the NSS volumes.

In a terminal window, use the following command to grant the user the required rights to the directories that the agents need to access on the local server:

```
rights -f /directory -r rwcemf trustee user.context.tree
```

When you have finished changing the rights to the directories, you must stop and then start the agents.

3.3 Monitoring Novell Messenger with GroupWise Monitor

Novell GroupWise Monitor is a monitoring and management tool that allows you to monitor GroupWise agents and Novell Messenger agents from any location where you are connected to the Internet and have access to a Web browser. Some agent administration can also be performed from your Web browser. For information on how to install GroupWise Monitor, see “[Installing GroupWise Monitor](#)” in the *GroupWise 8 Installation Guide*. For information on how to configure GroupWise Monitor, see “[Using GroupWise Monitor](#)” in the *Novell Messenger 2.1 Administration Guide*.

3.4 What’s Next

After you have created your Messenger system and installed the Messenger software, you are ready to continue with the following configuration and administration tasks that are covered in the *Novell Messenger 2.1 Administration Guide*:

- ♦ Set up corporate-level conversation archiving. See “[Enabling and Managing Archiving](#)”.
- ♦ Add SSL encryption to the Messaging Agent’s connections with Novell Messenger clients. See “[Establishing Messaging Security with SSL Encryption](#)” in “[Managing the Messaging Agent](#)”.
- ♦ Add SSL encryption to the Messaging Agent’s eDirectory access, if you didn’t set it up during installation. See “[Using LDAP Access for the Messaging Agent](#)” in “[Managing the Messaging Agent](#)”.
- ♦ Provide customized LDAP authentication for Novell Messenger users. See “[Customizing eDirectory Access for Users](#)” in “[Managing Messenger Client Users](#)”.
- ♦ Customize the functionality of the Novell Messenger client. See “[Setting User Policies](#)” in “[Managing Messenger Client Users](#)”.
- ♦ Decide how to most efficiently distribute the Novell Messenger client software to users. See “[Distributing the Messenger Client Software](#)” in “[Managing Messenger Client Users](#)”.

3.5 Novell Messenger Worksheet

The Novell Messenger Installation program helps you create your Messenger system and install the Messenger software. The Installation program prompts you for the information in the worksheet. Print the worksheet and fill in the information for your Messenger system before you start the Messenger Installation program.

Depending on the operating system you are installing to, some of these options might not apply.

Item	Explanation
1) Server Information	Select the platform where you plan to install and run the Messenger agents.
♦ NetWare	
♦ Linux	See “Agent Platform” on page 21.
♦ Microsoft Windows Server	
2) Windows Server Options	For a Windows server, specify the server options you plan to use.
♦ Install agents as Windows services	See “Windows Server Options for the Windows Messenger Agents” on page 22.
♦ Install and configure SNMP for Novell Messenger Agents	
3) Installation Path	Specify a new directory path or browse to and select an existing directory where you plan to install the NetWare or Windows agent software. If the directory does not exist, it will be created. If you are installing to Linux, the agents are always installed to <code>/opt/novell/messenger/bin</code> .
	See “Agent Software Location” on page 21.
4) Tree Name	Select the eDirectory tree where you want to create your Messenger system. Because Messenger introduces new objects into the tree, the schema must be extended.
	See “eDirectory” on page 15.
5) Messenger System Context	Browse to and select the context where you want to create the Messenger system container and objects. Make sure the context exists.
	See “eDirectory” on page 15.
6) Messenger System Objects	If you do not want to use the default Messenger object names, specify different object names as needed.
♦ MessengerService	
♦ <code>server_nameSERVER</code>	See “eDirectory” on page 15.
7) Install Components	For your initial installation, leave all components selected.
♦ Messaging Agent	
♦ Archive Agent	
♦ Administrative Files	

Item	Explanation
8) Windows Service Options	If you are installing the Windows Messenger agents as Windows services, provide the required service configuration information.
<ul style="list-style-type: none"> ◆ Use local system account ◆ Use this Windows user account: User Name: Password: ◆ Startup: Automatic Manual 	See “Windows Server Options for the Windows Messenger Agents” on page 22.
9) Directory Access	Select how you want the Messenger agents to access eDirectory and provide the information required for the selected access method.
<ul style="list-style-type: none"> ◆ Use direct access Replica IP address: (Windows only) ◆ Use LDAP to access the directory Host: Port: Root certificate: 	See “eDirectory Access and Authentication” on page 18.
10) Directory Authentication	Provide the username and password that will enable the Messenger agents to access eDirectory.
<ul style="list-style-type: none"> ◆ User Name: ◆ Password: 	See “eDirectory Access and Authentication” on page 18.
11) User Configuration	List the eDirectory contexts where User objects are located that you want to include in your Messenger system.
<ul style="list-style-type: none"> ◆ Contexts: ◆ Include Subcontexts? 	See “Messenger User Locations” on page 17.
12) Server Address	Specify the IP address or DNS hostname of the server where the Messenger agents will run. If you are using an IPV6 IP address, you must use the DNS hostname for the server instead of the IP address. If the default port numbers are already in use on the server, specify unique port numbers for the Messenger agents.
<ul style="list-style-type: none"> ◆ IP Address or DNS hostname: ◆ Messaging Agent Port: (default=8300) ◆ Archive Agent Port: (default=8310) 	See “Agent Network Address and Ports” on page 21.
13) Configure Agents for Clustering?	Mark whether or not you want to configure the Messenger agents for use with Novell Cluster Services.
<ul style="list-style-type: none"> ◆ Yes ◆ No 	See “Clustering Option for the Messenger Agents” on page 22.
14) Admin Configuration	Specify the path to a ConsoleOne location (version 1.3.4 or later), either on the local workstation or on a network server. The Messenger Installation program installs the Messenger snap-in files in the specified location.
<ul style="list-style-type: none"> ◆ Update ConsoleOne? ◆ Path to ConsoleOne Directory: 	See “ConsoleOne” on page 16.

Item	Explanation
15) Security Configuration <ul style="list-style-type: none">◆ Enable SSL Certificate file: Key file: Key password:	If you are already using SSL in your system and you want to configure the Messenger agents to use SSL as well, provide the required SSL information. See “Messenger System Security” on page 19 .

Installing the Messenger Client

The Novell Messenger client can be easily installed from the Messenger client download page. After installation, it is easy to start the Messenger client from your desktop. Administrators can employ more automated installation methods if necessary.

- ♦ [Section 4.1, “Downloading and Installing the Messenger Client from Your Web Browser,” on page 41](#)
- ♦ [Section 4.2, “Starting the Messenger Client,” on page 42](#)
- ♦ [Section 4.3, “Additional Client Installation Methods,” on page 43](#)

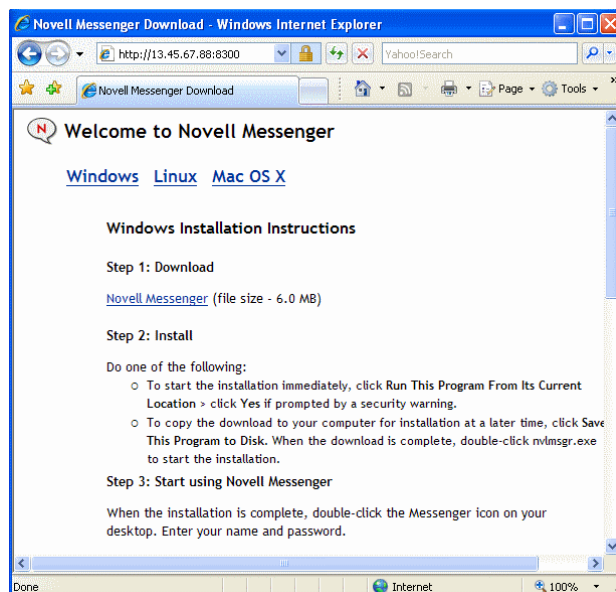
4.1 Downloading and Installing the Messenger Client from Your Web Browser

After you create your Messenger system, you can use the Novell Messenger Download page to install the Messenger client software.

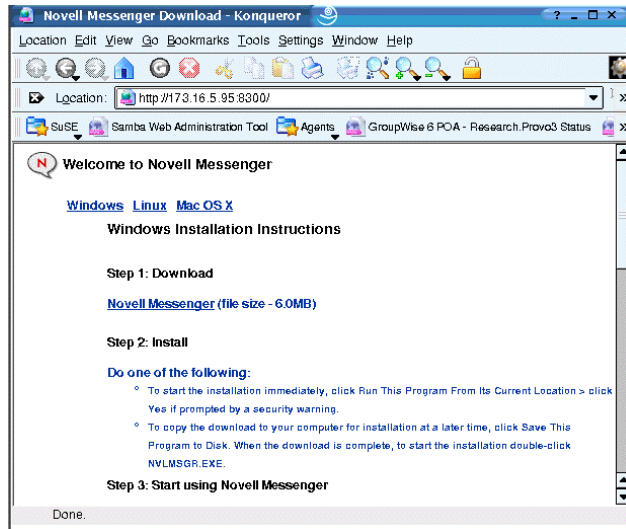
- 1 Make sure you have installed the Messenger system. See [Section 3.2, “Installing and Setting Up Your Novell Messenger System,” on page 23](#).
- 2 Make sure you have started the Messaging Agent.
- 3 In your Web browser, enter the IP address of the Novell Messenger Download page.

This is the IP address and port of the Messaging Agent. By default, the Messaging Agent port is 8300. For example, if you installed to a server with an IP address of 172.16.5.18, the Novell Messenger download page would be <http://172.16.5.18:8300>.

For a Messenger system installed on NetWare or Windows, the following download page displays:



For a Messenger system installed on Linux, the following download page displays:



- 4 Follow the instructions to download and install the client.
- 5 Skip to [Section 4.2, “Starting the Messenger Client,”](#) on page 42.

4.2 Starting the Messenger Client

- ♦ [“For the Windows Client”](#) on page 42
- ♦ [“For the Linux Cross-Platform Client”](#) on page 42
- ♦ [“For the Macintosh Cross-Platform Client”](#) on page 42

For the Windows Client

- 1 Double-click the Messenger client icon on your Windows desktop.
- 2 Specify your username and password, then click *Advanced*.
- 3 Specify the IP address and port number of your Novell Messenger, then click *OK*.

If you do not know the IP address or port number for your Novell Messenger server, contact your system administrator.

For the Linux Cross-Platform Client

- 1 Click the Novell Messenger icon on your Linux desktop.
- 2 Specify your username and password, then click *Advanced*.
- 3 Specify the IP address and port number of your Novell Messenger, then click *OK*.

If you do not know the IP address or port number for your Novell Messenger server, contact your system administrator.

For the Macintosh Cross-Platform Client

- 1 Click the Novell Messenger icon on your Macintosh desktop.
- 2 Specify your username and password, then click *Advanced*.

3 Specify the IP address and port number of your Novell Messenger, then click *OK*.

If you do not know the IP address or port number for your Novell Messenger server, contact your system administrator.

4.3 Additional Client Installation Methods

Other Messenger client installation methods, which require additional setup and configuration, include the following. These installation methods might not apply to all operating systems.

- ♦ [“Configuring Your Web Server to Download the Messenger Client”](#)
- ♦ [“Using ZENworks for Desktops to Distribute the Messenger Windows Client Software”](#)
- ♦ [“Using Red Carpet on Linux to Distribute the Cross-Platform Messenger Client Software”](#)

These client installation alternatives are described in [“Distributing the Messenger Client Software”](#) in [“Managing Messenger Client Users”](#) in the *Novell Messenger 2.1 Administration Guide*.

- ♦ [Section 5.1, “What’s New in Novell Messenger 2x,” on page 45](#)
- ♦ [Section 5.2, “Understanding the Update Process,” on page 50](#)

5.1 What’s New in Novell Messenger 2x

Novell Messenger 2.x provides substantial improvements over Novell Messenger 1 in the following areas:

- ♦ **Conferencing Integrations:** Novell Messenger users can now start a Conferencing meeting directly from the Messenger client.
- ♦ **Windows and Cross-Platform Client Enhancements:** The client has added functionality for chat rooms, broadcasts, personal history, custom online status, and support for Windows XP themes.
- ♦ **GroupWise Integration:** You can now see a user’s presence in the GroupWise Windows client and send a message directly from the Quick Info message area.
- ♦ **Administration Enhancements:** Both the Messaging Agent and the Archive Agent support IPV6. You can now control who can use the Remember Password feature, who can print and save conversations, who can use the Personal History feature, and who can create chat rooms. In addition, a new chat container has been added to hold chat rooms that are created, there is enhanced Novell Messenger WebConsole functionality, and you can search for chat rooms in ConsoleOne.

For a complete listing of all major enhancements and new features in the Messenger components, refer to the following sections:

- ♦ [Section 5.1.1, “Novell Messenger Administration,” on page 45](#)
- ♦ [Section 5.1.2, “Novell Messenger Clients,” on page 49](#)

5.1.1 Novell Messenger Administration

Novell Messenger 2.x administration includes the following enhancements and new features:

- ♦ [“IPV6 Support \(v2.0.1\)” on page 46](#)
- ♦ [“Enabling and Disabling Auto-Update \(v2.0.1\)” on page 46](#)
- ♦ [“Linux Clustering Support \(v2.0 / v2.0.1\)” on page 46](#)
- ♦ [“Messaging Agent Web Console Improvements \(v2.0\)” on page 46](#)
- ♦ [“ConsoleOne Chat Room Search \(v2.0\)” on page 46](#)
- ♦ [“Chat Room Access \(v2.0\)” on page 46](#)
- ♦ [“Chat Rooms \(v2.0\)” on page 47](#)
- ♦ [“Personal History \(v2.0\)” on page 47](#)
- ♦ [“Print and Save \(v2.0\)” on page 48](#)
- ♦ [“Broadcast Messages \(v2.0\)” on page 48](#)

- ♦ “Remember Password Administration (v2.0)” on page 48
- ♦ “Custom Online Status (v2.0)” on page 49

IPV6 Support (v2.0.1)

Both the Messaging Agent and the Archive Agent support IPV6. If you use IPV6 you must use the DNS hostname instead of the IP address for the agents.

Enabling and Disabling Auto-Update (v2.0.1)

You can now enable or disable auto-update for the clients from ConsoleOne.

- 1** From ConsoleOne, browse to the Messenger Service, then click *Novell Messenger > Client Update*.
or
From ConsoleOne, browse to the Messaging Agent, then click *Agent > Messaging*.
- 2** Select or deselect *Enable client auto-update*.
- 3** Click *OK*.

Linux Clustering Support (v2.0 / v2.0.1)

Support for clustering on Linux has been added to Novell Messenger for Linux. For more information about clustering, see the [GroupWise 8 Interoperability Guide](#).

Messaging Agent Web Console Improvements (v2.0)

New statistics have been added to the Messaging Agent Web Console. You can now see how many chat rooms are active and how many broadcast messages have been sent. In addition, you can now disconnect users from the Messaging Agent Web Console.

In addition, you can now refresh chat room lists and information from the Messaging Agent Web Console, which allows you to see any chat room changes that were made in ConsoleOne without restarting the Messaging Agent.

ConsoleOne Chat Room Search (v2.0)

From the Chat Container in ConsoleOne, you can now search for chat rooms and display a list of chat rooms that begin with your search name. You can then edit or delete a chat room from the list.

To search for a chat room:

- 1** In ConsoleOne, right-click the *Chat Container*, then click *Properties*.
- 2** Type the name of the chat room to search, then click *Search*.
A list of chat rooms that begins with your search name is displayed.

Chat Room Access (v2.0)

By default all users have chat room access. A new policy has been added to the Global policy and to a user’s Messenger General policy to control this access.

To disable chat room access:

- 1 In ConsoleOne, right-click a user object, then click *Properties*.
- 2 Click the *Novell Messenger* tab.
- 3 Deselect *Allow users to use chat rooms*.

To disable chat rooms for all users, perform the same tasks on the default Policy object instead of on a User object.

Chat Rooms (v2.0)

With the introduction of chat rooms to Novell Messenger, a new chat container has been added to contain all the chat rooms for the system. You can create a new chat room by creating a new chat room object in ConsoleOne. You can also specify who has access to create chat rooms.

To create a new chat room:

- 1 In ConsoleOne, right-click the chat container, then click *New > Object*.
- 2 Select `nnmChat`, then click *OK*.
- 3 Type the directory ID and the chat room name, then click *OK*.

The directory ID is the canonical name by which the new chat room object is called.

To control who has access to create a chat room:

- 1 In ConsoleOne, right-click a user object, then select *Properties*.
- 2 Click *Novell Messenger > General*.
- 3 Select *Allow users to create chat rooms*.
- 4 Click *OK* to save your chat room settings.

To allow all users to create chat rooms, perform the same steps on the default Policy object instead of on a User object.

Personal History (v2.0)

Personal History allows the user to view a history of conversations, chat rooms, and broadcasts. The administrator can control who has access to see a personal history. By default, Personal History is enabled for all users.

To control who can use personal history:

- 1 In ConsoleOne, right-click the user you want to enable Personal History for, then select *Properties*.
- 2 Click *Novell Messenger > Personal History*.
- 3 Select *Allow users to use Personal History*.
- 4 Click *OK* to save the Personal History settings.

To allow all users to view their personal histories, perform the same steps on the default Policy object instead of on a User object.

Print and Save (v2.0)

You can now control who can print and save conversations.

- 1 In ConsoleOne, right-click the user you want to modify, then select *Properties*.
- 2 Click *Novell Messenger > Personal History*.
- 3 Select *Allow users to print and save conversations*.
- 4 Click *OK* to save the print and save settings.

To modify print and save settings for all users, perform the same steps on the default Policy object instead of on a User object.

Broadcast Messages (v2.0)

A broadcast is a one-way message that is sent to one or more users; users cannot respond to broadcasts. A system broadcast is sent to all users on the system who are not offline. By default, broadcast messaging to other users is enabled, and system broadcasts are disabled.

To control who can send a system broadcast or a broadcast message to other users:

- 1 In ConsoleOne, right-click the user you want to enable broadcasting for, then select *Properties*.
- 2 Click *Novell Messenger > General*.
- 3 Select *Allow users to send broadcast messages to other users*.
or
Select *Allow users to send system broadcast messages*.
- 4 Click *OK* to save the broadcast settings.

To allow all users to send either a system broadcast or a broadcast message to other users, perform the same steps on the default Policy object instead of on a User object.

Remember Password Administration (v2.0)

You can control the option that allows clients to save passwords. If you disable this feature, the client does not have the option to save a password.

To disable password saving:

- 1 In ConsoleOne, right-click the user you want to disable password saving for, then click *Properties*.
- 2 Click *Novell Messenger > General*.
- 3 Deselect *Allow users to use remember password*.
- 4 Click *OK* to save the password settings.

To allow all users to use Remember Password, perform the same steps on the default Policy object instead of on a User object.

Custom Online Status (v2.0)

Novell Messenger now supports custom online status, which allows you to create a custom message indicating online status.

- 1 In ConsoleOne, right-click the user you want to create the custom status for, then click *Properties*.
- 2 Click *Novell Messenger > Custom Status*.
- 3 Click *Add*.
- 4 Select *Online*, then type the message you want to display.
- 5 Click *OK*, then click *OK* again to save the changes.

5.1.2 Novell Messenger Clients

The Novell Messenger 2.x client includes the following enhancements and new features. For more information on how to use the new features, see the [Novell Messenger 2.1 Client User Guide](#).

- ♦ “[Conferencing Integrations \(v2.1\)](#)” on page 49
- ♦ “[Chat Rooms \(v2.0\)](#)” on page 49
- ♦ “[Broadcast Messages \(v2.0\)](#)” on page 49
- ♦ “[Personal History \(v2.0\)](#)” on page 49
- ♦ “[Custom Online Status \(v2.0\)](#)” on page 50

Conferencing Integrations (v2.1)

Conferencing integrations enable users to start an instant Conferencing meeting directly from the Messenger client.

Chat Rooms (v2.0)

Chat room support has been added to the Novell Messenger client. Chat rooms allow several users to join a chat room and discuss a topic. You can create and join chat rooms in the client, if you have rights to do so.

Broadcast Messages (v2.0)

A broadcast message is a message that can either be sent to the entire system or to individual users. A broadcast message is a one-way message; you cannot respond to it. The feature must be enabled by an administrator before it is available to users. By default, broadcast messaging to other users is enabled, and system broadcasts are disabled.

Personal History (v2.0)

Personal History shows past messages that you have either received or sent in Novell Messenger. This feature is helpful when you need to find information from an earlier message. Conversations, chat rooms, and broadcasts are all part of your personal history. By default, personal history is enabled for all users, an administrator can disable it for individual users or a for all users.

Custom Online Status (v2.0)

Novell Messenger now supports custom online status. A custom online status allows you to create a custom message indicating online status.

5.2 Understanding the Update Process

You can update a Novell Messenger *1.x* to Novell Messenger *2.x*.

Before you begin updating your Novell Messenger system to Novell Messenger *2.x*, you should review the following sections. These sections, which describe the process to follow when updating, help you plan and implement a successful update strategy:

- ♦ [Section 5.2.1, “Extending the Novell eDirectory Schema,” on page 50](#)
- ♦ [Section 5.2.2, “Installing the Novell Messenger Software,” on page 50](#)
- ♦ [“Updating the Novell Messenger Client” on page 50](#)
- ♦ [Section 5.2.4, “Updating the Novell Messenger Agents,” on page 51](#)

5.2.1 Extending the Novell eDirectory Schema

Novell Messenger *2.x* includes new functionality that requires you to extend the schema of any Novell eDirectory trees where you have Novell Messenger objects. The Novell Messenger Setup automatically extends the schema for any trees you select.

5.2.2 Installing the Novell Messenger Software

The Novell Messenger *2.x* software requirements are different than previous Novell Messenger software requirements. To review the requirements, see [Section 2.1, “Messenger System Requirements,” on page 11](#).

ConsoleOne

Novell Messenger *2x* is administered through ConsoleOne, using the version listed in [Section 2.1, “Messenger System Requirements,” on page 11](#). You can use the same version of ConsoleOne to administer earlier Novell Messenger components in your GroupWise system.

IMPORTANT: Earlier versions of ConsoleOne should not be used to administer Novell Messenger *2.x* objects.

You can download ConsoleOne for from the [Novell Product Downloads site \(http://download.novell.com\)](http://download.novell.com) and install it before starting to install Novell Messenger.

5.2.3 Updating the Novell Messenger Client

After you have updated the version of your agents, users can run the Novell Messenger *2.x* Windows client or Cross-Platform client on workstations listed in [Section 2.2, “Messenger Client Workstation Requirements,” on page 12](#). If necessary, they can also continue to run their older Novell Messenger clients, but they will not have Novell Messenger *2.x* functionality.

For a list of new features in the Novell Messenger 2x client, see [Section 5.1.2, “Novell Messenger Clients,”](#) on page 49.

5.2.4 Updating the Novell Messenger Agents

To update the Novell Messenger Agents, you need to run the setup program. For information on running the setup program, see [Chapter 3, “Installing a Novell Messenger System,”](#) on page 15.

This section is designed for those who are moving existing Messenger 2x agents to Linux.

NOTE: If you have Messenger 1.x, review [Section 5.2.4, “Updating the Novell Messenger Agents,” on page 51](#) to acquaint yourself with the issues involved in updating from one version of Messenger to another. You should update your Messenger system to Messenger 2.x before migrating to Linux.

- ♦ [Section 6.1, “Migrating eDirectory to Linux,” on page 53](#)
- ♦ [Section 6.2, “Moving Messenger Agents to Linux,” on page 53](#)
- ♦ [Section 6.3, “Copying System Data,” on page 56](#)
- ♦ [Section 6.4, “ConsoleOne Verification,” on page 59](#)

6.1 Migrating eDirectory to Linux

As part of the migration process, you might want to migrate eDirectory to Linux. Step-by-step instructions for migrating eDirectory to Linux are beyond the scope of the *Messenger Installation Guide*, but the following documentation can provide assistance:

- ♦ If you are migrating to OES Linux, review *Consolidating Data to OES Linux and Migrating Data from NetWare Servers* in the *Novell Server Consolidation and Migration Toolkit Administration Guide* (<http://www.novell.com/documentation/scmt/index.html>).
- ♦ For situations not covered in the above guide, the eDirectory migration process includes installing eDirectory on Linux, creating an eDirectory replica on one or more Linux servers, and ultimately making one of the Linux replicas the master replica so that you can phase out the replicas on other platforms. For guidance, see the documentation for your version of eDirectory:
 - ♦ [eDirectory 8.7.3 \(http://www.novell.com/documentation/edir873/index.html\)](http://www.novell.com/documentation/edir873/index.html)
 - ♦ [eDirectory 8.8 \(http://www.novell.com/documentation/edir88/index.html\)](http://www.novell.com/documentation/edir88/index.html)

6.2 Moving Messenger Agents to Linux

Moving the Messenger Agents to Linux includes installing the agents to the Linux server, copying the data stores, and providing updated configuration information in ConsoleOne.

- ♦ [Section 6.2.1, “Making a NetWare or Windows Server Visible from Linux,” on page 54](#)
- ♦ [Section 6.2.2, “Copying the Startup Files,” on page 54](#)
- ♦ [Section 6.2.3, “Client/Server SSL Certificates,” on page 55](#)
- ♦ [Section 6.2.4, “Trusted Root Certificates,” on page 55](#)
- ♦ [Section 6.2.5, “Installing the Messenger Agents on Linux,” on page 56](#)
- ♦ [Section 6.2.6, “Enabling Messenger Agent Monitoring on Linux,” on page 56](#)

6.2.1 Making a NetWare or Windows Server Visible from Linux

To make a NetWare or Windows server visible from Linux, you mount the directory you need access to as a Linux file system.

```
NetWare: mount -t ncpfs NetWare_server_full_DNS_name
          /Linux_mount_location/mount_point_directory
          -o user=fully_qualified_username
          -o ipserver=NetWare_server_full_DNS_name
```

A NetWare server full DNS name has the format of mail2.provo.corporate.com. A fully qualified username has the format of Admin.Users.Corporate. A typical Linux mount location is /mnt.

```
Windows: mount -t smbfs //Windows_server_name/sharename
           /Linux_mount_location/mount_point_directory
           -o username=Windows_username
```

To use this command, the WINS protocol must be functioning properly on your network. The specified Windows user must have sufficient rights to access the Messenger directories.

6.2.2 Copying the Startup Files

If you have made changes to the default startup files for Messenger, you need to copy the files to the Linux server before you install the Messenger system on Linux.

- 1 Copy the Messaging Agent and Archive Agent startup files to the default Linux location.

The default startup files are located in the following areas:

NetWare:	sys:\Novell\NM\agent\strtp.xx
Windows:	C:\novell\NM\agent\startup.xx
Linux:	/etc/opt/novell/messenger/strtp.xx

- 2 From a terminal window on Linux, use the dos2unix program to convert the startup files to UNIX format by using the following commands:

```
dos2unix /etc/opt/novell/messenger/strtp.ma
dos2unix /etc/opt/novell/messenger/strtp.aa
```

- 3 Make the following edits to the startup files:

- ♦ Remove all paths from the startup files so they use the Linux default paths.
- or
- ♦ Change the paths to the correct location on Linux to use custom paths.
- ♦ Change the IP address or hostname to the IP address or hostname of the Linux server.
- ♦ Change the path to any certificates to the Linux path.
- ♦ If you have made any other custom changes to your startup file, adjust those changes for the Linux paths.

6.2.3 Client/Server SSL Certificates

If the Linux server has a different IP address than the NetWare/Windows server, you need to generate new certificates. If the Linux server has the same IP address as the NetWare/Windows server, you can copy the SSL certificates to the Linux server. When you copy the certificates to the Linux server, make sure you copy the certificates to the path you specified in the startup files.

For instructions on how to create new SSL certificates, see [“Configuring the Linux Messenger Agents for SSL” on page 31](#).

6.2.4 Trusted Root Certificates

If you want to use LDAP SSL to connect to your target eDirectory, then a copy of the target directory’s replica’s trusted root certificate must be made available to the Messenger installation program.

If you previously used LDAP SSL with Messenger, then a copy of the replica’s trusted root certificate should exist at `sys:\novell\nm\certs` for NetWare or `c:\novell\nm\certs` for Windows. If you are enabling LDAP SSL as part of the migration and the eDirectory replica is on NetWare, the trusted root certificate should already exist at `sys:\public\RootCert.der`. You need to be able to browse to this location from the Linux server. To do this, you must mount the NetWare or Windows server. For information on how to create a mount to a NetWare or Windows server, see [Section 6.2.1, “Making a NetWare or Windows Server Visible from Linux,” on page 54](#).

If the certificate does not exist, you can export a trusted root certificate by performing the following steps, which require the eDirectory ConsoleOne snap-ins:

- 1 From the Linux server, run ConsoleOne and connect to the eDirectory replica server.
- 2 Browse to the LDAP Server object in the tree, right-click the LDAP Server object, then select *Properties*.
- 3 Click the *SSL/TLS Configuration* tab. The certificate name is displayed in the *Server Certificate* field.
- 4 In the ConsoleOne tree, browse to the certificate that was displayed in the *Server Certificate* field.
- 5 Right-click the certificate, then select *Properties*.
- 6 Click the *Certificate* tab, then select *Trusted Root Certificate*.
- 7 Click *Export*.
- 8 Select *No* to not export the private key, then click *Next*.
- 9 Select *File in binary DER format*.
- 10 Specify the location and filename to save the certificate as, then click *Next*.
- 11 Click *Finish* to export the trusted root certificate.

During the Messenger installation, you need to specify the path to the trusted root certificate to use LDAP SSL.

6.2.5 Installing the Messenger Agents on Linux

Before you can migrate your Messenger Agents to Linux, you must first install a Messenger system on Linux. During the configuration process of this installation, the startup files that you copied to the Linux server are read and the information from the startup files is included in the installation. For information on how to install a Messenger system on Linux, see [Section 3.2.3, “Installing and Setting Up a Messenger System on Linux,”](#) on page 29.

If you use direct mode to access eDirectory, you must have eDirectory installed before you install the Messenger system.

When you have finished installing your Messenger system on Linux, do not start the agents. If you have already started your Messenger Agents, you can stop them by performing the following steps:

- 1 At the Linux server, become `root` by entering `su` and the root password.
- 2 Change to the `/etc/init.d` directory.
- 3 To stop the Messaging Agent, enter the following command:

```
./novell-nmma stop
```

- 4 To stop the Archive Agent, enter the following command:

```
./novell-nmaa stop
```

6.2.6 Enabling Messenger Agent Monitoring on Linux

There is no user interface for the Linux Messenger Agents. To monitor the Messenger agents and perform manual logging and archiving actions, you need to enable Web Console for both the Messaging Agent and the Archive Agent. For information on how to enable Web Console for your Messaging Agent, see “[Setting Up the Messaging Agent Web Console](#)” in the *Novell Messenger 2.1 Administration Guide*. For information on how to enable the Web Console for the Archive Agent, see “[Using the Archive Agent Web Console and GroupWise Monitor](#)” in the *Novell Messenger 2.1 Administration Guide*.

6.3 Copying System Data

Messenger system data consists of the following:

- ♦ **Archive Store:** Messages that have been added to the archive.
- ♦ **Archive Indexes:** Archive store indexes that have been created for faster searches.
- ♦ **Archive Queue:** Messages that are waiting to be archived.
- ♦ **Messaging Queue:** Messages that are waiting to be transferred to the Archive Agent.
- ♦ **Agent Logs:** All the log files for the agents.

Before copying your system data from the NetWare or Windows server to the Linux server, you must first shut down the agents on the server. Before shutting down your system, you might want to send out a system broadcast informing users that the Messenger system will be shut down for a time. In addition, if you are changing the IP address, you might want to include the new IP address of the Linux server in the system broadcast.

- ♦ [Section 6.3.1, “Copying the Archive Store and Archive Indexes,”](#) on page 57
- ♦ [Section 6.3.2, “Copying the Archive Queue,”](#) on page 57

- ♦ [Section 6.3.3, “Copying the Messaging Queue,” on page 58](#)
- ♦ [Section 6.3.4, “Copying the Archive Agent Log Files,” on page 58](#)
- ♦ [Section 6.3.5, “Copying the Messaging Agent Log Files,” on page 59](#)

6.3.1 Copying the Archive Store and Archive Indexes

- 1 From the NetWare or Windows server, stop the Messaging Agent and Archive Agent.

For information on starting the Messaging Agent, see “[Starting the Messaging Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

For information on starting the Archive Agent, see “[Starting the Archive Agent](#)” in the *Novell Messenger 2.1 Administration Guide*.

- 2 From the Linux server, verify that the Messaging and Archive Agents are stopped. If they are running, stop both agents.
- 3 From the Linux server, copy the Archive Store and Archive Indexes from the NetWare or Windows server to the Linux server.

For example you could use the following command from a terminal window:

```
cp -r /mnt/nwserver/SYS/Novell/NM/aa/store/ /var/opt/novell/messenger/aa/
```

The following table displays the default store location for each operating system:

Operating System	Default Location
NetWare	sys:\Novell\NM\aa\store
Windows	C:\Novell\NM\aa\store
Linux	/var/opt/novell/messenger/aa/store

- 4 If the user that the Messenger agents on the Linux server will run as is not `root`, you need to change the ownership of the files to the Messenger user. To change the ownership of the files, use the following command in a terminal window:

```
chown -R nvlmsgr:nvlmsgr /var/opt/novell/messenger/aa/store
```

6.3.2 Copying the Archive Queue

- 1 From the NetWare or Windows server, stop the Messaging Agent and Archive Agent.
- 2 From the Linux server, verify that the Messaging and Archive Agents are stopped. If they are running, stop both agents.
- 3 From the Linux server, copy the Archive Queue from the NetWare or Windows server to the Linux server.

For example you could use the following command from a terminal window:

```
cp -r /mnt/nwserver/SYS/Novell/NM/aa/queue /var/opt/novell/messenger/aa/queue
```

The following table displays the default store location for each operating system:

Operating System	Default Location
NetWare	sys:\Novell\NM\aa\queue
Windows	C:\Novell\NM\aa\queue
Linux	/var/opt/novell/messenger/aa/queue

- 4 If the user that the Messenger agents on the Linux server will run as is not `root`, you need to change the ownership of the files to the Messenger user. To change the ownership of the files, use the following command in a terminal window:

```
chown -R nvlmsgr:nvlmsgr /var/opt/novell/messenger/aa/queue
```

6.3.3 Copying the Messaging Queue

- 1 From the NetWare or Windows server, stop the Messaging Agent and Archive Agent.
- 2 From the Linux server, verify that the Messaging and Archive Agents are stopped. If they are running, stop both agents.
- 3 From the Linux server, copy the Messaging Queue from the NetWare or Windows server to the Linux server.

For example you could use the following command from a terminal window:

```
cp -r /mnt/nwserver/SYS/Novell/NM/ma/queue /var/opt/novell/messenger/ma/queue
```

The following table displays the default store location for each operating system:

Operating System	Default Location
NetWare	sys:\Novell\NM\ma\queue
Windows	C:\Novell\NM\ma\queue
Linux	/var/opt/novell/messenger/ma/queue

- 4 If the user that the Messenger agents on the Linux server will run as is not `root`, you need to change the ownership of the files to the Messenger user. To change the ownership of the files, use the following command in a terminal window:

```
chown -R nvlmsgr:nvlmsgr /var/opt/novell/messenger/ma/queue
```

6.3.4 Copying the Archive Agent Log Files

- 1 From the NetWare or Windows server, stop the Messaging Agent and Archive Agent.
- 2 From the Linux server, verify that the Messaging and Archive Agents are stopped. If they are running, stop both agents.
- 3 From the Linux server, copy the Archive Agent log files from the NetWare or Windows server to the Linux server.

For example you could use the following command from a terminal window:

```
cp -r /mnt/nwserver/SYS/Novell/NM/aa/logs /var/opt/novell/log/messenger/aa
```

The following table displays the default store location for each operating system:

Operating System	Default Location
NetWare	sys:\Novell\NM\aa\logs
Windows	C:\Novell\NM\aa\logs
Linux	/var/opt/novell/log/messenger/aa

- 4 If the user that the Messenger agents on the Linux server will run as is not `root`, you need to change the ownership of the files to the Messenger user. To change the ownership of the files, use the following command in a terminal window:

```
chown -R nvlmsgr:nvlmsgr /var/opt/novell/log/messenger/aa
```

6.3.5 Copying the Messaging Agent Log Files

- 1 From the NetWare or Windows server, stop the Messaging Agent and Archive Agent.
- 2 From the Linux server, verify that the Messaging and Archive Agents are stopped. If they are running, stop both agents.
- 3 From the Linux server, copy the Messaging Agent log files from the NetWare or Windows server to the Linux server.

For example you could use the following command from a terminal window:

```
cp -r /mnt/nwserver/SYS/Novell/NM/ma/logs /var/opt/novell/log/messenger/ma
```

The following table displays the default store location for each operating system:

Operating System	Default Location
NetWare	sys:\Novell\NM\ma\logs
Windows	C:\Novell\NM\ma\logs
Linux	/var/opt/novell/log/messenger/ma

- 4 If the user that the Messenger agents on the Linux server will run as is not `root`, you need to change the ownership of the files to the Messenger user. To change the ownership of the files, use the following command in a terminal window:

```
chown -R nvlmsgr:nvlmsgr /var/opt/novell/log/messenger/ma
```

6.4 ConsoleOne Verification

When you have finished copying the last log files to the Linux server, you should verify that all the paths and IP address are correct for the Messenger objects.

- 1 In ConsoleOne, log in to your eDirectory tree.
- 2 Browse to and right-click the Messenger Server object, then click *Properties*.
- 3 On the *Server Identification* page, verify that the IP address or DNS hostname is correct for the Linux server.
- 4 Click the *Server* tab, then click *General*.

- 5** Verify that the software path and work path are correct for the Linux server.
- 6** Click the *Server* tab, then click *Security*.
- 7** If you are using Client/Server SSL, verify that the certificate path, SSL certificate, and SSL key are correct for the Linux server.
- 8** Browse to and right-click the Messaging Agent object, then click *Properties*.
- 9** On the *Agent Identification* page, verify that the IP address or DNS hostname is correct for the Linux server.
- 10** Click the *Agent* tab, then click *General*.
- 11** Verify that the work path is correct for the Linux server.
- 12** Click the *Agent* tab, then click *Security*.
- 13** If you are using Client/Server SSL, verify that the certificate path, SSL certificate, and SSL key are correct for the Linux server.
- 14** Click the *Agent* tab, then click *Log Settings*.
- 15** Verify that the log file path is correct for the Linux server.
- 16** Click the *Agent* tab, then click *Messaging*.
- 17** Verify that the messaging queue path is correct for Linux.
- 18** Browse to and right-click the Archive Agent object, then click *Properties*.
- 19** On the *Agent Identification* page, verify that the certificate path, SSL certificate, and SSL key are correct for the Linux server.
- 20** Click the *Agent* tab, then click *General*.
- 21** Verify that the work path is correct for the Linux server.
- 22** Click the *Agent* tab, then click *Security*.
- 23** If you are using Client/Server SSL, verify that the certificate path, SSL certificate, and SSL key are correct for the Linux server.
- 24** Click the *Agent* tab, then click *Log Settings*.
- 25** Verify that the log file path is correct for the Linux server.
- 26** Click the *Agent* tab, then click *Messaging*.
- 27** Verify that the queue path is correct for Linux.
- 28** Browse to and right-click the FileModule object, then click *Properties*.
- 29** On the *Module Store Settings* page, verify that the store path is correct for Linux.
- 30** Open the Web console for your Archive Agent.
For information on how to do this, see “[Accessing the Messaging Agent Web Console from Your Web Browser](#)” in the *Novell Messenger 2.1 Administration Guide*.
- 31** Click the *Configuration* tab.
- 32** Click *Archive Maintenance*.
- 33** Select *Delete & Regenerate Indexes*, then click *Submit*.
- 34** Wait for the archive agent to finish deleting and regenerating the indexes.

When you have verified and made any changes to IP address and paths in ConsoleOne, you can then start the Messaging Agent and Archive Agent on the Linux server.

To start the Messaging Agent, enter the following command from a terminal window:

```
./novell-nmma start
```

To start the Archive Agent, enter the following command from a terminal window:

```
./novell-nmaa start
```


Third-Party Materials

A

The following third-party software is included in Novell Messenger 2x:

- ♦ [Section A.1, “OpenSSL,” on page 63](#)
- ♦ [Section A.2, “NET-SNMP Open Source Package,” on page 65](#)
- ♦ [Section A.3, “Libegg,” on page 67](#)
- ♦ [Section A.4, “JRE,” on page 68](#)

A.1 OpenSSL

OpenSSL License

Copyright (c) 1998-2002 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- 1** Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- 2** Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- 3** All advertising materials mentioning features or use of this software must display the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
- 4** The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
- 5** Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
- 6** Redistributions of any form whatsoever must retain the following acknowledgment:
"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License

Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to conform with Netscape's SSL.

This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- 1** Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
- 2** Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- 3** All advertising materials mentioning features or use of this software must display the following acknowledgement:
"This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"
The word "cryptographic" can be left out if the routines from the library being used are not cryptographic related :-).
- 4** If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement:
"This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publicly available version or derivative of this code cannot be changed; i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

A.2 NET-SNMP Open Source Package

Various copyrights apply to this package, listed in 4 separate parts below. Please make sure that you read all the parts. Up until 2001, the project was based at UC Davis, and the first part covers all code written during this time. From 2001 onwards, the project has been based at SourceForge, and Networks Associates Technology, Inc hold the copyright on behalf of the wider Net-SNMP community, covering all derivative work done since then. An additional copyright section has been added as Part 3 below also under a BSD license for the work contributed by Cambridge Broadband Ltd. to the project since 2001. An additional copyright section has been added as Part 4 below also under a BSD license for the work contributed by Sun Microsystems, Inc. to the project since 2003.

A.2.1 ---- Part 1: CMU/UCD copyright notice: (BSD like) -----

Copyright 1989, 1991, 1992 by Carnegie Mellon University
Derivative Work - 1996, 1998-2000
Copyright 1996, 1998-2000 The Regents of the University of California
All Rights Reserved

Permission to use, copy, modify and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of CMU and The Regents of the University of California not be used in advertising or publicity pertaining to distribution of the software without specific written permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

A.2.2 ---- Part 2: Networks Associates Technology, Inc copyright notice (BSD) -----

Copyright (c) 2001-2003, Networks Associates Technology, Inc
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- ♦ Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- ◆ Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- ◆ Neither the name of the Networks Associates Technology, Inc nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

A.2.3 ---- Part 3: Cambridge Broadband Ltd. copyright notice (BSD) -----

Portions of this code are copyright (c) 2001-2003, Cambridge Broadband Ltd.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- ◆ Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- ◆ Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- ◆ The name of Cambridge Broadband Ltd. may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

A.2.4 ---- Part 4: Sun Microsystems, Inc. copyright notice (BSD)

Copyright © 2003 Sun Microsystems, Inc.,
4150 Network Circle, Santa Clara, California 95054, U.S.A.
All rights reserved.

Use is subject to license terms below.

This distribution may include materials developed by third parties.

Sun, Sun Microsystems, the Sun logo and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- ♦ Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- ♦ Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- ♦ Neither the name of the Sun Microsystems, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

A.3 Libegg

Libegg License

<libeggtray.so: used for icon display in system tray>
Copyright (C) 2003 Sun Microsystems, Inc.

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

To obtain a copy of the source code, go to:

<http://cvs.gnome.org/lxr/source/libegg/>

You may contact the Novell Customer Response center by any of the methods listed below.

Email: crc@novell.com

Phone: 1.888.321.4CRC

Novell, Inc., hereby disclaims all copyright interest in the library “libeggtray.so” written by Sun Microsystems, Inc.

A.4 JRE

JRE Note

This product includes code licensed from RSA Security, Inc. Some portions licensed from IBM are available at <http://oss.software.ibm.com/icu4j/>.