Novell exteNd

5.0

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INSTALLING NOVELL EXTEND

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exteNd Suite 5 *Installing Novell exteNd*

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About This Guide

Purpose

This book describes how to install the Novell® exteNd™ suite of products.

Audience

This book is for users and/or administrators responsible for installing and configuring the Novell exteNd product suite for both development and production environments.

1 Preparing to Install exteNd 5

This chapter presents an overview of the Novell exteNd 5 product suite installation program. The installation program is self-documenting, but there are some decisions you need to make before you run the install. This chapter helps you make them.

Topics include:

- About the installation program
- Before you install
- What gets installed
- Contacting Technical Support

Latest information For the latest information on hardware and software requirements, supported databases, and specific install issues, see the *Release Notes*.

About the installation program

The installation program is an Install Anywhere Wizard that is similar on all platforms. There are five options for installing the Novell exteNd suite:

Option	Description	Platform
Express	Installs all suite products and features using a default configuration Autoconfigures MySQL Deploys the Express Portal	Windows only

Option	Description	Platform
Server Express	Installs all server components Autoconfigures MySQL Deploys the Express Portal	Windows, Linux, NetWare®
Server	Installs only the server application features	Windows, UNIX, Linux, NetWare
Tools	Installs only the client application features	Windows only
Custom	Lets you select options to install a specific configuration of products and features	Windows, UNIX, Linux, NetWare

Before you install

Preparing your computer

If you have a previously installed version of any Novell exteNd product, uninstall it before installing this version of the Novell exteNd 5 suite.

If you need to uninstall an existing exteNd 5 installation, you can run the uninstall program from the Add or Remove Programs item from the Windows Control Panel, or from the Start menu shortcut in the Novell exteNd 5 program group. exteNd can also be manually uninstalled. See the section on "What gets installed" on page 16 for a list of items to remove.

Making installation decisions

These are the decisions you need to make **before** you install Novell exteNd:

What to decide	Considerations	For information see
Which install will you use?	**Applies to:** Windows, NetWare, UNIX, and Linux **Details:** The different install options are customized for various typical uses	"Choosing an installation option" on page 13

What to decide	Considerations	For information see
Which **database** will you use for your SilverMaster?	**Applies to:** Windows, UNIX, and Linux (the suite install uses the existing exteNd Application Server and SilverMaster installed with NetWare) **Details:** The Application Server requires a SilverMaster database to maintain its own system information; you need to specify a database of a supported type (DBMS) to use as SilverMaster	"Choosing a database for SilverMaster" on page 14
Should you configure the Application Server to run as a **service or daemon**?	**Applies to:** Windows (on UNIX and Linux, this is done after installation; on NetWare, the Application Server automatically starts by default via autoexec.ncf) **Details:** If you want the Application Server to restart automatically whenever its host machine reboots, configure it to run as a Windows service or UNIX/Linux daemon	Chapter 6, "Installing the Application Server as a Service or Daemon"

Choosing an installation option

These are the five installation options available with exteNd 5.

Install option	What it does	Platforms / for instructions
Express	This is the simplest way to get started using the exteNd suite of products. In addition to installing all of the products, it creates and configures a MySQL database for use as a SilverMaster and deploys a portal project that can be used as a starting point for development, testing, or learning.	Windows For more information, see Chapter 2, "Express and Server Express Installs"
Server Express	Installs the server components of exteNd, but not the designers and tools used for development. The Server Express install creates and configures a MySQL database for use as a SilverMaster and deploys a portal project that can be used as a starting point for development, testing, or learning.	Windows, Linux, and NetWare Chapter 2, "Express and Server Express Installs"

Install option	What it does	Platforms / for instructions
Server	Installs the server components of exteNd, but not the designers and tools used for development. The Server install asks what type of database you will use for SilverMaster and requests specific configuration information such as port numbers and passwords. The Server install is appropriate for machines that will be hosting exteNd applications. On NetWare, Server Express uses the exteNd Application Server and MySQL installed with NetWare.	All platforms Chapter 3, “Server Install”
Tools	The Tools option installs the exteNd design tools used for application development.	Windows Chapter 4, “Tools Install”
Custom	The Custom option allows you to select which features are installed on your machine. You can specify your own preferences for databases, port numbers, and passwords.	All platforms. Chapter 5, “Custom Install”

Choosing a database for SilverMaster

The SilverMaster is a database used by the Novell exteNd Application Server. There is one SilverMaster for each Application Server or cluster. The SilverMaster keeps track of all deployment databases used by the Application Server and also holds the Application Server’s system tables—such as tables containing security group and user information. Applications can also be deployed to the SilverMaster.

Making a DBMS choice

When choosing a DBMS to host your SilverMaster, consider the following platform issues:

Platform	DBMS considerations for SilverMaster
Windows or Linux	The Express install option automatically installs and configures MySQL. You can choose any supported DBMS for SilverMaster using other installation types.
NetWare	MySQL is automatically installed and configured as SilverMaster as part of the NetWare installation.
UNIX	You must be using a supported DBMS product and create a database to be used as SilverMaster before running the install program.

The Application Serverr can communicate with multiple database engines at once. For example, you can install your SilverMaster database on Cloudscape and have all of your deployment databases on another DBMS, such as Oracle.

Preparing the database to be a SilverMaster

NOTE: If you are using the Express or Server Express option, the install automatically creates a MySQL database. Otherwise, you will have to create a database. If you are using the Custom option on Windows or Linux, a MySQL database can be created for you.

Preparing the database involves two operations:

- Creating the database
- Setting up the database

Creating the database You need to create a database to use as your SilverMaster **before** installing the Application Server.

Setting up the database The Application Server must be able to connect to the database you want to use as SilverMaster (as well as any other databases you want it to access). The Application Server acts as a **database client**—so it requires any database client software, ODBC driver, JDBC driver, and any configuration necessary for an application connecting to a particular database.

The steps for setting up a database differ for the different database types (Oracle, and so on).

For details on setting up your database type, see the appropriate chapter in the exteNd Application Server Database Configuration Guide.

For more information about the SilverMaster database and setting it up, see the exteNd Application Server *Administrator's Guide* (especially the chapter on data source configuration).

Using MySQL with exteNd 5

Default port number

MySQL is installed at port number 63306 when installed by the exteNd suite installer. This is to avoid conflicts with any other MySQL server running on the same machine.

MySQL and NetWare

MySQL and the exteNd Application Server are installed as part of the NetWare installation program. The exteNd 5 suite does not reinstall either the MySQL SilverMaster or the Application Server during the suite installs.

MySQL on Windows

Running the Express or Server Express option installs MySQL. If you have an existing installation of MySQL running as a service on Windows, your MySQL service will be overwritten and your existing my.ini file will be renamed my.ini.bak.

Using the Custom option and deselecting MySQL will avoid installing MySQL during the extend installation.

What gets installed

The following table lists the items that get installed or started during the installation.

If you should manually uninstall, you need to make sure these items are stopped and/or deleted.

Services and applications

Category	Applications	Registry Keys
Application Server	Novell exteNd Application Server 5.1	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\exteNdAppServer51
	Novell exteNd Application Server Cache Manager 5.1	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\exteNdCachemgr51
	Novell exteNd Application Server Dispatcher 5.1	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\exteNdDispatcher51
	Novell exteNd Application Server Load Manager 5.1	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\exteNdLoadmgr51
Director services	exteNd Director DRE	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\DirectorDRE
	exteNd Director Cache Coordinator	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\CacheCoordinator
MySQL service	MySQL	My Computer\ HKEY_LOCAL_MACHINE\ SYSTEM\ControlSet001\ Services\MySQL
Other	The Novell exteNd LDAP Utility program	—

Files

The installation program installs into the directory of your choice. Files will be placed at *installation directory*\exteNd5.

If you are doing a manual uninstall, there are some things you may want to preserve:

- Any profiles, projects, and configuration files that are user-created and saved in various places
- Any files under MySQL/data (they will be overwritten during an Express or Server Express install)

NOTE: If you had a previous version of MySQL installed, the exteNd install creates *winnt\my.ini*. Your original is saved as *my.ini.bak*.

Environment variables

NOVELL_EXTEND_APPSERVER_HOME

NOVELL_EXTEND_COMPOSER_HOME

NOVELL_EXTEND_DIRECTOR_DEV_HOME

NOVELL_EXTEND_DIRECTOR_HOME

NOVELL_EXTEND_HOME

NOVELL_EXTEND_WORKBENCH_HOME

AGCLASSPATH If you installed MySQL as part of the exteNd install, the install adds its driver to AGCLASSPATH—for example:

```
C:\Program Files\Novell\exteNd5\MySQL\jdbc\mysql-connector-java-
3.0.8-stable-bin.jar
```

Registry keys

exteNd Application Server	My Computer\ HKEY_LOCAL_MACHINE\SOFTWARE\Novell\exteNd\ AppServer\5.0
exteNd Director™	My Computer\ HKEY_LOCAL_MACHINE\SOFTWARE\Novell\exteNd\ Director\5.0
exteNd Director tools	My Computer\ HKEY_LOCAL_MACHINE\SOFTWARE\Novell\exteNd\ Workbench\5.0

Path modifications

User path	C:\Program Files\Novell\exteNd5\Director\autonomy
System path	C:\Program Files\Novell\exteNd5\AppServer\bin; C:\Program Files\Novell\exteNd5\Director\autonomy

Start menu items

Novell exteNd 5.0 directory

UNIX/Linux-specific

When installing as root user on Linux, the installation edits the /etc/password and /etc/group files with entries required to start MySQL.

Contacting Technical Support

To learn about the online product support available to you, visit the Novell exteNd Application Server Web site (http://extend.novell.com/appserver).

If you contact the Novell exteNd support staff for assistance, you will be asked to provide information about your **environment** and your **problem**—as follows:

Information to provide about your environment

Category	Details
Product versions	Available from the **About...** help menu
Product type	The suite edition you are using
Operating system	The platform for your server
Database platform for SilverMaster	The DBMS you are using for your SilverMaster
Other databases	The DBMSs you are using for application deployment and application data, including versions
Database drivers	The types and versions of the database drivers you are using
Browser	The name and version number of the Web browser you are using
Java Virtual Machine version (JVM)	Displayed when you start the Application Server
Proxy servers and firewalls	Whether you are using a proxy server or firewall in your system configuration

Information to provide about your problem

- Does the problem occur in the **development environment** or at **runtime**?
- What was the **specific action** that caused the error?
- What **error message** did you see?
- Can the problem be **recreated** consistently?
- What are the **exact steps** to recreate the error? Please be prepared to provide an **example**

2 Express and Server Express Installs

This chapter presents an overview of the Express and Server Express installation types. The Express and Server Express install types allow users to quickly install the entire suite or the server aspects of the suite with minimal input required. Topics include:

- About the Express and Server Express install options
- Running the installation script

About the Express and Server Express install options

Express option The **Express** install is the simplest way for you to get started using the exteNd suite of products. In addition to installing all of the products, it creates and configures a MySQL database for use as a SilverMaster and deploys a portal project that can be used as a starting point for development, testing, or learning. Express is available only on Windows.

Server Express option The **Server Express** option installs the server components of exteNd, but not the designers and tools used for development. The Server Express install automatically installs and configures a MySQL database for use as SilverMaster. This install type is appropriate for machines that will be hosting exteNd applications. Server Express is available on all platforms. On NetWare, it uses the MySQL SilverMaster and application server installed as part of the NetWare installation.

Running the installation script

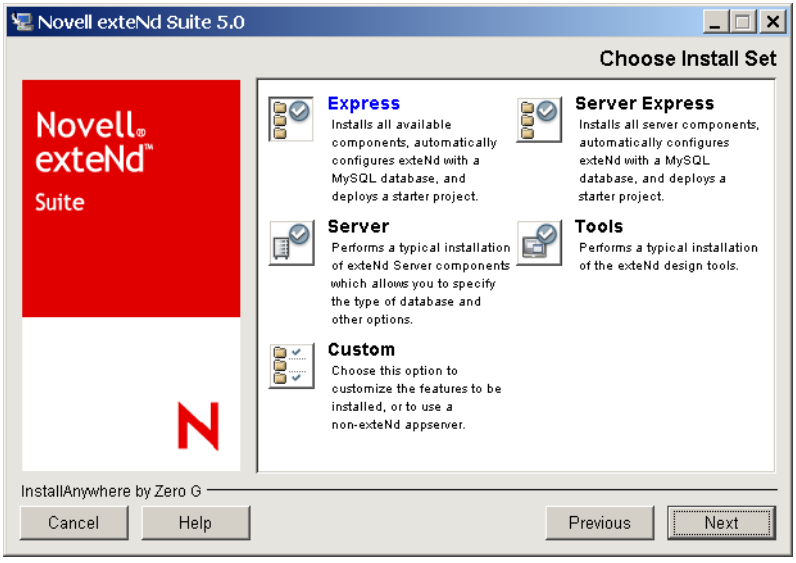
Although there are different things happening behind the scenes, the install wizard asks for the same inputs for the Express and Server Express installations.

IMPORTANT: Novell recommends uninstalling any previous version of exteNd before reinstalling. If you choose to install over an existing exteNd installation and use the Express or Server Express install, the installer will overwrite the existing SilverMaster and ExpressPortal. Any changes made to those databases will be lost.

➢ **To run the Novell exteNd product suite installation program—using the Express or Server Express option:**

1. You must exit all Windows programs before running the installation program Read the introduction screen and click **Next**.
2. To install the suite, you must accept the license agreement. Click **Next**.
3. Enter your installation key and click **Next**.

   Your installation key determines what functionality gets installed.
4. Choose your installation type and click **Next**.



TIP: This chapter focuses on the **Express** and **Server Express** install options. Both installation types ask for the same information. For other options, see the appropriate chapters in this book.

5. Enter the path to where you would like to install the suite. The default is **C:\Program Files\Novell\exteNd5**.

   Click **Next**. If the directory does not already exist, you are asked if you would like to have it created. Click **Next**.

6 The Express or Server Express installation installs MySQL for use as the SilverMaster database. Enter the MySQL Listener port number. The default port number is 63306. Click **Next**.

TIP: For information regarding the use of MySQL as SilverMaster, review the Release Notes.

7 Enter the database password used for the MySQL database root user and click **Next**.

IMPORTANT: If you are reinstalling, you must supply the same MySQL database password used in the previous install.

8 Specify the **HTTP port number** the server will listen on. The default value is 80 on Windows and 8080 on Linux and UNIX. Click **Next**.

📖 For more information, see the chapter on running the server in the exteNd Application Server *Administrator's Guide*.

9 The Express or Server Express option includes the exteNd Application Server. When you are prompted, define the **administration account** (user name and password) for the server.

The installation program creates a user with this name and password and assigns the user Locksmith privileges. Your server's administrator will log in to the server using this account.

📖 For more information, see the chapter on setting up users and groups in the exteNd Application Server *Administrator's Guide*.

10 A preinstallation summary screen displays. If everything is correct, click **Install** to proceed with the installation.

3 Server Install

This chapter presents an overview of the Server installation option. Topics include:

- About the Server install option
- Running the installation script

About the Server install option

The **Server** option installs the server components of exteNd, but not the designers and tools used for development. The Server install asks what type of database you will use for SilverMaster and requests specific configuration information such as port numbers and passwords. The Server install is appropriate for machines that will be hosting exteNd applications. Server is available on all platforms.

If you are using the Server install on NetWare, the Application Server and MySQL SilverMaster that were installed as part of the NetWare install will be used. They will not be reinstalled during the exteNd suite install.

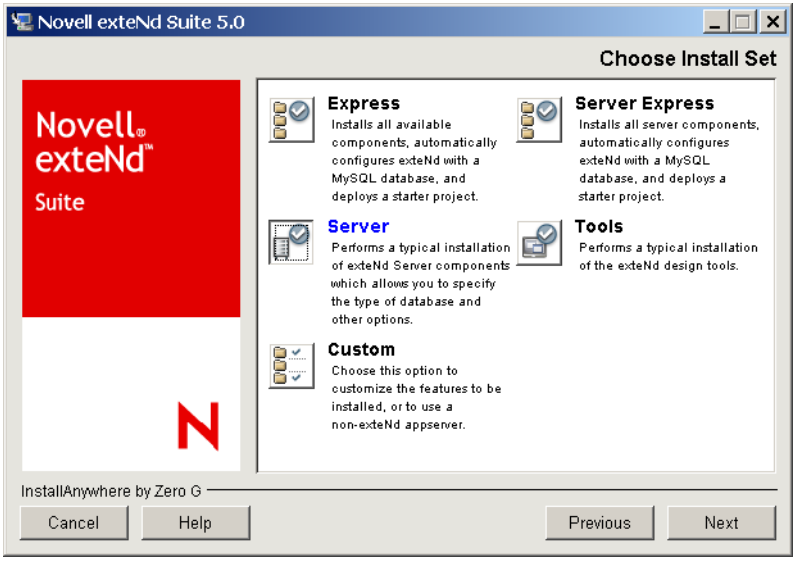
Running the installation script

When running the Server install option, the questions presented vary depending on selections you make along the way, as well as which install key you are using. The following comprises an aggregation of all options as seen using an exteNd Enterprise Suite license on Windows.

➢ **To run the Novell exteNd product suite installation program—using the Server option:**

1. You must exit all Windows programs before running the installation program Read the introduction screen and click **Next**.
2. To install the suite, you must accept the license agreement. Click **Next**.
3. Enter your installation key.

   Your installation key determines what functionality gets installed.
4. Choose your installation type and click **Next**.

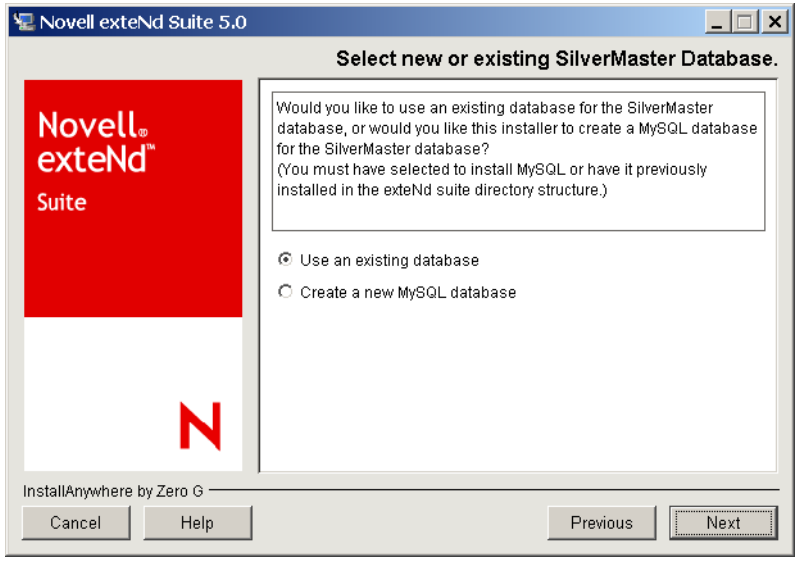


TIP: This chapter focuses on the **Server** install option. For other options, see the appropriate chapters in this book.

5. Enter the path to where you would like to install the suite. The default is **C:\Program Files\Novell\exteNd5**.

   Click **Next**. If the directory does not already exist, you will be asked if you would like to have it created. Click **Next**.

6 Specify what you will use for a SilverMaster database.

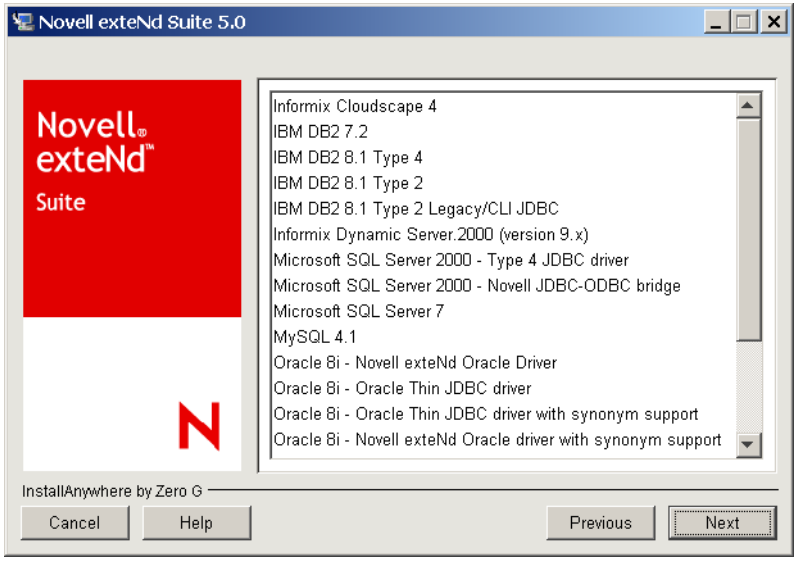


Option	Description
Use an existing database	Select this option if you have created your own database to be used as SilverMaster
Create a new MySQL database	Select this option if you would like to have the installer create a new MySQL database to use as SilverMaster. If you select this option, skip to Step 8.

7 If you chose to use a database that you have already created, the install prompts you for more information about the database.

📖 For more information about the SilverMaster database and setting it up, see the exteNd Application Server *Administrator's Guide* (especially the chapter on data source configuration).

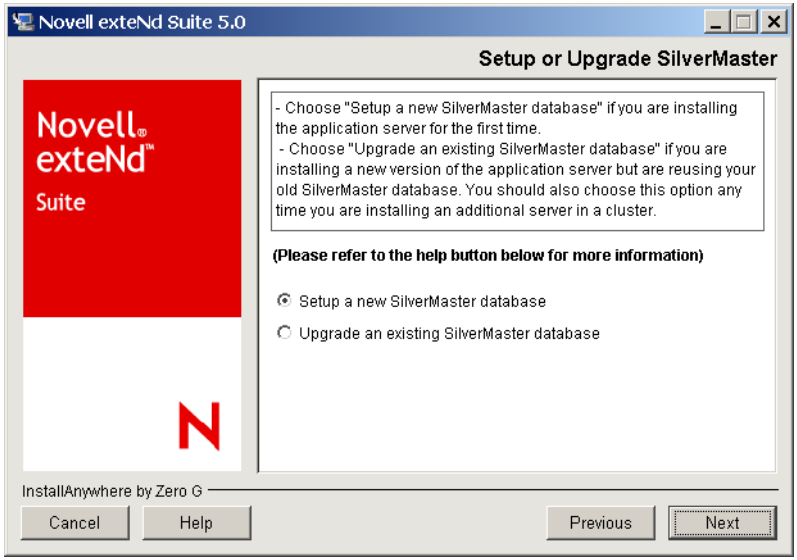
7a If you are using a database you have already created, choose the database type from the list:



Click **Next**.

7b (Linux/UNIX only) Enter the path of the JDBC driver to be used to connect to the SilverMaster database.

7c Select whether you want to set up a new SilverMaster or upgrade an existing one.



Option	Description
Setup a new SilverMaster database	Select this option if you have a database that has never been used as a SilverMaster.
Upgrade an existing SilverMaster database	Select this option if you have an existing SilverMaster database that you would like to upgrade to the current version of exteNd. This option will retain all database tables, security settings, and user information.

7d Enter the driver settings for your SilverMaster database. Click **Next**.

📖 For more information, see the exteNd Application Server Database Configuration Guide.

8 Enter the database name, user name, and password for the SilverMaster database. Click **Next**.

9 Specify the **HTTP port number** the server will listen on. The default value is 80. Click **Next**.

📖 For more information, see the chapter on running the server in the exteNd Application Server *Administrator's Guide*.

10 If you are installing the Application Server, you are asked to specify whether you want to restrict access to the server. When access is restricted, unauthorized users will not be able to access administration operations or browse directory listings. Click **Next**.

📖 For more information, see the chapter on using security in the exteNd Application Server *Administrator's Guide*.

11 If you are creating or initializing a SilverMaster database, define the **administration account** (user name and password) for the server when prompted

The install program creates a user with this name and password and assigns the user Locksmith privileges. Your server's administrator will log in to the server using this account.

📖 For more information, see the chapter on setting up users and groups in the exteNd Application Server *Administrator's Guide*.

12 Choose whether you want to run the Application Server as a service.

📖 For more information on running as a service, see Chapter 6, "Installing the Application Server as a Service or Daemon".

13 Enter a Cache Coordinator RMI Port number. This port is used by exteNd Director for communicating with different instances of your exteNd Director application in a clustered server environment. The default port number is 54490.

14 A preinstallation summary screen displays. If everything is correct, click **Install** to proceed with the installation.

4 Tools Install

This chapter presents an overview of the Tool installation type. Topics include:

- About the Tools install option
- Running the installation script

About the Tools install option

The **Tools** option installs the exteNd design tools used for application development. Tools is available on Windows only.

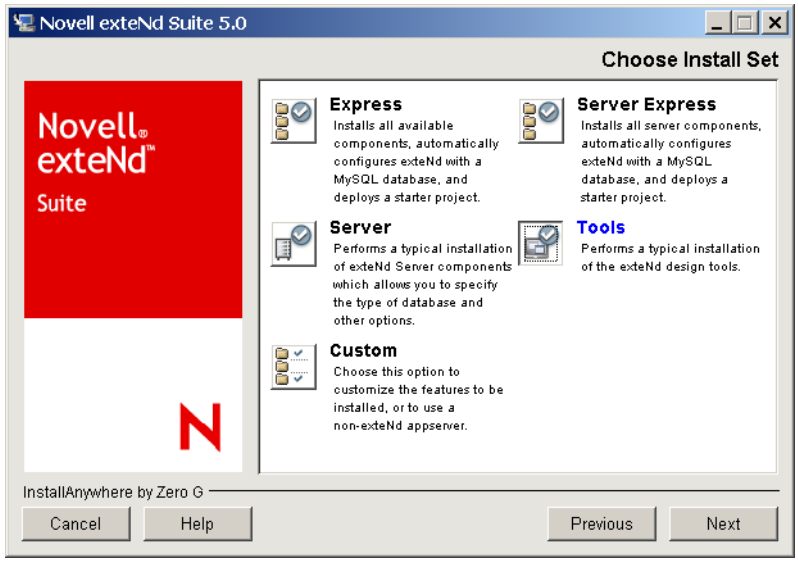
Running the installation script

➢ **To run the Novell exteNd product suite installation program—using the Tools option:**

1. You must exit all Windows programs before running the installation program Read the introduction screen and click **Next**.
2. To install the suite, you must accept the license agreement. Click **Next**.
3. Enter your installation key and click **Next**.

   Your installation key will determine what functionality gets installed.

4 Choose your installation type and click **Next**.



TIP: This chapter focuses on the **Tools** install option. For other options, see the appropriate chapters in this book.

5 Enter the path to where you would like to install the suite. The default is **C:\Program Files\Novell\exteNd5**.

Click **Next**. If the directory does not exist, you are asked if you would like to have it created. Click **Next**.

6 A summary screen displays. If everything is correct, click **Install** to proceed with the install.

5 Custom Install

This chapter presents an overview of the Custom installation type. Topics include:

- About the Custom install option
- Running the installation script

About the Custom install option

The **Custom** option allows you to select which features are installed on your machine. You can specify your own preferences for databases, port numbers, and passwords. Custom is available on all platforms.

Running the installation script

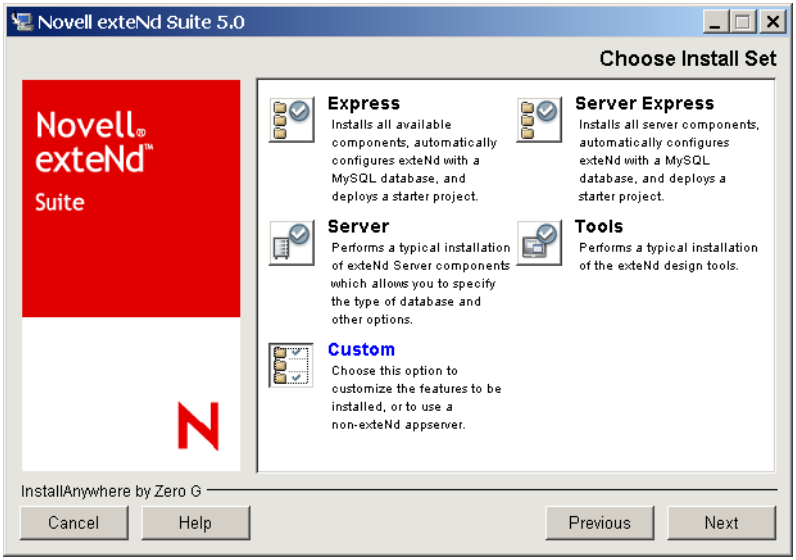
When you run the Custom install, the questions presented vary depending on selections you make along the way, as well as which install key you are using. The following comprises an aggregation of all options as seen using an exteNd Enterprise Suite license on Windows.

➢ **To run the Novell exteNd product suite installation program—using the Custom option:**

1. You must exit all Windows programs before running the installation program Read the introduction screen and click **Next**.
2. To install the suite, you must accept the license agreement. Click **Next**.
3. Enter your installation key.

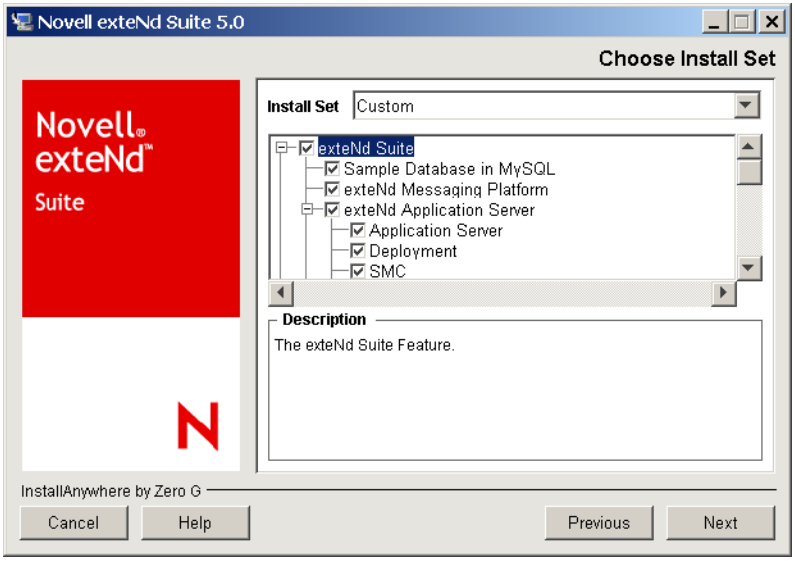
   Your installation key determines what functionality gets installed.

4 Choose your installation type and click **Next**.



TIP: This chapter focuses on the **Custom** install option. For other options, see the appropriate chapters in this book.

5 The following screen allows you to select the items that you choose to install.



The options in the Install Set list are determined by the installation key you entered. You can click an item in the list to display a description in the Description box.

After selecting all the items you want to install, click **Next.**

6 Enter the path to where you would like to install the suite. The default is **C:\Program Files\Novell\exteNd5**.

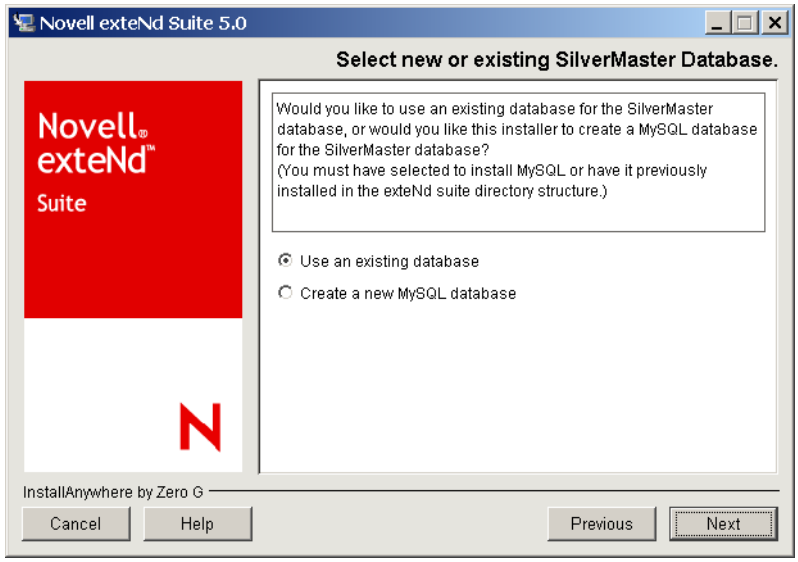
Click **Next**. If the directory does not exist, you are asked if you would like to have it created. Click **Next**.

7 If you chose to install MySQL, enter the MySQL Listener port number. The default port number is 63306. Click **Next**.

TIP: For information regarding the use of MySQL as SilverMaster, review the Release Notes.

8 Enter the database password used for the MySQL database root user. Click **Next**.

9 Specify what you will use for a SilverMaster database.

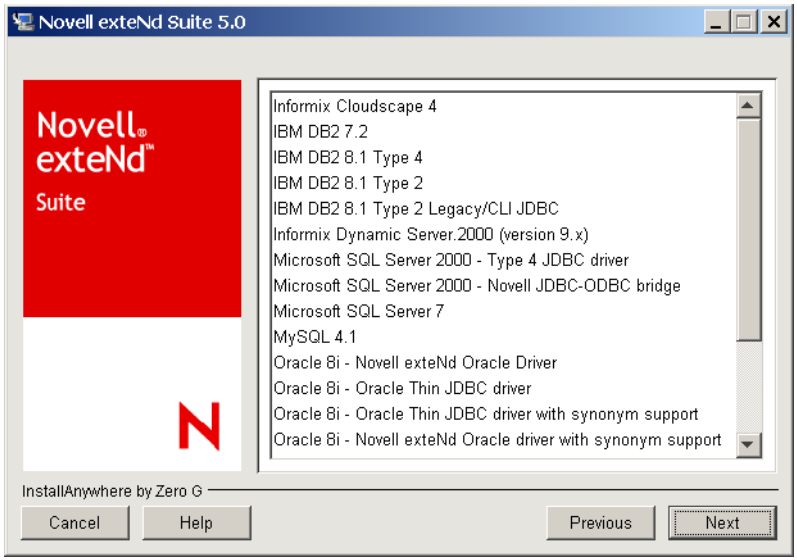


Option	Description
Use an existing database	Select this option if you have created your own database to be used as SilverMaster
Create a new MySQL database	Select this option if you would like to have the installer create a new MySQL database to use as SilverMaster. If you select this option, skip to Step 11.

10 If you chose to use a database that you have already created, the install prompts you for more information about the database:

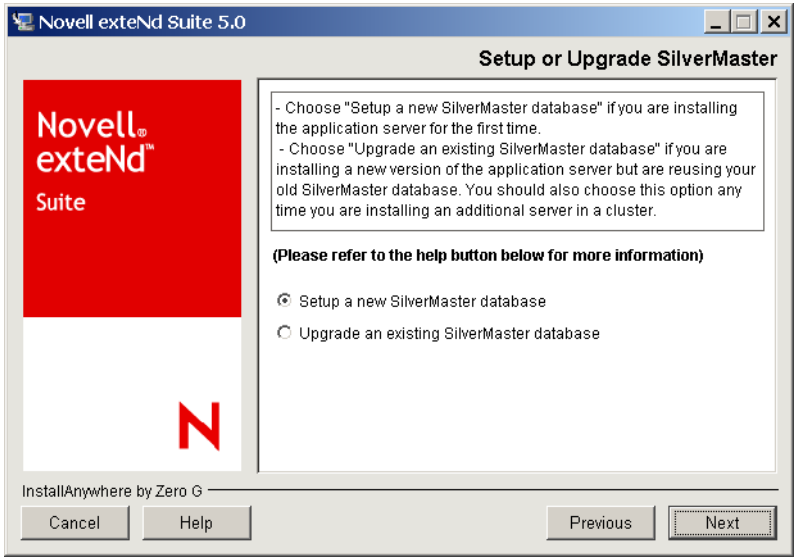
📖 For more information about the SilverMaster database and setting it up, see the exteNd Application Server *Administrator's Guide* (especially the chapter on data source configuration).

10a Choose the database type from the list:



Click **Next**.

10b Select whether you want to set up a new SilverMaster or upgrade an existing one.



Option	Description
Setup a new SilverMaster database	Select this option if you have a database that has never been used as a SilverMaster.
Upgrade an existing SilverMaster database	Select this option if you have an existing SilverMaster database that you would like to upgrade to the current version of exteNd. This option will retain all database tables, security settings, and user information.

10c Enter the driver settings for your SilverMaster database. Click **Next**.

📖 For more information, see the Database Configuration Guide.

10d Enter the database name, user name, and password for the SilverMaster database. Click **Next**.

11 Specify the **HTTP port number** the server will listen on. The default value is 80. Click **Next**.

📖 For more information, see the chapter on running the server in the exteNd Application Server *Administrator's Guide*.

12 Enter the name service port number and click **Next**.

13 If you are installing the Application Server, you are asked to specify whether you want to restrict access to the server. When access is restricted, unauthorized users will not be able to access administration operations or browse directory listings.

Click **Next**.

📖 For more information, see the chapter on using security in the exteNd Application Server *Administrator's Guide*.

14 If you are creating or upgrading a SilverMaster database, you are prompted to define the **administration account** (user name and password) for the server.

The installation program creates a user with this name and password and assigns the user Locksmith privileges. Your server's administrator will log in to the server using this account.

📖 For more information, see the chapter on setting up users and groups in the exteNd Application Server *Administrator's Guide*.

15 Choose whether you want to run the Application Server as a service.

📖 For more information on running as a service, see Chapter 6, "Installing the Application Server as a Service or Daemon".

16 Enter a Cache Coordinator RMI Port number. This port is used by exteNd Director for communicating with different instances of your exteNd Director application in a clustered server environment. The default port number is 54490.

17 A preinstallation summary screen displays. If everything is correct, click **Install** to proceed with the installation.

6 Installing the Application Server as a Service or Daemon

This chapter describes how you can configure the exteNd Application Server to restart automatically when necessary:

- About services and daemons
- Running as a Windows service
- Running as UNIX daemons
- Running on NetWare

About services and daemons

With high-availability servers in a multiuser environment, it often makes sense to run them as Windows **services** or UNIX/Linux **daemons**. Running the exteNd Application Server and the database server as a service or daemon on the same machine ensures that both services restart automatically when the machine reboots. This helps you:

- **Avoid security risks** caused by keeping the server program logged in on the computer running the server
- **Automatically start the server** whenever Windows or UNIX is started
- **Start the server remotely** with the Windows Service Manager or with a UNIX shell
- **Run the server with administrative account privileges** while you run other programs using your local accounts
- **Avoid tying the server to a specific user ID**

By default, the Application Server does not run as a service or daemon.

What can run as a service or daemon

The following Novell exteNd Application Server programs can run as services or daemons:

Program	Description	Runs as
Application Server	Serves applications	Runs as a desktop program by default
Load Manager	Manages the activity of the servers in a cluster	Usually run as a desktop program
Dispatcher	Redirects requests to application servers	
Cache Manager	Keeps server caches for clusters in sync	

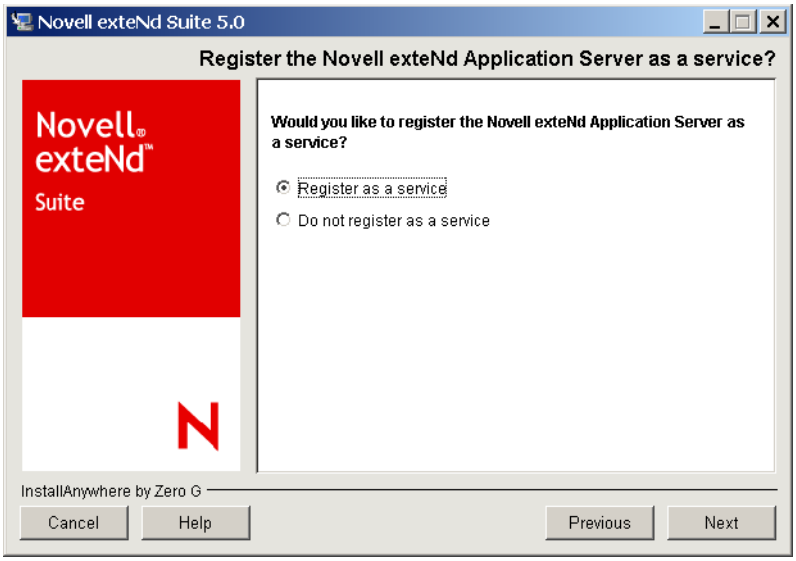
Running as a Windows service

When you run high-availability servers in a multiuser environment, it can make sense to run them as Windows **services**. Running the Novell exteNd Application Server and the database server as services on the same machine ensures that both restart automatically whenever the machine reboots. If the Application Server connects to databases on other machines, you should also make sure they restart automatically on reboot.

Creating a Windows service

There are two ways to create the Windows services for the exteNd Application Server and cluster servers:

- The exteNd installer has an option (available with the Server and Custom install options only) to automatically create Windows services for the Application Server and cluster servers.



- The Windows services may also be created after installation by using the utility **SilverServiceUtil.exe**. This is a command-line DOS utility and should be run from a DOS window. The following commands will create the Windows services for the exteNd servers:

```
SilverServiceUtil.exe -create -service exteNdAppServer51 -display \
"Novell exteNd Application Server 5.1" -program \
%NOVELL_EXTEND_APPSERVER_HOME%\bin\SilverServer.exe

SilverServiceUtil.exe -create -service exteNdCacheMgr51 -display \
"Novell exteNd Cache Manager Server 5.1" -program \
%NOVELL_EXTEND_APPSERVER_HOME%\bin\SilverServer.exe

SilverServiceUtil.exe -create -service exteNdLoagMgr51 \
-display "Novell exteNd Load Manager Server 5.1" \
-program %NOVELL_EXTEND_APPSERVER_HOME%\bin\SilverServer.exe

SilverServiceUtil.exe -create -service exteNdDispatcher51 \
-display "Novell exteNd Dispatcher 5.1" \
-program %NOVELL_EXTEND_APPSERVER_HOME%\bin\SilverServer.exe
```

Starting a Windows service

The services need to be started after they are created.

➢ **To start a Windows service:**

1. Select **Administrative Tools** in the Windows Control Panel.
2. Open **Services** and find the **Novell exteNd Application Server 5.1** service.
3. Right-click the service and select **Start**.

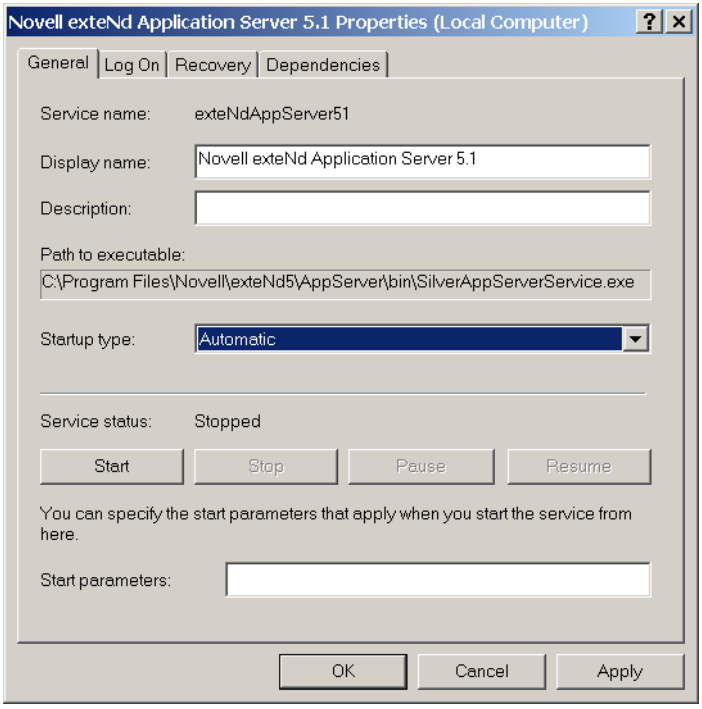
NOTE: This procedure may vary a bit on the various Windows platforms.

The exteNd server does not normally open a DOS console window when it is started as a service. The console output is redirected to a text file stored in the %NOVELL_EXTEND_APPSERVER_HOME%/temp directory.

Starting automatically after reboot

1. The services are configured as manual start. To have the services restart automatically, select **Administrative Tools** in the Windows Control Panel.
2. Open **Services** and find the **Novell exteNd Application Server 5.1** service.

3 Right-click the service and select **Properties**. Change the Startup type to **Automatic**.



Passing command-line arguments

You can specify command-line arguments that will get passed to the exteNd servers when they are started as Windows services. To do this you edit the Windows registry entry for the service, using the Windows registry editor.

➢ **To specify command-line arguments:**

1 From the **Start** menu select **Run**.

2 Enter **regedit** and click **OK**. This starts the registry editor.

3 In the left panel, expand **HKEY_LOCAL_MACHINE, SYSTEM, CurrentControlSet, Services**.

4 Click the service you want to add command-line parameters for. The registry settings for the service displays in the right panel.

5 Right-click **StartupOptions**, then select **Modify**.

6 Enter the startup command-line options and click **OK** to save them.

7 Exit the Windows registry editor.

The command-line arguments will be passed into the exteNd server process the next time it is started as a service.

Service dependencies

If the exteNd Application Server depends on a database server (or other server) that runs on the same machine, the database service must be started before the Application Server service.

You should add a service dependency to the Application Server service to guarantee that the database server will be started before the Application Server.

You do this with the **SilverServiceUtil.exe** command-line tool.

Running as UNIX daemons

All UNIX and Linux distributions of the exteNd Application Server include the **extendctl** script, which can be used to start and stop exteNd server processes in the background.

The installation program also installs **sample startup scripts** that your system can run to automatically start the Application Server or cluster components as daemons at boot time.

Server path	Cluster path
$installationdirectory/etc/silver**server**	*$installationdirectory*/etc/silver**cluster**

A system administrator with root privileges must copy the sample server and cluster scripts from the install directory into your operating system's **boot directory**.

Manual start of exteNd server daemon process

The **extendctl** script can be used to start, stop, and restart server processes.

```
$NOVELL_EXTEND_APPSERVER_HOME/etc/extendctl
```

For usage information, use **extendctl -h**. Here are some examples.

```
extendctl start -A     (starts the appserver in the background)
extendctl stop -A      (stops the background appserver process)
extendctl restart -A   (restarts the background appserver process)
extendctl status -A    (tests whether the appserver is running)
extendctl tail -A      (starts a "tail -f" on the appserver console
output)
```

The flag **-A** refers to the Application Server. Other options are available for use with cluster servers.

Server console output

When the **extendctl** script starts an exteNd server in the background, the server's console output is redirected to a file with the following naming convention:

```
$NOVELL_EXTEND_APPSERVER_HOME/temp/SilverServer.XXXXX.out
```

XXXXX begins at 00001 and is incremented by 1 each time a server is restarted.

You can optionally specify an alternate output directory. But you cannot change the naming convention for console output files.

The default behavior of the extendctl script is to delete all but the last few output files created by each server. The number of output files saved can be changed. And you can always start the output file index over again at 00001 by deleting the index file:

```
$NOVELL_EXTEND_APPSERVER_HOME/temp/.outfile.index
```

NOTE: Don't do this unless all exteNd server processes are stopped.

Passing command-line arguments to exteNd background processes

To pass one or more command-line arguments to the Application Server (or a cluster server), use the **-p** option with the extendctl script. For example:

```
extendctl start -A -p "+cp:p /tmp/foo.jar -nomonitor"
```

This causes the arguments **"+cp:p /tmp/foo.jar -nomonitor"** to be passed to the Application Server when it is started in the background. The argument to the **-p** switch must be enclosed in double quotes.

Starting exteNd servers automatically after a reboot

The directory $NOVELL_EXTEND_APPSERVER_HOME/etc contains sample scripts that may be copied into the appropriate areas in /etc/init.d or /etc/rc.d. These scripts are named:

```
silverserver (to start/stop an AppServer process)
silvercluster (to start/stop the cluster control servers)
```

The variable EXTEND_HOME must be changed in these scripts to reflect the exteNd installation directory. These scripts support the start, stop, restart, and status commands.

The way to set up the Application Server or cluster servers to restart after a reboot varies from system to system. See your OS documentation or your UNIX/Linux system administrator for more information. Remember that the Application Server process must be started after any of its dependent daemon processes (that is, databases) are started. If the exteNd cluster servers are being used, they must be started before the server is started.

Starting exteNd servers as a user other than root

An exteNd Application Server started by the system after a reboot will be running as the root user.

➢ **To specify a different user:**

1. Make sure the server is running.
2. Start the SMC and connect to the server (see the overview chapter in the exteNd Application Server *Administrator's Guide* for details).
3. Select **View>Configuration** to display the configuration panels.
4. Select the **General** panel.
5. Edit the user name in the **Username for server (UNIX only)** text box.

   TIP: The specified user ID must have the proper permissions to files in the exteNd installation directory.
6. Restart the server for the changes to take effect.

   Now the server will change its effective user ID whenever it starts up.

   IMPORTANT: The server must be restarted as root. Otherwise, the server will fail to start—either because it can't change the user ID or because it can't read from or write to a file. These problems can usually be avoided if you ensure that the user ID being set for the server is the user that owns the exteNd install directory contents.

Running on NetWare

In NetWare, the **autoexec.ncf** file is used to automatically restart the Application Server when the NetWare server restarts. When you install the Application Server, the commands for this are added by default to autoexec.ncf.

If you don't want the Application Server to restart automatically, you can edit autoexec.ncf to remove those commands.

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