Nimsoft® Server™

Installation Guide
v5.61
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- Nimsoft Support policies and guidelines
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Chapter 1: Introduction

This section contains the following topics:

- About This Guide (see page 9)
- Installation Overview (see page 9)

About This Guide

This guide helps you successfully install the Nimsoft Server software. It contains the following sections:

- **Introduction**—gives an overview of the installation phases
- **Nimsoft Server Pre-installation**—covers the information needed so that the host computer and database are configured correctly before installation begins
- **Nimsoft Server Installation**—describes installation of the server components of the Nimsoft Monitor solution
- **Nimsoft Client Installation**—describes deployment of client software into your monitored infrastructure
- Other sections cover bulk/remote robot installation (robot_msi_rpm installer packages), legacy Windows installation, installation on a Microsoft Cluster, and MySQL installation on Windows.

**Note:** For installation of the Nimsoft Unified Management Portal (UMP), Unified Reporter (UR) and Service Desk (NSD) products, please see the separate install documentation provided with those products, available from the Downloads tab at support.nimsoft.com.

For upgrade installations, see the *Nimsoft Server Release Notes and Upgrade Guide* for instructions, available from the same location.

Installation Overview

Nimsoft Monitor is made up of a number of distributed and loosely coupled software modules. The process of installing these modules to build out a full system can be divided into four phases:

1. Preparation and pre-installation. At the end of this process the OS and database will be configured properly, which generally leads to a smooth software installation process.
2. Download and installation of the Nimsoft Server package from the Nimsoft support website. At the end of this process, you will have installed the foundation for Nimsoft Server on your computer:

3. Deployment of the Nimsoft infrastructure (hubs, robots and probes) to monitor on-premise devices and services. This deployment process also includes installation of one or more management consoles (such as Infrastructure Manager) on other computers.

Note: Following distribution of Infrastructure Manager, hubs, robots, and probes, typically one installs Unified Management Portal (UMP). See the UMP Installation Guide available for download at Nimsoft support.

At the end of this process, you will have deployed the Nimsoft infrastructure components into your local IT environment and established a management domain.
4. Extending the managed domain by deploying hubs, robots and probes to monitor remote sites, which may include creating secure tunnels between hubs.

After completion of the installation phases, you will want to configure the various Nimsoft infrastructure components within your environment. This includes tuning thresholds so that alarms are raised appropriately, setting up actions in response to alarms, setting up SLAs, and configuring dashboards to view QoS information.

For instructions and details, please refer to the Nimsoft Server Configuration Guide available from the Nimsoft support website. More detailed information is available from the online help documentation available with each component probe, package, or product.
Chapter 2: Nimsoft Server Pre-installation

A correct configuration of the host computer and database improves the likelihood of a successful installation.

This section is structured so that all pre-installation information for a particular combination of operating system and database appears in its corresponding section. Refer to the sub-section that applies to your choice of OS and database.

This section contains the following topics:

- **Supported Platforms** (see page 13)
- Microsoft Windows and MS-SQL Server (see page 18)
- Microsoft Windows and MySQL Server (see page 22)
- Microsoft Windows and Oracle (see page 28)
- Linux and MySQL Server (see page 32)
- Linux and Oracle (see page 40)
- Solaris and MySQL Server (see page 46)
- Solaris and Oracle (see page 52)

**Supported Platforms**

Nimsoft Server is supported on Windows, Linux, and Solaris platforms, with certain supported databases for each of these platforms. More information is also available from the Nimsoft Compatibility Support Matrix, which is updated regularly.

**Windows Server 2003 and Windows Server 2008**
- Microsoft SQL Server 2008 and 2008 R2
- MySQL Server 5.1 and 5.5 (see note below)
- Oracle 11g R1 and R2

**Red Hat Enterprise Linux (RHEL) versions 5 and 6 on X86 and AMD64 hardware**
- MySQL Server 5.1 and 5.5 (see note below)
- Oracle 11g R1 and R2

**SUSE Linux Enterprise Server (SLES) versions 10 and 11 on X86 and AMD64 hardware**
- MySQL Server 5.1 and 5.5 (see note below)
- Oracle 11g R1 and R2

**Solaris 10 on SPARC and Intel X86**
- MySQL Server 5.1 and 5.5 (see note below)
- Oracle 11g R1 and R2
Supported Platforms

**Note:** Nimsoft Server does not support disk compression on Windows due to the fact that compression reduces disk I/O performance. The Nimsoft Hub message queue is stored on disk, and is constantly undergoing read and write activity.

**Note:** Nimsoft is aware of significant improvements in the performance and scalability of MySQL with the release of version 5.5. As a result Nimsoft highly recommends MySQL version 5.5 over MySQL version 5.1. This Nimsoft product supports both versions, but support for MySQL version 5.1 will be discontinued in a future release.

Each combination of platform and database has its own section:

- **Windows and Microsoft SQL Server** (see page 18)
- **Windows and MySQL Server** (see page 22)
- **Windows and Oracle** (see page 28)
- **Linux and MySQL Server** (see page 32)
- **Linux and Oracle** (see page 40)
- **Solaris and MySQL Server** (see page 46)
- **Solaris and Oracle** (see page 52)

**Note:** The pre-installation information for both supported Linux platforms is identical, so both are covered in the database-specific Linux sections.

### About Hardware Sizing

Assessing the hardware requirements for any large and complex software system is a challenge. Oversizing seems wasteful, but undersizing can create performance problems. Unfortunately, there are no fixed rules or even formulas that can guarantee a minimum optimal configuration. Every environment has its own challenges and opportunities, including yours.

When considering the hardware you'll apply to the Nimsoft solution, keep in mind that a hardware configuration that works today may need to grow in the future. Therefore, Nimsoft recommends taking future forecast growth into consideration when planning your hardware requirements. Use the information in this section to begin planning your deployment, but consider that your particular situation may impose greater or lesser demands on the system.

Many professionals believe it is wise to obtain and use hardware of the most current generation. By starting with hardware of the latest architecture, one can anticipate the longest useful life.

Consult your Nimsoft Sales Engineer if you have any doubts or concerns about your needs.
Distribution of Nimsoft Components

The Nimsoft solution comprises three primary components:

- The Nimsoft Server, which contains (and is sometimes referred to as) the Primary Hub
- The Nimsoft Information Datastore (NIS) database, previously referred to as the SLM database
- The Unified Management Portal (UMP)

Each primary component plays a critical role in the overall Nimsoft solution. When installing for a small environment, you may choose to install everything on a single machine. However, it is usually advisable to distribute these components across multiple virtual or physical servers. This gives each component sufficient computing power and memory to perform optimally.

**Note:** The optional UMP DMZ proxy server component must be installed on an additional system.

In addition, you may want to install two Hubs on the same domain, and use the High-Availability probe to provide fail-over capability. This provides two levels of assurance in the event the Primary Hub fails:

- Your Nimsoft solution will continue to operate seamlessly
- Your user and security data—such as Nimsoft user definitions, ACLs, and so on—will remain intact and fully functional.

Capacity Planning

While every situation is unique in its own way, the following size categories can give you a starting point to assess your hardware requirements.

**One hub, fewer than 100 robots**

In a modest deployment — for example, a proof-of-concept for a small business in which there is a single hub and a few dozen robots — Nimsoft recommends you use no fewer than two servers or virtual machines:

- Use one for the NM Server (Primary Hub) and Unified Management Portal.
- Use the other for the database server that hosts the NIS database.

For good performance, each server should have at least one dual-core processor (Xeon-class 2.4 GHz or better) and no less than 8GB of memory.
Up to five hubs, fewer than 250 robots

In a medium-scale deployment — for example, a small government agency or business in which there are several hubs and a few hundred robots — Nimsoft recommends you use no fewer than three servers or virtual machines:

- Use one for the NM Server (Primary Hub) and one for the Unified Management Portal.
- Use another for the database server that hosts the NIS database.

For good performance, each server should have the equivalent of one or two quad-core processors (XEON-class 2.4 GHz or better), each with no less than 12GB of memory.

Up to twenty hubs, fewer than 500 robots

In a large-scale deployment, Nimsoft recommends no fewer than three physical servers or virtual machines:

- Use one generously configured virtual machine or physical server for the NM Server (Primary Hub). The NM Server should have dual quad-core processors (XEON-class 2.4 GHz or better), and contain 12GB or more of memory.
- Use one generously configured virtual machine or a physical server for the Unified Management Portal.
- Use one physical server for the NIS database server. The NIS database should be run on dual- or quad-core processors (XEON-class 3.0 GHz or better), with 12GB to 18GB of physical memory.

Up to fifty hubs, fewer than 1000 robots

In a major deployment, Nimsoft recommends no fewer than three physical servers:

- Use one for the NM Server (Primary Hub). The NM Server should have dual quad-core processors (XEON-class 2.4 GHz or better), and contain 16GB or more of memory.
- Use one for the Unified Management Portal.
- Use one for the NIS database server. The NIS database should be run on quad- or eight-core processors (XEON-class 3.0 GHz or better), with 18GB to 24GB of physical memory.
Over fifty hubs, over 1000 robots

A deployment of this scale should be specified and planned using the resource levels given above as a starting point, along with the assistance of Nimsoft professional services or a Nimsoft certified partner.

**Note:** As infrastructure sizes become very large, it is necessary to consider the memory requirements of additional Nimsoft services and probes, and provision sufficient system resources beyond what is required for basic infrastructure services. Take for example the discovery_server probe Java heap: for every 5000 robots in the Nimsoft environment, this probe's heap size should be increased by 1GB. This means the server which hosts NM Server should have sufficient RAM to cover this requirement as well. Check product documentation and release notes that accompany Nimsoft probe packages for details on their additional resource requirements, if any.

Your Nimsoft professional services partner has a sizing spreadsheet that can provide recommendations for system sizing.

**About Database Performance**

Relational database server performance is heavily affected by disk I/O performance and server bus bandwidth. Crowded VM hosts, clusters, or heavily shared storage in VM environments are not recommended for hosting the Nimsoft NIS database.

Nimsoft recommends starting with at least 1TB of storage for the NIS database; RAID 10 is suggested for speed and reliability. Also consider spreading the database files across multiple disks to improve I/O performance. Choose drive subsystems with low latency and seek times, high spindle speeds and high interconnect bandwidth.

Further, data redundancy/synchronization model needs to be considered on an on-going basis, taking into account the growth of the database. Selecting the right database storage solution is beyond the scope of this document—we recommend you discuss this with your storage vendor/VAR/consultant.
Microsoft Windows and MS-SQL Server

This section applies only if the system(s) to be used for installation meet(s) these criteria:

**The Nimsoft Server software is to be hosted on one of following operating systems:**
- Windows 7
- Windows 2008
- Windows Vista
- Windows 2003
- Windows XP

**The database to be used by NM Server is one of the following:**
- Microsoft SQL Server 2008
- Microsoft SQL Server 2008 R2

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the About This Document (see page 13) section to locate the correct information for your situation.

System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

Microsoft Windows User Account Control

Supported Microsoft Windows platforms newer than Windows XP and Windows 2003 implement User Account Control (UAC) to prevent unauthorized modifications of the computer.

If UAC is turned on, installing the Nimsoft Server on these platforms requires Administrator privileges. On Windows Vista, you must have Administrator privileges to both install and run the Nimsoft Server.

*Note:* Nimsoft recommends using Windows Vista only for test or evaluation. Use one of the other Windows platforms for a production environment.

Although Nimsoft does not recommend it, you can turn UAC off if you prefer. See the Windows documentation for details.
Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

To ensure you have a supported Java Virtual Machine:

1. At the command prompt, enter this command:
   
   `java -version`
   
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

   **Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

Java on VMware Virtual Machines

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*.

The document is available at the following URL: [http://www.vmware.com/resources/techresources/1087](http://www.vmware.com/resources/techresources/1087) (not affiliated with Nimsoft).

Firewalls and Virus Scanners

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.
If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

Database Prerequisites

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

Important: Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.

Installing the Microsoft SQL Server Software

You can use Microsoft SQL Server 2005 or Microsoft SQL Server 2008. Nimsoft recommends only the licensed product version with database authentication or Windows authentication for production environments.

Note: Use the free Express version only for the purpose of evaluation or demonstration.

You can obtain a copy of Microsoft SQL Server from www.microsoft.com/sqlserver/ (not affiliated with Nimsoft). Be sure you get a version that is compatible with your hardware (32-bit or 64-bit).

Follow the installation instructions available with the software download.

Configuring Microsoft SQL Server

The simplest option is to accept both the default instance name when you install Microsoft SQL Server, and later use the default port (1433) when you install the Nimsoft Server.

However, if you want to use a non-default instance name for the Microsoft SQL Server, you must use the default port (1433) when installing the Nimsoft Server. Similarly, if you want to use a port other than 1433 for the Nimsoft Server, you must use the default MS SQL Server instance name.
During the Nimsoft Server installation, a dialog will prompt you to select one of these authentication options:

- Using SQL Server with SQL Server login
- Using SQL Server with windows authentication

Depending on which choice you plan to make, you may need to make database modifications in advance, as described next.

**Using SQL Server with SQL Server Login**

No special modifications are needed. You will need to provide the SQL Server user name and password during installation.

**Using SQL Server with Windows NT Authentication**

If you plan to use Windows Authentication, you will need to do the following:

- Before you install the NM Server, you must add a domain administrator with the rights to *Log on as a Service*. This is required on both the system where NM will be installed and on the system the database server is installed. If you are not familiar with how to do this, you can find the necessary information at:


- Also before installing the NM Server, configure SQL Server to authenticate using Windows Authentication. Instructions, if needed, can be found at the following site:


  **Note:** The user running the Nimsoft Server installation wizard must have the same administrative rights as those used to install the MS-SQL Server, and supply those credentials during the installation. Specifically, the data_engine probe must have identical administrative rights on both the local computer and the MS-SQL Server computer.

- After installation, you will need to change the login for the Nimsoft Robot Watcher service to run as a user with the same administrative rights as are used to access the MS-SQL Server.

**Important:** Ensure that you enter the following as the name for the system where you will install UMP:

`<domain>\<UMP_system_name>$`

**Using SQL Server Express**

**Note:** SQL Server Express may be used for demonstration and proof-of-concept installations. It is not supported for production use, due to the limitations it imposes on security, storage capacity, and performance.
In order to use SQL Server Express, you must specify the following options to the SQL Server Express setup program:
SAPWd=<password> SECURITYMODE=SQL DISABLENETWORKPROTOCOLS=0

**Note:** When specifying the server name, you must use the format `<servername>\SQLEXPRESS`.

SQL Server Express installs a named instance (SQLEXPRESS) unless a default instance is specified, so you must use the default port (1433) when you install the Nimsoft Server.

### Microsoft Windows and MySQL Server

This section applies *only* if the system(s) to be used for installation meet(s) these criteria:

**The Nimsoft Server software is to be hosted on one of following operating systems:**
- Windows 7
- Windows 2008
- Windows Vista
- Windows 2003
- Windows XP

**The database to be used by the Nimsoft Server is one of the following:**
- MySQL Server 5.5
- MySQL Server 5.1

**Note:** Nimsoft is aware of significant improvements in the performance and scalability of MySQL with the release of version 5.5. As a result Nimsoft highly recommends MySQL version 5.5 over MySQL version 5.1. This Nimsoft product supports both versions, but support for MySQL version 5.1 will be discontinued in a future release.

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the *About This Document* (see page 13) section to locate the correct information for your situation.

### System Prerequisites

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**Note:** Nimsoft recommends using Windows Vista only for test or evaluation. Use one of the other Windows platforms for a production environment.

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Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

**To ensure you have a supported Java Virtual Machine:**

1. At the command prompt, enter this command:
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   java -version
   ```
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

**Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

Java on VMware Virtual Machines

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*. 
Firewalls and Virus Scanners

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.

If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

Database Prerequisites

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

**Important:** Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.

Installing the MySQL Software

You can obtain a copy of MySQL from [http://www.mysql.com/](http://www.mysql.com/) (not affiliated with Nimsoft). Be sure you get a supported version that matches the architecture of the computer that will host it. You can use the free Community Edition or licensed software, as you prefer.

Required MySQL Configuration

Systems using the MySQL database for the Nimsoft Server require certain capabilities that are set via MySQL variables.

**Important:** Any changes require the database be restarted.

**To check and set the required MySQL variables settings:**

1. As the MySQL administrator, run the following commands on the MySQL server:
   
   ```
   show variables like 'local_infile';
   show variables like 'lower_case_table_names';
   ```
   
   If the value of `local_infile` is **ON**, the value of `lower_case_table_names` is **1**, and `binlog_format` is **mixed**, the MySQL settings are correct; skip the next step.
   
   Otherwise, go to the next step.

2. As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:

   ```
   [mysqld]
   local_infile = 1
   lower_case_table_names = 1
   binlog_format = mixed
   ```

MySQL in Large Environments

If you are preparing for a large-scale or major deployment—as defined in the *Capacity Planning* (see page 15) section—there are a few additional database parameters you need to set to allow for the greater demands of such an environment. Nimsoft recommends you begin with the values shown below, and then fine-tune settings depending on your circumstances.

**To set database parameters for a large deployment:**

As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:

```
[mysqld]
max_heap_table_size = 134217728
query_cache_limit = 4194304
query_cache_size = 268435456
sort_buffer_size = 25165824
join_buffer_size = 67108864
max_tmp_tables = 64
```

Creating the Database and User

You can allow the installer to create the MySQL Nimsoft NIS (SLM) database and the Nimsoft database user account using the 'root' MySQL or equivalent administrative account.
**Note:** When using the legacy InstallShield installer (Windows only) you must create the database and user first; the legacy installer will not create it for you.

Be aware that, for the installer to succeed, required remote access privileges and authentication must be set up on the MySQL server prior to running the installer.

The explanation for this is that MySQL user accounts (including 'root') do not by default have the ability to access the MySQL server remotely. For example, if you run the NM Server install on hostA, and the MySQL database server is on hostB, you must explicitly grant the 'root' user (or other MySQL user account being used to create the NIS database) sufficient privileges from hostA to hostB.

These are the commands required to grant privileges for 'root' on hostA to remotely access all objects in all databases on hostB (the MySQL server) using password '<password>':

```
GRANT ALL PRIVILEGES ON *.* TO 'root'@'hostA' IDENTIFIED BY "<password>";
GRANT TRIGGER ON *.* TO 'root'@'hostA' IDENTIFIED BY "<password>";
GRANT SUPER ON *.* TO 'root'@'hostA' IDENTIFIED BY "<password>";
FLUSH PRIVILEGES;
```

Or, more generally, to grant rights for 'root' using password '<password>' from ANY host to the MySQL database server on hostB:

```
GRANT ALL PRIVILEGES ON *.* TO 'root'@'%' IDENTIFIED BY "<password>";
GRANT TRIGGER ON *.* TO 'root'@'%' IDENTIFIED BY "<password>";
GRANT SUPER ON *.* TO 'root'@'%' IDENTIFIED BY "<password>";
FLUSH PRIVILEGES;
```

To check the password that is associated with a particular Host-User pairing, use this command to display a table similar to the example shown here:

```
mysql> use mysql;
mysql> select Host, User, Password from user;
+-----------+----+-----------------------------+
<table>
<thead>
<tr>
<th>Host</th>
<th>User</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>localhost</td>
<td>root</td>
<td></td>
</tr>
<tr>
<td>XEN-RHEL-node2</td>
<td>root</td>
<td>*B2C2A05BEC2F6D157008ADA825AB0747212ED33</td>
</tr>
<tr>
<td>127.0.0.1</td>
<td>root</td>
<td></td>
</tr>
<tr>
<td>::1</td>
<td>root</td>
<td>*6DB2E686EC5B6490832DA93A12BB84526ACEB786</td>
</tr>
</tbody>
</table>
+-----------+----+-----------------------------+
5 rows in set (0.00 sec)
```

From the example above, user 'root' can log in from localhost without a password, but will need to provide a password to log in from Host XEN-RHEL-node2.
To set a password for a particular Host-User pairing, use this command (while logged in to the MySQL server locally):

```
UPDATE user SET password=PASSWORD("<your password>") where User = 'root' AND Host = '<hostname>'
```

In the commands above, '.*' denotes ALL objects in ALL databases; '%' indicates any and all hosts.

**Manually Creating the Database and User**

Alternatively, you can create the database and user before running the installer. The advantage of this approach is that you do not have to allow Nimsoft Server access to a MySQL account with administrator privileges (such as 'root') and consequently avoid a security risk.

**Note:** Remember MySQL user accounts (including 'root') do not by default have the ability to access the MySQL server remotely. You will need to grant these privileges explicitly, as illustrated in the example below.

**To manually create the NIS database and user, and grant the required privileges:**

1. As the MySQL administrator, execute the following MySQL command to create the database:

   ```
   CREATE DATABASE IF NOT EXISTS nimsoftnis DEFAULT CHARACTER SET =utf8 DEFAULT COLLATE =utf8_unicode_ci;
   ```

2. As the MySQL administrator, execute the following commands to create the user and assign required privileges:

   ```
   CREATE USER 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT ALL PRIVILEGES ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT TRIGGER ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT SUPER ON *.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   FLUSH PRIVILEGES;
   ```

   **Note:** In the commands above, '%' denotes all hosts (systems). A particular host can be substituted for '%' -- for example 'nmsuser'@'<hostname>'.

   **Note:** Make a note of the user name and database name, as you will need to know them during NM Server installation.

When you run the NM Server installer, make sure you select **Use existing database** option for the NM Server information and provide the actual database name, user and password you created above.
Microsoft Windows and Oracle

This section applies only if the system(s) to be used for installation meet(s) these criteria:

The Nimsoft Server software is to be hosted on one of the following operating systems:
- Windows 7
- Windows 2008
- Windows Vista
- Windows 2003
- Windows XP

The database to be used by the Nimsoft Server is one of the following:
- Oracle 11g R1
- Oracle 11g R2

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the About This Document (see page 13) section to locate the correct information for your situation.

System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

Microsoft Windows User Account Control

Supported Microsoft Windows platforms newer than Windows XP and Windows 2003 implement User Account Control (UAC) to prevent unauthorized modifications of the computer.

If UAC is turned on, installing the Nimsoft Server on these platforms requires Administrator privileges. On Windows Vista, you must have Administrator privileges to both install and run the Nimsoft Server.

Note: Nimsoft recommends using Windows Vista only for test or evaluation. Use one of the other Windows platforms for a production environment.

Although Nimsoft does not recommend it, you can turn UAC off if you prefer. See the Windows documentation for details.
Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

To ensure you have a supported Java Virtual Machine:

1. At the command prompt, enter this command:
   ```
   java -version
   ```
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

   **Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

Java on VMware Virtual Machines

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*.

The document is available at the following URL: [http://www.vmware.com/resources/techresources/1087](http://www.vmware.com/resources/techresources/1087) (not affiliated with Nimsoft).

Firewalls and Virus Scanners

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.
If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

**Language Environment Variable**

The language environment of the system where you intend to install the Nimsoft Server must match the language environment of the system where the Oracle database resides.

**To test and match the language environment of the Oracle database and Nimsoft Server host:**

1. As the database administrator, run the following command on the database:
   ```sql
   SELECT userenv('language') from dual
   ```
   The result will be a string representing the language environment known to the database. For example, it might look something like this:
   ```text
   AMERICAN_AMERICA.WE8MSWIN1252
   ```

2. Check the environment variables for the system that will host the Nimsoft Server. There must be an `NLS_LANG` environment variable with a value that matches the result of the previous step. For example:
   ```text
   NLS_LANG=AMERICAN_AMERICA.WE8MSWIN1252;
   ```
   If there is no `NLS_LANG` environment variable, or if the value is not the same as the result of the SELECT command in the previous step, create an environment variable named `NLS_LANG` (if necessary) and set it to match the output of the SELECT command from the previous step.

**Database Prerequisites**

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

**Important:** Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.
Required Oracle Environment

To perform later tasks, the Oracle Instant Client must be installed.

**To install the Oracle Instant Client:**

2. Click the link for the operating system and hardware of your system.
3. Download the zip file for the Instant Client Package – Basic.
4. Install the Instant Client according to the directions on the web site. Be sure to add the unzipped Instant Client directory to your path.
5. Restart the system.

Required Oracle Configuration

The Oracle administrator must set certain configuration parameters before installing the Nimsoft Server.

**To set the required Oracle configuration parameters:**

1. As the Oracle database administrator, enter the following commands:
   
   ```
   ALTER SYSTEM SET NLS_COMP=LINGUISTIC SCOPE=SPFILE;
   ALTER SYSTEM SET NLS_SORT=BINARY_AI SCOPE=SPFILE;
   ALTER SYSTEM SET PROCESSES = 300 SCOPE=SPFILE;
   ALTER SYSTEM SET SESSIONS = 335 SCOPE=SPFILE; -- 1.1 * PROCESSES + 5
   ALTER SYSTEM SET OPEN_CURSORS=1000 SCOPE=BOTH;
   ```
2. Restart the database.

Creating the Tablespace and User

You can allow the Nimsoft Server installer to create the Oracle tablespace, or you can create the tablespace and user before running the installer. For security reasons, many users of the Nimsoft Server prefer not to use the Oracle 'SYS' user for database access.

The advantage of the latter approach is that you do not have to allow NMS access to an Oracle account with administrator privileges (such as 'SYS') and consequently avoid a security risk. This is the approach Nimsoft recommends.
To manually create the Nimsoft Server tablespace and user, and grant the required privileges:

1. As the Oracle administrator, execute the following Oracle command to create the tablespace:
   ```sql
   create tablespace nimsoftslm datafile 'nimsoftslm.dbf' size 1000m autoextend on maxsize unlimited;
   ```
   **Note:** The user name (nmsuser in the example) and tablespace name (nimsoftslm in the example) can be whatever you choose.

2. As the Oracle administrator, execute the following Oracle command to create the user and assign required privileges:
   ```sql
   create user nmsuser IDENTIFIED BY Password1 DEFAULT TABLESPACE nimsoftslm;
   grant all privileges to nmsuser;
   grant select on sys.v_$database to nmsuser;
   grant select on sys.v_$session to nmsuser;
   grant select on sys.v_$parameter to nmsuser;
   grant select on sys.sm$_ts_used to nmsuser;
   grant select on sys.dba_data_files to nmsuser;
   grant select on sys.dba_tables to nmsuser;
   grant select on sys.dba_free_space to nmsuser;
   ```
   **Note:** Make a note of the user name and tablespace name, as you will need to know them during Nimsoft Server installation.

3. Restart the database.

---

**Linux and MySQL Server**

This section applies *only* if the system(s) to be used for installation meet(s) these criteria:

**The Nimsoft Server software can be hosted on these operating systems:**

- Red Hat Enterprise Linux (RHEL) version 6
- Red Hat Enterprise Linux (RHEL) version 5
System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

Linux System Swap Space

The system must be configured with a minimum of 4 GB of swap space during installation. Nimsoft highly recommends 6 GB or more for optimal performance and reliability. This requirement applies to both the Nimsoft Monitor server and the UMP server.

To ensure sufficient swap space, review the man page for the `mkswap` command.

Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

To ensure you have a supported Java Virtual Machine:

1. At the command prompt, enter this command:
   ```bash
   java -version
   ```
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.
2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from http://www.java.com (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

   **Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

**Java on VMware Virtual Machines**

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*.

The document is available at the following URL: http://www.vmware.com/resources/techresources/1087 (not affiliated with Nimsoft).

**The Standard C++ Compatibility Library**

The standard C++ library must be present. If you need to install it, you can download it from your Linux distribution official support site, or from rpmseek.com at this URL: http://www.rpmseek.com/rpm-pl/compat-libstdc%5C%5C-33.html?hl=com&cx=0: (not affiliated with Nimsoft).

Install the package according to the instructions available with the download.

**Note:** Be sure to get the distribution that applies to your architecture.

**Firewalls and Virus Scanners**

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.
If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

**Security-Enhanced Linux**

Security-Enhanced Linux (SELinux) is a Linux feature that provides a mechanism for supporting access control security policies. You may want to shut down the SELinux before installing the Nimsoft Server. While this is not always necessary, it will maximize your chance for a fail-safe installation.

If SELinux status is *enabled*, a Current mode of *permissive* is acceptable. Disabling SELinux entirely is an even safer approach.

Later, if you must run the Nimsoft Server in SELinux *Enforcing* mode, you can add the Nimsoft shared libraries to a safe list, which lets the shared libraries execute.

**To add the Nimsoft shared libraries to a safe list:**

1. Issue the following commands *after* the installation is complete:
   
   ```
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapssl.so.0
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapsdk.so.0
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapx.so.0
   ```
   
   where *Nimsoft_Installation* is the directory where the Nimsoft Server is installed.

   **Important:** After installation, the Nimsoft Server will not function correctly in SELinux *Enforcing* mode until you add the Nimsoft shared libraries to the safe list.

**About Localization**

If the system is set to a non-English locale (for example, Norwegian), you would get the following error message during installation:

The database does not exist or could not be created.

To prevent this, at the command prompt run the following command:

```bash
export LC_ALL=your_Locale
```

where *your_Locale* is the appropriate locale string (for example, "norwegian").
Database Prerequisites

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

Important: Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.

Installing the MySQL Software

You can obtain a copy of MySQL from [http://www.mysql.com/](http://www.mysql.com/) (not affiliated with Nimsoft). Be sure you get a supported version that matches the architecture of the computer that will host it. You can use the free Community Edition or licensed software, as you prefer.


Required MySQL Configuration

Systems using the MySQL database for the Nimsoft Server require certain capabilities that are set via MySQL variables.

Important: Any changes require the database be restarted.

To check and set the required MySQL variables settings:

1. As the MySQL administrator on the database host, edit the MySQL server configuration file (my.cnf) to include this line:
   ```
   [client]
   socket=/var/lib/mysql/mysql.sock
   ```

2. As the MySQL administrator on the machine that will be the Nimsoft Server host, edit the MySQL server configuration file (my.cnf) to include this line:
   ```
   [mysqld]
   socket=/var/lib/mysql/mysql.sock
   ```

3. As the MySQL administrator, run the following commands on the MySQL server:
   ```
   show variables like 'local_infile';
   show variables like 'lower_case_table_names';
   ```

   If the value of local_infile is ON, the value of lower_case_table_names is 1, and binlog_format is mixed, the MySQL settings are correct; skip the next step. Otherwise, go to the next step.
4. As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:

```bash
[mysqld]
local_infile = 1
lower_case_table_names = 1
binlog_format = mixed
```

**MySQL in Large Environments**

If you are preparing for a large-scale or major deployment—as defined in the *Capacity Planning* (see page 15) section—there are a few additional database parameters you need to set to allow for the greater demands of such an environment. Nimsoft recommends you begin with the values shown below, and then fine-tune settings depending on your circumstances.

**To set database parameters for a large deployment:**

As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:

```bash
[mysqld]
max_heap_table_size = 134217728
query_cache_limit = 4194304
query_cache_size = 268435456
sort_buffer_size = 25165824
join_buffer_size = 67108864
max_tmp_tables = 64
```

**Creating the Database and User**

You can allow the installer to create the MySQL Nimsoft NIS (SLM) database and the Nimsoft database user account using the 'root' MySQL or equivalent administrative account.

**Note:** When using the legacy InstallShield installer (Windows only) you must create the database and user first; the legacy installer will not create it for you.

Be aware that, for the installer to succeed, required remote access privileges and authentication must be set up on the MySQL server prior to running the installer.

The explanation for this is that MySQL user accounts (including ‘root’) do not by default have the ability to access the MySQL server remotely. For example, if you run the NM Server install on hostA, and the MySQL database server is on hostB, you must explicitly grant the 'root' user (or other MySQL user account being used to create the NIS database) sufficient privileges from hostA to hostB.
These are the commands required to grant privileges for 'root' on hostA to remotely access all objects in all databases on hostB (the MySQL server) using password '<password>':

```
grant all privileges on *.* to 'root'@'hostA' identified by "<password>";
grant trigger on *.* to 'root'@'hostA' identified by "<password>";
grant super on *.* to 'root'@'hostA' identified by "<password>";
flush privileges;
```

Or, more generally, to grant rights for 'root' using password '<password>' from ANY host to the MySQL database server on hostB:

```
grant all privileges on *.* to 'root'@'%' identified by "<password>";
grant trigger on *.* to 'root'@%' identified by "<password>";
grant super on *.* to 'root'@'%' identified by "<password>";
flush privileges;
```

To check the password that is associated with a particular Host-User pairing, use this command to display a table similar to the example shown here:

```
mysql> user mysql;
mysql> select Host, User, Password from user;
+-----------------+-----------+-----------------------+
| Host            | User      | Password              |
|-----------------+-----------+-----------------------|
| localhost       | root      |                       |
| XEN-RHEL-node2  | root      | *B2C2A05BEC2F6D1570808AD825AB0747212ED33 |
| 127.0.0.1       | root      |                       |
| ::1             | root      |                       |
| %               | root      | *6D8C2E686EC5B64908320A93A12BB4E926ACB786 |
+-----------------+-----------+-----------------------+
```

From the example above, user 'root' can log in from localhost without a password, but will need to provide a password to log in from Host XEN-RHEL-node2.

To set a password for a particular Host-User pairing, use this command (while logged in to the MySQL server locally):

```
update user set password=Password("<your password>") where User = 'root' AND Host = "<hostname>";
```

In the commands above, '*.*' denotes ALL objects in ALL databases; '%' indicates any and all hosts.
Manually Creating the Database and User

Alternatively, you can create the database and user before running the installer. The advantage of this approach is that you do not have to allow Nimsoft Server access to a MySQL account with administrator privileges (such as ‘root’) and consequently avoid a security risk.

**Note:** Remember MySQL user accounts (including ‘root’) do not by default have the ability to access the MySQL server remotely. You will need to grant these privileges explicitly, as illustrated in the example below.

**To manually create the NIS database and user, and grant the required privileges:**

1. As the MySQL administrator, execute the following MySQL command to create the database:

   ```
   CREATE DATABASE IF NOT EXISTS nimsoftnis DEFAULT CHARACTER SET=utf8 DEFAULT COLLATE=utf8_unicode_ci;
   ```

   **Note:** The database name (nimsoftnis in the example) can be whatever you choose.

2. As the MySQL administrator, execute the following commands to create the user and assign required privileges:

   ```
   CREATE USER 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT ALL PRIVILEGES ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT TRIGGER ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT SUPER ON *.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   FLUSH PRIVILEGES;
   ```

   **Note:** In the commands above, '%' denotes all hosts (systems). A particular host can be substituted for '%' -- for example 'nmsuser'@'<hostname>'

   **Note:** Make a note of the user name and database name, as you will need to know them during NM Server installation.

   When you run the NM Server installer, make sure you select **Use existing database** option for the NM Server information and provide the actual database name, user and password you created above.
Linux and Oracle

This section applies only if the system(s) to be used for installation meet(s) these criteria:

**The Nimsoft Server software can be hosted on these operating systems:**
- Red Hat Enterprise Linux (RHEL) version 6
- Red Hat Enterprise Linux (RHEL) version 5
- SUSE Linux Enterprise Server (SLES) version 11
- SUSE Linux Enterprise Server (SLES) version 10
  
  **Note:** The system must be running on x86 or AMD64 hardware

**The database to be used by the Nimsoft Server is one of the following:**
- Oracle 11g R1
- Oracle 11g R2

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the About This Document (see page 13) section to locate the correct information for your situation.

System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

**Linux System Swap Space**

The system must be configured with a minimum of 4 GB of swap space during installation. Nimsoft highly recommends 6 GB or more for optimal performance and reliability. This requirement applies to both the Nimsoft Monitor server and the UMP server.

To ensure sufficient swap space, review the man page for the `mkswap` command.

**Java Virtual Machine (JVM) Required**

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.
To ensure you have a supported Java Virtual Machine:

1. At the command prompt, enter this command:
   ```
   java -version
   ```
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

   **Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

**Java on VMware Virtual Machines**

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*.

The document is available at the following URL: [http://www.vmware.com/resources/techresources/1087](http://www.vmware.com/resources/techresources/1087) (not affiliated with Nimsoft).

**The Standard C++ Compatibility Library**

The standard C++ library must be present. If you need to install it, you can download it from your Linux distribution official support site, or from rpmseek.com at this URL: [http://www.rpmseek.com/rpm-pl/compat-libstdc%5C%5C-33.html?hl=com&cx=0;](http://www.rpmseek.com/rpm-pl/compat-libstdc%5C%5C-33.html?hl=com&cx=0;) (not affiliated with Nimsoft).

Install the package according to the instructions available with the download.

**Note:** Be sure to get the distribution that applies to your architecture.

**Firewalls and Virus Scanners**

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.
If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

**Security-Enhanced Linux**

Security-Enhanced Linux (SELinux) is a Linux feature that provides a mechanism for supporting access control security policies. You may want to shut down the SELinux before installing the Nimsoft Server. While this is not always necessary, it will maximize your chance for a fail-safe installation.

If SELinux status is enabled, a Current mode of permissive is acceptable. Disabling SELinux entirely is an even safer approach.

Later, if you must run the Nimsoft Server in SELinux Enforcing mode, you can add the Nimsoft shared libraries to a safe list, which lets the shared libraries execute.

To add the Nimsoft shared libraries to a safe list:

1. Issue the following commands after the installation is complete:

   ```bash
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapssl.so.0
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapsdk.so.0
   chcon -f -t textrel_shlib_t /<Nimsoft_Installation>/hub/libldapx.so.0
   ```

   where Nimsoft_Installation is the directory where the Nimsoft Server is installed.

   **Important:** After installation, the Nimsoft Server will not function correctly in SELinux Enforcing mode until you add the Nimsoft shared libraries to the safe list.

**About Localization**

If the system is set to a non-English locale (for example, Norwegian), you would get the following error message during installation:

The database does not exist or could not be created.

To prevent this, at the command prompt run the following command:

```bash
export LC_ALL=your_Locale
```

where your_Locale is the appropriate locale string (for example, "norwegian").
Language Environment Variable

The language environment of the system where you intend to install the Nimsoft Server must match the language environment of the system where the Oracle database resides.

To test and match the language environment of the Oracle database and Nimsoft Server host:

1. As the database administrator, run the following command on the database:
   
   ```
   SELECT userenv('language') from dual
   ```
   
   The result will be a string representing the language environment known to the database. For example, it might look something like this:
   
   ```
   AMERICAN_AMERICA.WE8MSWIN1252
   ```
   
2. Check the environment variables for the system that will host the Nimsoft Server. There must be an `NLS_LANG` environment variable with a value that matches the result of the previous step. For example:
   
   ```
   NLS_LANG=AMERICAN_AMERICA.WE8MSWIN1252;
   ```
   
   If there is no `NLS_LANG` environment variable, or if the value is not the same as the result of the `SELECT` command in the previous step, create an environment variable named `NLS_LANG` (if necessary) and set it to match the output of the `SELECT` command from the previous step.

Database Prerequisites

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

**Important:** Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.

Required Oracle Environment

To perform later tasks, the Oracle Instant Client must be installed.

**To install the Oracle Instant Client:**

1. Visit the Instant Client download page at
   
   
2. Click the link for the operating system and hardware of your system.
3. Download the zip file for the Instant Client Package – Basic.
4. Install the Instant Client according to the directions on the web site. Be sure to add the unzipped Instant Client directory to your path.
5. Restart the system.

**Required Oracle Configuration**

The Oracle administrator must set certain configuration parameters before installing the Nimsoft Server.

**To set the required Oracle configuration parameters:**

1. As the Oracle database administrator, enter the following commands:
   
   ```sql
   ALTER SYSTEM SET NLS_COMP=LINGUISTIC SCOPE=SPFILE;
   ALTER SYSTEM SET NLS_SORT=BINARY_AI SCOPE=SPFILE;
   ALTER SYSTEM SET PROCESSES = 300 SCOPE=SPFILE;
   ALTER SYSTEM SET SESSIONS = 335 SCOPE=SPFILE;  -- 1.1 * PROCESSES + 5
   ALTER SYSTEM SET OPEN_CURSORS=1000 SCOPE=BOTH;
   ```

2. Restart the database.

**Creating the Tablespace and User**

You can allow the Nimsoft Server installer to create the Oracle tablespace, or you can create the tablespace and user before running the installer. For security reasons, many users of the Nimsoft Server prefer not to use the Oracle 'SYS' user for database access.

The advantage of the latter approach is that you do not have to allow NMS access to an Oracle account with administrator privileges (such as 'SYS') and consequently avoid a security risk. This is the approach Nimsoft recommends.

**To manually create the Nimsoft Server tablespace and user, and grant the required privileges:**

1. As the Oracle administrator, execute the following Oracle command to create the tablespace:

   ```sql
   create tablespace nimsoftslm datafile 'nimsoftslm.dbf' size 1000m autoextend on maxsize unlimited;
   ```

   **Note:** The user name (nmsuser in the example) and tablespace name (nimsoftslm in the example) can be whatever you choose.
2. As the Oracle administrator, execute the following Oracle command to create the user and assign required privileges:

```
create user nmsuser IDENTIFIED BY Password1 DEFAULT TABLESPACE nimsoftslm;
grant all privileges to nmsuser;
grant select on sys.v_$database to nmsuser;
grant select on sys.v_$session to nmsuser;
grant select on sys.v_$parameter to nmsuser;
grant select on sys.sm$ts_used to nmsuser;
grant select on sys.dba_data_files to nmsuser;
grant select on sys.dba_tables to nmsuser;
grant select on sys.dba_free_space to nmsuser;
```

Note: Make a note of the user name and tablespace name, as you will need to know them during Nimsoft Server installation.

3. Restart the database.

**Linking Shared Oracle Libraries**

Shared Oracle libraries must be linked.

**To link Oracle shared libraries:**

1. Create the following file:
   `/etc/ld.so.conf.d/oracle.conf`

2. In the file, enter the path to the Instant Client directory. For example:
   `/root/instantclient_11_1`

3. Save the file.

4. Navigate to the Instant Client directory (`/root/instantclient_11_1` in the example).

5. Enter the following command:
   `ldconfig`
6. Enter the following command:
   
   ```
   ldd libociei.so
   ```
   
   Verify that there are links for all the libraries and there are no messages stating “not found.” The output should look similar to the following:

   ```
   linux-vdso.so.1 => (0x00007fff5b0e2000)
   libclntsh.so.11.1 => /root/instantclient_11_1/libclntsh.so.11.1 (0x00007f36030b3000)
   libdl.so.2 => /lib64/libdl.so.2 (0x00007f3602eae000)
   libm.so.6 => /lib64/libm.so.6 (0x00007f3602c57000)
   libnsl.so.1 => /lib64/libnsl.so.1 (0x00007f3602821000)
   libc.so.6 => /lib64/libc.so.6 (0x00007f36024c1000)
   libnnz11.so => /root/instantclient_11_1/libnnz11.so (0x00007f360264000)
   libaio.so.1 => /lib64/libaio.so.1 (0x00007f3601e61000)
   /lib64/ld-linux-x86-64.so.2 (0x00007f360a0000)
   ```

---

**Solaris and MySQL Server**

This section applies only if the system(s) to be used for installation meet(s) these criteria:

- **The Nimsoft Server software is to be hosted on the following operating system:**
  - Solaris 10

  *Note:* The system must be running on SPARC or x86 hardware.

- **The database to be used by the Nimsoft Server is one of the following:**
  - MySQL Server 5.5
  - MySQL Server 5.1

  *Note:* Nimsoft is aware of significant improvements in the performance and scalability of MySQL with the release of version 5.5. As a result Nimsoft highly recommends MySQL version 5.5 over MySQL version 5.1. This Nimsoft product supports both versions, but support for MySQL version 5.1 will be discontinued in a future release.

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the About This Document (see page 13) section to locate the correct information for your situation.
System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

Solaris System Swap Space

The system must be configured with a minimum of 4 GB of swap space during installation. Nimsoft highly recommends 6 GB or more for optimal performance and reliability. This requirement applies to both the Nimsoft Monitor server and the UMP server.

To ensure sufficient swap space, review the man page for the `swap` command.

Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

To ensure you have a supported Java Virtual Machine:

1. At the command prompt, enter this command:
   
   ```
   java -version
   ```

   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:

   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.

   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

   **Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

Java on VMware Virtual Machines

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide*. 
The document is available at the following URL:
http://www.vmware.com/resources/techresources/1087 (not affiliated with Nimsoft).

**Firewalls and Virus Scanners**

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.

If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

**About Localization**

If the system is set to a non-English locale (for example, Norwegian), you would get the following error message during installation:
The database does not exist or could not be created.

To prevent this, at the command prompt run the following command:
```
export LC_ALL=your_Locale
```

where `your_Locale` is the appropriate locale string (for example, "norwegian").

**Database Prerequisites**

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

**Important:** Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.
Installing the MySQL Software

You can obtain a copy of MySQL from http://www.mysql.com/ (not affiliated with Nimsoft). Be sure you get a supported version that matches the architecture of the computer that will host it. You can use the free Community Edition or licensed software, as you prefer.


Required MySQL Configuration

Systems using the MySQL database for the Nimsoft Server require certain capabilities that are set via MySQL variables.

Important: Any changes require the database be restarted.

To check and set the required MySQL variables settings:

1. As the MySQL administrator on the database host, edit the MySQL server configuration file (my.cnf) to include this line:
   
   [client]
   
   socket=/var/lib/mysql/mysql.sock

2. As the MySQL administrator on the machine that will be the Nimsoft Server host, edit the MySQL server configuration file (my.cnf) to include this line:
   
   [mysqld]
   
   socket=/var/lib/mysql/mysql.sock

3. As the MySQL administrator, run the following commands on the MySQL server:
   
   show variables like 'local_infile';
   show variables like 'lower_case_table_names';

   If the value of local_infile is ON, the value of lower_case_table_names is 1, and binlog_format is mixed, the MySQL settings are correct; skip the next step. Otherwise, go to the next step.

4. As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:
   
   [mysqld]
   
   local_infile = 1
   lower_case_table_names = 1
   binlog_format = mixed
MySQL in Large Environments

If you are preparing for a large-scale or major deployment—as defined in the Capacity Planning (see page 15) section—there are a few additional database parameters you need to set to allow for the greater demands of such an environment. Nimsoft recommends you begin with the values shown below, and then fine-tune settings depending on your circumstances.

To set database parameters for a large deployment:

As the MySQL administrator, enable these variables manually by editing the MySQL server configuration file to include these lines:

```ini
[mysqld]
max_heap_table_size = 134217728
query_cache_limit = 4194304
query_cache_size = 268435456
sort_buffer_size = 25165824
join_buffer_size = 67108864
max_tmp_tables = 64
```

Creating the Database and User

You can allow the installer to create the MySQL Nimsoft NIS (SLM) database and the Nimsoft database user account using the 'root' MySQL or equivalent administrative account.

**Note:** When using the legacy InstallShield installer (Windows only) you must create the database and user first; the legacy installer will not create it for you.

Be aware that, for the installer to succeed, required remote access privileges and authentication must be set up on the MySQL server prior to running the installer.

The explanation for this is that MySQL user accounts (including 'root') do not by default have the ability to access the MySQL server remotely. For example, if you run the NM Server install on hostA, and the MySQL database server is on hostB, you must explicitly grant the 'root' user (or other MySQL user account being used to create the NIS database) sufficient privileges from hostA to hostB.

These are the commands required to grant privileges for 'root' on hostA to remotely access all objects in all databases on hostB (the MySQL server) using password '<password>':

```sql
GRANT ALL PRIVILEGES ON *.* TO 'root'@'hostA' IDENTIFIED BY '<password>';
GRANT TRIGGER ON *.* TO 'root'@'hostA' IDENTIFIED BY '<password>';
GRANT SUPER ON *.* TO 'root'@'hostA' IDENTIFIED BY '<password>';
FLUSH PRIVILEGES;
```
Or, more generally, to grant rights for 'root' using password 'password' from ANY host to the MySQL database server on hostB:

```
GRANT ALL PRIVILEGES ON *.* TO root@'%' IDENTIFIED BY "password";
GRANT TRIGGER ON *.* TO root@'%' IDENTIFIED BY "password";
GRANT SUPER ON *.* TO root@'%' IDENTIFIED BY "password";
FLUSH PRIVILEGES;
```

To check the password that is associated with a particular Host-User pairing, use this command to display a table similar to the example shown here:

```
mysql> user mysql;
mysql> select Host, User, Password from user;
+-----------------+-------+---------------------+
| Host            | User  | Password            |
| localhost       | root  |                     |
| XEN-RHEL-node2  | root  | *B2C2A058ECE2F6D1570B08A825AB0747212ED33 |
| 127.0.0.1       | root  |                     |
| ::1             | root  |                     |
| %               | root  | *6D8C26B6EC5B649083DA93A12B84E926ACB786 |
+-----------------+-------+---------------------+
5 rows in set (0.00 sec)
```

From the example above, user 'root' can log in from localhost without a password, but will need to provide a password to log in from Host XEN-RHEL-node2.

To set a password for a particular Host-User pairing, use this command (while logged in to the MySQL server locally):

```
UPDATE user SET password=PASSWORD("your password") where User = 'root' AND Host = 'hostname';
```

In the commands above, '*.*' denotes ALL objects in ALL databases; '%' indicates any and all hosts.

**Manually Creating the Database and User**

Alternatively, you can create the database and user before running the installer. The advantage of this approach is that you do not have to allow Nimsoft Server access to a MySQL account with administrator privileges (such as 'root') and consequently avoid a security risk.

**Note:** Remember MySQL user accounts (including 'root') do not by default have the ability to access the MySQL server remotely. You will need to grant these privileges explicitly, as illustrated in the example below.
To manually create the NIS database and user, and grant the required privileges:

1. As the MySQL administrator, execute the following MySQL command to create the database:
   
   ```
   CREATE DATABASE IF NOT EXISTS nimsoftnis DEFAULT CHARACTER SET =utf8 DEFAULT COLLATE =utf8_unicode_ci;
   ```

   **Note:** The database name (`nimsoftnis` in the example) can be whatever you choose.

2. As the MySQL administrator, execute the following commands to create the user and assign required privileges:

   ```
   CREATE USER 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT ALL PRIVILEGES ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT TRIGGER ON nimsoftnis.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   GRANT SUPER ON *.* TO 'nmsuser'@'%' IDENTIFIED BY 'nmsuserpass';
   FLUSH PRIVILEGES;
   ```

   **Note:** In the commands above, '%' denotes all hosts (systems). A particular host can be substituted for '%' -- for example 'nmsuser'@'<hostname>'

   **Note:** The user name (`nmsuser` in the example), and password (`nmsuserpass` in the example) can be whatever you choose. The single-quotiation marks (') are required. Use the name of the database (`nimsoftnis` in this example).

   **Note:** Make a note of the user name and database name, as you will need to know them during NM Server installation.

   When you run the NM Server installer, make sure you select Use existing database option for the NM Server information and provide the actual database name, user and password you created above.

---

**Solaris and Oracle**

This section applies only if the system(s) to be used for installation meet(s) these criteria:

**The Nimsoft Server software is to be hosted on the following operating system:**

- Solaris 10

  **Note:** The system must be running on SPARC or x86 hardware.

**The database to be used by the Nimsoft Server is one of the following:**

- Oracle 11g R1
- Oracle 11g R2

If you intend to install the Nimsoft Server on an operating system or use a database that is not listed above, please refer to the About This Document (see page 13) section to locate the correct information for your situation.
System Prerequisites

This section covers system-level changes that apply before you install the Nimsoft Server.

Solaris System Swap Space

The system must be configured with a minimum of 4 GB of swap space during installation. Nimsoft highly recommends 6 GB or more for optimal performance and reliability. This requirement applies to both the Nimsoft Monitor server and the UMP server.

To ensure sufficient swap space, review the man page for the `swap` command.

Java Virtual Machine (JVM) Required

In order to run the installer, you must have the Java Virtual Machine (JVM) 1.6 or later installed on the machine. It is generally acceptable to simply install the latest JVM, but be sure to check the Nimsoft Server Release Notes for the latest updates on supported JVM versions.

**To ensure you have a supported Java Virtual Machine:**

1. At the command prompt, enter this command:
   ```bash
   java -version
   ```
   If the listed version is 1.6 or above, proceed to the next section. If the command fails, go to the next step.

2. If you believe your system has a JVM version 1.6 or above, but the previous step failed, make sure that the JVM is part of the system PATH environment variable.

3. If there is no directory on the system for Java, you need to install it now:
   a. Obtain a Java distribution from [http://www.java.com](http://www.java.com) (not affiliated with Nimsoft). Install it according to the directions on that site.
   b. Perform step 2 to ensure that the JVM is included in the PATH environment variable.

**Important!** Be sure you get the right package (32-bit or 64-bit) for your operating system. For example, you must use a 64-bit JVM if you have a 64-bit operating system; a 32-bit JVM will not suffice.

Java on VMware Virtual Machines

When installing on a VMware ESX Server, please review VMware’s document *Enterprise Java Applications on VMware - Best Practices Guide.*
Firewalls and Virus Scanners

You must shut down any anti-virus software before installing the Nimsoft Server. You may also want to shut down the firewall. While this is not always necessary, it will maximize your chance for a fail-safe installation.

**Important:** Remember to turn the firewall and anti-virus software back on after you have finished the Nimsoft Server installation.

If you elect to keep your firewall running during installation, you must minimally observe the following:

- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

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- The port between the Nimsoft Server and the database server must be open.
- Specify a starting port during the Nimsoft Server installation. The recommended default is port 48000.
- Ensure that an adequate range of ports are open (for example, ports 48000 through 48020). Minimally the first three ports assigned must be open (controller, spooler, hub). The port used for distsrv is dynamically assigned.

**About Localization**

If the system is set to a non-English locale (for example, Norwegian), you would get the following error message during installation:

The database does not exist or could not be created.

To prevent this, at the command prompt run the following command:

```
export LC_ALL=your_Locale
```

where `your_Locale` is the appropriate locale string (for example, "norwegian").

**Language Environment Variable**

The language environment of the system where you intend to install the Nimsoft Server must match the language environment of the system where the Oracle database resides.

**To test and match the language environment of the Oracle database and Nimsoft Server host:**

1. As the database administrator, run the following command on the database:

   ```
   SELECT userenv('language') from dual
   ```

   The result will be a string representing the language environment known to the database. For example, it might look something like this:

   ```
   AMERICAN_AMERICA.WE8MSWIN1252
   ```

2. Check the environment variables for the system that will host the Nimsoft Server.

   There must be an `NLS_LANG` environment variable with a value that matches the result of the previous step. For example:

   ```
   NLS_LANG=AMERICAN_AMERICA.WE8MSWIN1252;
   ```

   If there is no `NLS_LANG` environment variable, or if the value is not the same as the result of the SELECT command in the previous step, create an environment variable named `NLS_LANG` (if necessary) and set it to match the output of the SELECT command from the previous step.
Database Prerequisites

This section covers database information that applies before you install the Nimsoft Server. When the database meets the prerequisites in this section, you avoid several potential installation difficulties.

Important: Nimsoft strongly encourages you to begin with a fresh installation of your database software on an otherwise clean system. The Nimsoft Server has a track record of easy and successful installation in such an environment. A pre-existing database can be used, but experience shows that you may encounter subtle configuration conflicts that are hard to diagnose and make the experience unnecessarily difficult.

Required Oracle Environment

To perform later tasks, the Oracle Instant Client must be installed.

To install the Oracle Instant Client:
2. Click the link for the operating system and hardware of your system.
3. Download the zip file for the Instant Client Package – Basic.
4. Install the Instant Client according to the directions on the web site. Be sure to add the unzipped Instant Client directory to your path.
5. Restart the system.

Required Oracle Configuration

The Oracle administrator must set certain configuration parameters before installing the Nimsoft Server.

To set the required Oracle configuration parameters:
1. As the Oracle database administrator, enter the following commands:
   ALTER SYSTEM SET NLS_COMP=LINGUISTIC SCOPE=SPFILE;
   ALTER SYSTEM SET NLS_SORT=BINARY_AI  SCOPE=SPFILE;
   ALTER SYSTEM SET PROCESSES = 300 SCOPE=SPFILE;
   ALTER SYSTEM SET SESSIONS = 335 SCOPE=SPFILE; - - 1.1 * PROCESSES + 5
   ALTER SYSTEM SET OPEN_CURSORS=1000 SCOPE=BOTH;
2. Restart the database.
Creating the Tablespace and User

You can allow the Nimsoft Server installer to create the Oracle tablespace, or you can create the tablespace and user before running the installer. For security reasons, many users of the Nimsoft Server prefer not to use the Oracle ‘SYS’ user for database access.

The advantage of the latter approach is that you do not have to allow NMS access to an Oracle account with administrator privileges (such as ‘SYS’) and consequently avoid a security risk. This is the approach Nimsoft recommends.

To manually create the Nimsoft Server tablespace and user, and grant the required privileges:

1. As the Oracle administrator, execute the following Oracle command to create the tablespace:
   
   ```
   create tablespace nimsoftslm datafile 'nimsoftslm.dbf' size 1000m autoextend on maxsize unlimited;
   ```
   
   **Note:** The user name (`nmsuser` in the example) and tablespace name (`nimsoftslm` in the example) can be whatever you choose.

2. As the Oracle administrator, execute the following Oracle command to create the user and assign required privileges:
   
   ```
   create user nmsuser IDENTIFIED BY Password1 DEFAULT TABLESPACE nimsoftslm;
   grant all privileges to nmsuser;
   grant select on sys.v_$database to nmsuser;
   grant select on sys.v_$session to nmsuser;
   grant select on sys.v_$parameter to nmsuser;
   grant select on sys.sm$s_used to nmsuser;
   grant select on sys.dba_data_files to nmsuser;
   grant select on sys.dba_tables to nmsuser;
   grant select on sys.dba_free_space to nmsuser;
   ```
   
   **Note:** Make a note of the user name and tablespace name, as you will need to know them during Nimsoft Server installation.

3. Restart the database.
Chapter 3: Nimsoft Server Installation

This section is intended for a first-time installation of the Nimsoft Server software, which includes the following components:

- Nimsoft Hub
- Nimsoft Message bus
- Robot and Probes
- Nimbus Information Store (NIS)
- Infrastructure Manager console
- (optional) Service Level Manager (SLM) application

Note: For information on updating an existing installation, download (http://support.nimsoft.com/) and follow the instructions in the Nimsoft Server Release Notes and Upgrade Guide.

This section contains the following topics:

New and Legacy Windows Installers (see page 60)
Nimsoft Server Installation on Windows (see page 60)
Nimsoft Server Installation on Solaris or Linux (see page 67)
Uninstalling the Nimsoft Server (see page 70)
New and Legacy Windows Installers

A new InstallAnywhere installer now unifies installation under Windows, Linux, and Solaris. This replaces the legacy InstallShield installer for Windows.

The legacy InstallShield Windows installer remains available for users who need legacy Windows components, although it will be discontinued in a future release. Installation with this installer is covered in the section Nimsoft Server Installation on Windows (InstallShield) (see page 60).

Note: The legacy installer only supports installation on Windows with the SQL Server database.

The new InstallAnywhere-based installer does not include the following components, which are no longer required by Nimsoft Monitor:

- report_engine
- variable_server
- group_server
- dashboard_server
- ACE 1.x

Notes: ACE 2.x has replaced ACE 1.x as part of the Service Oriented Configuration (SOC) architecture.

These listed components support the legacy Enterprise Console and Service Level Manager (SLM) applications, which have been superseded by UMP.

If you wish to make use of the components listed above you must use the legacy InstallShield Windows installer mentioned above.

Nimsoft Server Installation on Windows

Important: This procedure is intended for a first-time installation of the Nimsoft Server on Windows. If you need to reinstall NMS for any reason, you must uninstall the existing software before attempting to reinstall it. See the section "Uninstalling the Nimsoft Server" (see page 70) for important details.

Note 1: Windows installation using the legacy InstallShield wizard is covered in the appendix "Nimsoft Server Installation on Windows (legacy)" (see page 121)." See the section above for a discussion of the two installers.

Note 2: See the appendix titled "Installing Nimsoft in an active/passive Microsoft Cluster" (see page 111) for additional installation details for a Microsoft high-availability platform.
Follow the instructions below to install Nimsoft Server on your Windows system using the InstallAnywhere installer:

1. Turn off any anti-virus scanners running on your computer.
   
   Active anti-virus scanners can slow down the installation significantly.
   
   **Note:** Remember to turn the anti-virus scanners on again immediately after the installation is completed.

2. Log in to the [Nimsoft Customer Support Center](#) site.

3. Download the NMS Install Package for your operating system. Make a note of where it is saved.

4. Launch the installer by double-clicking it (**installNMS**).

   The InstallAnywhere wizard dialog begins with the **Introduction** dialog.

   ![InstallAnywhere Introduction Dialog](image)

   Select a language and click **OK**.

   **Note:** If you select Spanish or Brazilian Portuguese, you must first configure `cmd.exe` (or the command shell you use) to use the appropriate codepage for your intended locale, and to display in a TrueType font, rather than a raster font. Otherwise, the installer messages will not display properly.
5. At this point in the process, there are three possible scenarios:
   a. New install: you see an Introduction screen that instructs you to quit all other programs before continuing, as well as other recommended precautions. Click Next to continue.
   b. Upgrade install: if the installer detects a previous installation on the host, the next screen lists the version found, displays an important warning message you should read, and instructs you to click Next to update, or to click Cancel to abort.
      Note: The information given here only covers a new installation or re-installation; you should download and follow the upgrade instructions in the Nimsoft Server Update Guide before continuing.
   c. Re-install: Click Cancel, uninstall the prior version, and restart the install process.

6. Read the license agreement. If you agree to its terms, click I accept the terms of the License Agreement, and then click Next. Otherwise you will need to cancel the installation.

7. The next dialog provides information you will want to know before proceeding. After you have read it, click Next.

8. Enter the path to the directory where you want the Nimsoft Server to be installed, or use the default path provided. Then click Next.
   Important: All fields in the installer dialogs are case sensitive.

9. You are prompted to use an existing database or create a new one.
   a. Choosing new will build the required tables on the database server you installed and configured in the section Nimsoft Server Pre-installation (see page 13). This creates the Nimsoft Information Store (NIS).
   b. Choosing existing will make use of an existing NIS set up during a separate installation.
      Click Next.

10. Select the type of database (MySQL, Oracle, or SQL Server) that the Nimsoft Server is to use. Then click Next.

11. Depending on your choice in the preceding step, this step will vary:
   a. If you specified MySQL in the preceding step, you will be taken directly to the next step.
   b. If you specified Oracle in the preceding step, you will see an informational screen that provides information on user privileges that you want to know before proceeding.
   c. If you specified SQL Server in the preceding step, you will be asked to choose the type of database authentication to use (Windows or SQL Server).
      Click Next to proceed.
12. Specify the database parameters you want to use.
   
   **Note:** Remember all fields are case sensitive. Also, you may want to review the prerequisites and required configurations described in "Nimsoft Server Pre-installation" for each database.

   The actual parameters in the Nimsoft Server Information dialog will depend on whether you are using SQL Server, MySQL or Oracle as your database, and whether you are creating a new database or using an existing database.

   When you have finished entering the required parameters, click **Next**.

13. The installer verifies the parameters for your database.
   
   a. If there are errors, the cause—as nearly as the installer can determine—is presented in the next dialog. **Cancel** the installation, address the reason for the errors, and restart the installation.

   b. If there are no errors, a verification screen appears. Click **Next** to continue.

14. Specify your Nimsoft Server Hub configuration information in the next screen:

   a. **Hub Domain:** Specify the name for this NMS hub; the default name is the name of the computer you are installing on with suffix "dom."

   b. **Hub Name:** Enter a name for this Hub; the default is the name of the computer you are installing on with suffix "hub."

   c. **Password:** Enter and confirm a password for your Nimsoft domain administrator. The name of this user is fixed as administrator; both the name and the password are required to login to the Nimsoft Server after installation. The password must contain at least six characters.

   d. **First Probe Port:** You can specify an initial port for Nimsoft probes. Unless you have a specific reason for doing so, you may prefer to let the system choose ports as required.

   e. **License:** Enter the license key exactly as it appears on your Nimsoft License Document. If you have not yet obtained a license, the installer creates a 30-day trial license that you can rely on for that period of time after installation.
f. **Select IP for Hub:** The installer detects all network interfaces attached to the computer. If more than one is found, select the IP address of the one that you want to use for NMS traffic.

**Note:** Unless you have a specific reason to do so, do not choose a Link Local address (for example, an address starting with fe80:). A warning window will pop up if you do. However, you can click the **Allow Link Local Address** box to allow the installation to proceed.

![Nimsoft Monitor Server](image)

After you have entered the information, click **Next**.

15. Specify a network mask or IP address range that you want the Nimsoft Server to discover. You can also exclude a range of IP addresses if necessary. If no entries are made, discovery will be skipped. Click **Next** to proceed.

16. Select the methods you want the Nimsoft Server to use to obtain information from devices and computers on the network (WMI, SNMP, ssh). Fill in the corresponding authentication credentials under each method you select:

- Enter the credentials for WMI on your network
- Enter the community string for your network’s SNMP configuration; this is often the default (public), but some organizations use another community string
Enter the user name and password for a user with administrative privileges on your UNIX®-based computers.

You can add additional credentials later via the Remote Administration utility (or the NIS Manager).

Click Next to proceed.

17. Select which catalogs you want to be created in the database:

- Windows Servers
- UNIX®-based Servers
- Network Printers
- Network Devices
- Auto Configure Managed Systems only

The Auto Configure Managed Systems only option selects a pre-defined configuration profile that is used for all computer systems set to Managed state in Remote Administrator (or the NIS Manager). The Managed state must be set manually for each of the systems.

If this option is not set, the pre-defined configuration profile is used for all computer systems, independent of the state set in Remote Administrator (or the NIS Manager).
The computer systems discovered on the network are grouped into Service Catalogs, depending on type of computer system. Pre-defined filters determine the Service Catalog associated with each computer system. These filters can be modified in Remote Administrator (or the NIS Manager). You can filter on a number of parameters, such as IP-range, OS, etc.

**Note:** You can make catalog changes later using Remote Administrator (or the NIS Manager).

Click **Next** to proceed.

18. Review the pre-installation summary. If you need to make any changes, click **Previous** to return to previous steps. Otherwise click **Install** to begin the installation process.

During installation, a progress bar lets you know how far along the process is.

At the conclusion of installation, an "Install Complete" window is displayed, prompting you to restart the system to complete the installation. Click **Next** to continue.

If one or more probes did not activate before the installer finished executing, you will see the "Install Complete (Warning) window. This does not necessarily represent an issue--some probes may not have been able to finish their start up sequence before the installer displayed its final screen.

Click **Done** to exit the installer. Installation is finished.

**Important:** Remember to turn any anti-virus scanners back on.
Nimsoft Server Installation on Solaris or Linux

Important: This procedure is for a first-time installation of the Nimsoft Server on Linux or Solaris only. If you need to reinstall NMS for any reason, first uninstall the existing software before attempting to reinstall it. See the section "Uninstalling the Nimsoft Server" for important details.

Follow the instructions below to install the Nimsoft Server on the Linux or Solaris system of your choice.

1. Turn off any anti-virus scanners running on your computer. Active anti-virus scanners slow down the installation significantly.
   
   Note: Remember to turn the anti-virus scanners on again immediately after the installation is completed.

2. Log in to the Nimsoft Customer Support Center site.

3. Download the NMS Install Package for your operating system.

4. Run the installer. There are two ways to launch the installer.
   
   If you use a desktop environment such as Gnome, use the file manager to locate the installer for your system. Then double-click the icon.
   
   - Linux
     installNMS_linux.bin
   
   - Solaris
     installNMS_solaris.bin

   If you use a command-line environment, locate the directory that contains the installer. Then use the appropriate command to launch it, as follows:

   - Linux
     installNMS_linux.bin -i console

   - Solaris
     installNMS_solaris.bin -i console

   The InstallAnywhere wizard dialog begins with the Introduction dialog. Click Next.

5. Read the license agreement. If you agree to its terms, click I accept the terms of the License Agreement, and then click Next. Otherwise you will need to cancel the installation.

6. The next dialog provides information you will want to know before proceeding. After you have read it, click Next.
7. Enter the path to the directory where you want the Nimsoft Server to be installed, or use the default path provided. Then click Next.
   **Note:** All fields in the installer dialogs are case sensitive.

8. Specify whether you want to use an existing database or create a new one. Then click Next.

9. Select the type of DBMS that the Nimsoft Server is to use. Then click Next.

10. Specify the database parameters you want to use.
    **Note:** All fields are case sensitive. Also, you may want to review the prerequisites and required configurations described in "Nimsoft Server Pre-installation" for each database.

    The actual parameters in the Nimsoft Server Information dialog will depend on whether you are using MySQL or Oracle as your DBMS, and whether you are creating a new database or using an existing database.

    After you have entered the parameters, click Next.

11. The installer verifies the parameters for your database.
    a. If there are errors, the cause—as nearly as the installer can determine—is presented in the next dialog. Cancel the installation, address the reason for the errors, and restart the installation.
    b. If there are no errors, you get a verification screen. Click Next to continue.

12. Enter a password for your Nimsoft domain administrator. The name of this user is fixed as administrator; both the name and the password are required to login to the Nimsoft Server after installation.

    The password must contain at least 6 characters. After entering and confirming the password, click Next.

13. Specify the Nimsoft domain name for this NMS hub, then click Next.

14. Enter a name for this Hub; the default name is the name of the computer you are installing on. Then click Next.

15. The installer detects all network interfaces attached to the computer. Enter the IP address of the one that you want to use for NMS traffic. Then click Next.

16. Enter the license key exactly as it appears on your Nimsoft License Document.

    If you have not yet obtained a license, the installer creates a 30-day trial license that you can rely on for that period of time after installation.

    Click Next to proceed.

17. You can specify an initial port for Nimsoft probes. Unless you have a specific reason for doing so, you may prefer to let the system choose ports as required.

    Click Next to proceed.
18. Specify a network mask or IP address range that you want the Nimsoft Server to discover. You can also exclude a range of IP addresses if necessary. 
   Click Next to proceed.

19. Select the methods you want the Nimsoft Server to use to obtain information from devices and computers on the network.
   When finished, click Next to proceed.
   **Note:** The next three steps assume you have selected all options. Skip any that do not apply in your case.

20. Enter the community string for your network’s SNMP configuration; this is often the default (public), but some organizations use another community string. Click Next to proceed.

21. Enter the credentials for WMI on your network, then click Next to proceed.

22. Enter the user name and password for a user with administrative privileges on your UNIX®-based computers. Then click Next to proceed.

23. Select which catalogs you want to be created in the database:
   - Windows Servers
   - UNIX®-based Servers
   - Network Printers
   - Network Devices
   - Auto Configure Managed Systems only

   The **Auto Configure Managed Systems only** option selects a pre-defined configuration profile that is used for all computer systems set to Managed state in Remote Administrator (or the NIS Manager). The Managed state must be set manually for each of the systems.

   If this option is not set, the pre-defined configuration profile is used for all computer systems, independent of state set in Remote Administrator (or the NIS Manager).

   The computer systems discovered on the network are grouped into Service Catalogs, depending on type of computer system. Pre-defined filters determine the Service Catalog associated with each computer system. These filters can be modified in Remote Administrator (or the NIS Manager). You can filter on a number of parameters, such as IP-range, OS, etc.

   **Note:** You can make catalog changes later using Remote Administrator (or the NIS Manager).

   Click Next to proceed.
24. Review the pre-installation summary. If you need to make changes, click Previous to return to prior steps. When ready, click Install to begin the installation process.

During installation, a progress bar lets you know how far along the process is.

At the conclusion of installation, the Nimsoft Server is launched.

25. The installation of the Nimsoft Server is complete. Click Done to exit the installer.

Important: Remember to turn any anti-virus scanners back on.

26. The NM Server service is available following installation. If for some reason it is not, enter these commands:

```
cd /etc/init.d
nimbus start
```

---

Uninstalling the Nimsoft Server

**Note:** These are the only recommended methods to uninstall the Nimsoft Server.

**Valid on Windows**

Uninstall Nimsoft Server using the Control Panel:

1. Choose Programs and Features (Add/Remove Programs on older versions of Windows).
2. Select each Nimsoft Server component.
3. Click Uninstall/Change then follow the system prompts.

**Valid on Linux and Solaris**

On Linux and Solaris, run the uninstaller using this format:

```
<NMS_install_dir>/NM_Server_installation/uninstall -i console
```

where **NMS_install_dir** is the directory specified by the user at the time of installation of Nimsoft Server.

**Important:** The Nimsoft-provided uninstaller will succeed regardless of how the NMS Server was installed, whether by wizard or by command line. No other uninstall approach is advised.
Chapter 4: Nimsoft Client Installation

This section covers the installation and deployment of Nimsoft infrastructure components on client machines in your managed environment.

The illustration above shows a Robot and a variety of Probes deployed from the Server to each of three computers within a managed Nimsoft domain.

Note: Installation of the Unified Management Portal (UMP) is covered in the *UMP Installation Guide* available from Nimsoft support.
You have the option to deploy the Nimsoft architecture (one or more Hubs, Robots, and Probes) to remote sites. The DMZ wizard component helps you set up secure communication tunnels between hubs.

This section contains the following topics:

- Client Install Overview (see page 72)
- Installing Infrastructure Manager (see page 75)
- Installing Service Level Manager (see page 76)
- Installing Nimsoft Infrastructure on Windows (see page 76)
- Installing Nimsoft Infrastructure on Unix (see page 83)
- Installation in a Firewalled Environment (see page 92)
- Infrastructure installation, Tunnel Server (see page 97)
- Infrastructure installation, Tunnel Client (see page 100)
- Installing the robot on AS400 (see page 102)

**Client Install Overview**

Follow these steps to install and deploy Nimsoft Software on a client computer:

1. Enter the Server web page address in the browser address field on the client computer and press Enter. Typically the page address is servername:8008 where servername is the fully-qualified device name or IP address of the machine where Nimsoft Server is installed. The Server web page is displayed.
2. Click the **Client Installation** label in the left pane of the window. The **Client Installation** section is shown in the main window.

Click on the name of the User Interface you want to download, or on the Infrastructure component or package you want to deploy. These choices are covered in more detail in following sections.

**User Interfaces**

There are three user interfaces available to install on a client computer:

**Enterprise Console**

A legacy user interface to alarms generated by Probes. Note that Enterprise Console has been superseded by the Unified Management Portal (UMP). Installation of UMP is covered in the section "Unified Management Portal Installation."

**Infrastructure Manager**

The Infrastructure Manager interface is used to configure the Nimsoft Infrastructure and displays monitoring information for systems, applications and networks.

**Installation dependencies:** The Infrastructure Manager may be installed and run stand-alone on any Windows-based computer that has network access to the Nimsoft Hub.

**Service Level Manager**

The Service Level Manager enables administrators to quickly define Service Level Agreements (SLAs) between the client and the service provider and to generate QoS reports.

**Installation dependencies:** Service Level Manager may be installed and run stand-alone on any Windows-based computer that has network access to the Nimsoft Hub.

**Infrastructure Installation**

Nimsoft Infrastructure refers to the Hubs, Robots, and Probes that gather QoS and alarm information from your IT environment and direct this information to consumer applications such as UMP, Infrastructure Manager, and the Alarm Console.
Clicking on a component name downloads that software installer. After the download is complete, double-clicking the file launches the installer. The following installation packages are available:

- **Windows Robot, Hub, Distribution Server, Alarm Server**
  This package consists of all the infrastructure components you need to install and configure a Windows-based computer in a DMZ. The package also contains the DMZ wizard component (this wizard sets up a tunnel between the intranet behind the firewall and the DMZ server.)

- **Windows Robot**
  The Nimsoft Robot controls and manages Probes, as well as providing a simple database service to spool and forward probe messages and alarms. The Windows Robot must be installed on all Windows-based computers where you want to distribute Probes.

- **Nimsoft Infrastructure (nimldr) for all UNIX®-based platforms**
  The nimldr contains the Robot software for UNIX®-based computers. The Robot controls and manages Probes, and must be installed on all computers where you want to distribute Probes.

- **Web Service (wasp)**
  This service is required to be installed on a robot where the wasp probe is running. For more details about the wasp_web_service, please refer to the Archives tab of Nimsoft Support Site (http://support.nimsoft.com/). This service replaces the legacy web service.

### Typical Infrastructure Deployment

Steps 2 through 4 in the following illustration show a typical component deployment:
To install Infrastructure Manager, follow these steps:

1. Open a web browser on the Windows computer where you want to install Infrastructure Manager, and enter the URL of your Nimsoft Server: http://<servername_or_server_IPaddress>:8008/
   **Note:** You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the **Client Installation** label on the left side of the page. The Client Installation section appears in the main window.

3. In the **User Interfaces** table, click the **Infrastructure Manager** link.

4. The Download dialog is displayed. Select **Run** to start the installation immediately, or select **Save** if you want to save the Infrastructure Manager executable file to disk to run the installation later.

   The files are copied from the Nimsoft Server to your computer, and the wizard starts extracting the files.

5. Wait for the setup dialog to appear, and click **Next**.

6. The License Agreement dialog appears. Read the license agreement carefully and click **Yes** to continue if you accept the terms, otherwise click **No** to exit.

7. The next dialog enables you to select which components to install: The Infrastructure Manager and/or the Alarm SubConsole. Normally both should be installed. When the components you want to install are checked, click **Next**.

8. The next dialog displays the settings you have selected so far in the installation process. Click the **Back** button if you want to change something or click the **Next** button to start copying files. A window appears that displays the installation progress.

9. If not already installed, you are asked if you want to install the Microsoft SOAP Toolkit. Click the **Yes** button to launch the Microsoft SOAP Toolkit Setup wizard. The wizard will guide you through the installation.

10. When the installation wizard is finished, click the **Finish** button to exit Infrastructure Manager Setup.

Verify that the installation was successful by launching the application (Start > Programs > Nimsoft Monitoring > Infrastructure Manager).
Installing Service Level Manager

To install the Service Level Manager client, follow these steps:

1. Open a web browser on the Windows computer where you want to install Service Level Manager, and enter the URL of your Nimsoft Server:
   
   http://<servername_or_server_IPaddress>:8008/
   
   Note: You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the Client Installation icon on the left side of the page. The Client Installation section appears in the main window.

3. In the User Interfaces table, click the Service Level Manager link.

4. The Download dialog is displayed. Select Run to start the installation immediately, or select Save if you want to save the Service Level Manager executable file to disk to run the installation later.

   The files are copied from the Nimsoft Server to your computer, and the wizard starts extracting the files.

5. Wait for the setup dialog to appear, and click Next.

6. The License Agreement dialog appears. Read the license agreement carefully and click Yes to continue if you accept the terms, otherwise click No to exit.

7. The next dialog enables you to select which component(s) to install. Ensure that the Service Level Manager component is checked and click Next.

8. The next dialog displays the settings you have selected so far in the installation process. Click Back if you want to change something or click Next to start copying files. A window appears that displays the installation progress. Wait for confirmation that the installation progress is finished.

9. Click Finish to exit Setup.

Verify that the installation was successful by launching the application (Start > Programs > Nimsoft Monitoring > Service Level Manager).

Installing Nimsoft Infrastructure on Windows

This section describes two different cases:

- Installing a Robot on a Windows computer.
- Installing the Infrastructure package (Robot, Hub, Distribution Server (distsrv) and Alarm Server) on a Windows computer.

Note: This package contains the DMZ wizard component, used when installing Nimsoft on a DMZ in a firewalled environment.
Installing a Windows Robot

To install a Nimsoft robot on a Windows computer, follow these steps:

1. Open a web browser on the Windows computer where you want to install the robot, and enter the URL of your Nimsoft Server:
   http://<servername_or_server_IPaddress>:8008/
   **Note:** You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the Client Installation label on the left side of the page. The Client Installation section appears in the main window.

3. In the **Infrastructure** table, click the **Windows Robot** link. The Download dialog pops up.

4. Select **Run** to start the installation immediately, or select **Save** if you want to save the executable file to disk and run the installation later. The files are copied from the Nimsoft Server to your computer, and the wizard starts extracting the files.

5. Wait for the setup to appear and click **Next**.

6. The License Agreement dialog appears. Read the license agreement carefully and click **Yes** to continue if you accept the terms, otherwise click **No** to exit the setup.

7. The Setup Type dialog appears. It shows two options: **Cloud installation** and **Normal installation**. Depending on your needs, follow the steps in one of the next two sections to complete the installation.

Normal Installation

To install the robot using Normal Installation, follow these steps:

1. In the Setup Type dialog, select the **Normal installation** option. Click **Next**.

2. If more than one Nimsoft Domain exists, the next dialog asks you to select which Domain you want the robot to be part of. Check one of the Domains, or select the option **Choose to connect to the network interface through IP address** to attach the robot to a specific Hub. Click **Next**.

3. If the computer has multiple network interface cards (NICs), the **Local IP address** dialog appears. Select the IP address of the network interface the robot will use to send and receive information and click **Next**.

4. The **Options** screen appears. Configure the options as follows:
   - If you leave the **First probe port** field blank (recommended), the system will use default port numbers. Otherwise, you can specify the first port to be used to start probes.
   - Select the **Passive mode** checkbox if you wish to set the hub as passive. By default this checkbox is not selected.

   Click **Next**.
5. The next dialog displays the settings selected in the installation process. Click **Back** to change something or click **Next** to start copying files.

6. A window appears that displays the installation progress. Wait until the installation is finished, then click **Finish** to exit setup.

### Cloud Installation

The **Cloud installation** choice is provided for administrators who want to install a Nimsoft robot onto a master image of their virtual machine (VM) for provisioning purposes. By using this option, the administrator can monitor new VMs as they are deployed with a Nimsoft robot pre-installed on the new VMs.

**Note:** this installation type installs a Robot but leaves it in a latent state. The Robot starts after a configurable number of host restarts.

**To install a robot using Cloud Installation, follow these steps:**

1. In the **Setup Type** dialog, select the **Cloud installation** option. Click **Next**.

2. The **Cluster installation** dialog appears. Note that a hub on a cloud instance is assumed. If a hub external to the cloud is used, the robot will need to be configured with `robotip_alias = <external IP of cloud instance>` after the cloud instance is created.

   After entering the required information, click **Next**.

3. If the computer has multiple network interface cards (NICs), the **Local IP address** dialog appears. Select the IP address of the network interface the robot will use to send and receive information and click **Next**.

4. The **Options** screen appears. Configure the options as follows:
   - If you leave the **First probe port** field blank (recommended), the system will use default port numbers. Otherwise, you can specify the first port to be used to start probes.
   - Select the **Passive mode** checkbox if you wish to set the hub as passive. By default this checkbox is not selected.

5. The next dialog displays the settings you have selected so far in the installation process. Click **Back** if you want to change something or click **Next** to start copying files.

6. A window appears that displays the installation progress. Wait until the installation is finished, then click **Finish** to exit setup.
Installing Windows Robot, Hub, Distribution Server and Alarm Server

This install package contains the DMZ wizard component, used to install Nimsoft on a DMZ computer in a firewalled environment. The DMZ wizard sets up a tunnel between the intranet in the secure zone and the DMZ server.

**Note:** Nimsoft recommends that at least two Hubs should be installed on the same Domain and network. This will ensure that you have a backup of the user and security data that is stored on the primary Hub.

To install the full package as described above, follow these steps:

1. Open a web browser on the Windows computer where you want to install the robot, and enter the URL of your Nimsoft Server:
   
   `http://<servername_or_server_IPaddress>:8008/`

   **Note:** Specify port 8008 as shown to access the Nimsoft Server web page unless you have configured a custom port for it.

2. Click the Client Installation label on the left side of the page. The Client Installation section appears in the main window.

3. In the **Infrastructure** table, click the **Windows Robot, Hub, Distribution server, Alarm Server** link.

4. The Download dialog pops up. Select **Run** to start the installation immediately, or select **Save** if you want to save the executable file to disk to and run the installation later). The files are copied from the Nimsoft Server to your computer, and the wizard starts extracting the files.

5. Wait for the setup dialog to appear and click **Next**.

6. The **License Agreement dialog** appears. Read the license agreement carefully and click **Yes** to continue if you accept the terms, otherwise click **No** to exit.

7. Select the type of installation you want:

   **Automatic Install**

   Detects if Hubs are found, and installs components as follows:

   - If a Hub is detected, the installer installs or reinstalls the Robot, Hub, Nimsoft Alarm Server (nas) and Distribution Server (distsrv).
   - If a Hub is not found, the installer installs the Robot only.

   **Custom Install**

   Lets you decide which Nimsoft components to install:

   - Robot
   - Hub
   - Alarm Server (nas)
   - Distribution Server (distsrv)
- Probe Runtime libraries (needed to create your own Probes)
- DMZ Wizard

**DMZ Install**

This installation must be run on the DMZ host. The necessary components (Hub and Robot) are installed on the DMZ host, and the wizard for configuring the tunnel through the firewall will be launched.

After your have made your choice, click **Next**.

8. The next set of screens depend on what type of setup you selected in the previous dialog:

**Automatic install**

Lists the settings you have selected so far in the installation process. If setup detects that a Hub needs to be installed:

- Depending on which components you selected, you have to specify parameters such as Domain name and Hub name.
- Setup suggests a license
- Setup starts copying files

The **Finish** dialog appears, indicating that the Nimsoft Infrastructure Setup is finished.

**Custom Install**

You are asked to specify which components to install.

- Depending on which components you selected, you have to specify parameters such as Domain name and Hub name.
- Setup suggests a license
- Lists the settings you have selected so far in the installation process
- Setup starts copying files

The **Finish** dialog appears, indicating that the Nimsoft Infrastructure Setup is finished.

**Note:** If the DMZ Wizard component was selected, the setup will also launch the DMZ wizard.

**DMZ Install**

You will be prompted for a Domain name and a Hub name. The DMZ wizard will be launched; see the next section “DMZ Installation” for details.

**Note:** The hub in the DMZ must have a public IP address, if you want to access it from the Internet.
DMZ Installation

The DMZ installation consists of two parts:

1. Configure a tunnel server
2. Configure a tunnel client

Before running the DMZ wizard, you should determine in which direction you want to set up the tunnel.

1. If you want the DMZ hub to be the server side of the tunnel:
   a. First run the wizard described below, selecting Server setup, on the DMZ computer. A client certificate will then be generated. You will need this when setting up the client on the other side of the tunnel.
   b. Then go to the hub in the secure zone and set it up as a tunnel client, using the hub configurator (see description in the Hub section of the Probes online documentation, made available by selecting Help > Probes from the menu in Infrastructure Manager). Note that you need the certificate and password generated in the previous step.

2. If you want the hub in the secure zone to be the server side of the tunnel:
   a. First set up the hub in the secure zone as a tunnel server, using the hub configurator (see description in the Hub section of the Nimsoft Probes online documentation, made available by selecting Help > Probes from the menu in Infrastructure Manager).
   b. Then go to the hub computer in the DMZ and run the wizard described below, selecting Client setup. Note that you need the certificate and password generated in the previous step.

When the DMZ wizard is launched, you are asked to select the type of tunnel you want to set up:

- Client - will connect to a tunnel server
- Server - receives connections from tunnel clients. When setting up the server, a client certificate will be generated (you will need this when setting up the client).

Run the DMZ wizard on the computer you have selected to be the server and select Server in the initial dialog.

Click Next to continue.

1. Configure the Server:
   - Fill in the organization and address information.
   - Specify a password in the Password field.
   - **Note:** You need this password when configuring the client.

   Click Next.
2. A dialog appears, indicating that the tunnel setup succeeded. Specify a file name and location for storing the client certificate to be generated in the next step. Click **Next** to continue.

3. The dialog shown below appears. Type the IP address of the client (for which you want to generate the certificate) in the **Client IP** field. The certificate will be generated and saved to the file specified in the previous step. **Note:** You will need this file when setting up the client, so it is advisable to copy it to removable media, such as a thumbdrive.

![Generating Client Certificate - Step 2:2](image)

Click **Finish**. You will returned to the Finish dialog in the Nimsoft Infrastructure Setup.

4. Configure the Client

If configuring the client on a hub in the secure zone, you must set up the client as described in the Hub section of the Nimsoft Probes online documentation, made available by selecting Help > Probes from the menu in Infrastructure Manager.
5. When configuring a tunnel (client or server) on a computer in the secure zone, use the hub configurator. If configuring the client on a hub in the DMZ, you must run the DMZ setup on the DMZ computer and select Client in the initial dialog. The following dialog appears.

Specify the IP of the server you configured as the tunnel server and fill in the password you specified when you generated the client certificate.

Click **Browse**... to find the client certificate file. When the file is found, the certificate text will appear in the dialog window.

Click **Finish** to finish the DMZ wizard.

6. The InstallShield Wizard Complete screen confirms that the Nimsoft infrastructure Setup is finished.

Click **Finish** to exit.

---

**Installing Nimsoft Infrastructure on Unix**

This section describes two installation scenarios:

- Installing Nimsoft Infrastructure on a UNIX®-based computer on your internal network.
- Installing Nimsoft Infrastructure on a UNIX®-based computer in a DMZ.
Notes:

- If the Nimsoft Server is already installed and running on the system, you should perform the following commands before performing the steps in the following sections:
  - /opt/Nimsoft/bin/niminit stop
  - /opt/Nimsoft/bin/inst_init.sh remove

- Nimsoft recommends that at least two Nimsoft Hubs be installed on the same Domain and network to ensure you have a backup of the user and security data in the event the primary hubs fails.

Important: If you need to uninstall or reinstall the Nimsoft Server for any reason, see Uninstalling the Nimsoft Server (see page 70) for important information.

Installation Procedure on a UNIX®-based Computer

Note: If you cannot access a web browser on your UNIX®-based computer, you must perform the first two steps in this procedure on a Windows computer, and then copy the nimldr.tar.Z file to the UNIX®-based computer, using ftp or a similar utility.

To install the Nimsoft infrastructure on a UNIX®-based computer, follow these steps:

1. Open a web browser on the computer where you want to install the robot, and enter the URL of your Nimsoft Server:
   
   http://<servername_or_server_IPaddress>:8008/

   Note: You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the Client Installation label on the left side of the page. The Client Installation section appears in the main window.

3. In the Infrastructure table, click the UNIX installation utility (nimldr) for all platforms link. The Download dialog pops up.

4. Select Open to start the installation immediately, or select Save if you want to save the nimldr.tar.Z file to disk in order to run the installation later. The file will be saved on your disk.

   Note: Some browsers (notably some versions of Internet Explorer) have problems saving the file with the correct name and extension. The name of the file is nimldr.tar.Z, and the capital Z is important because UNIX® is case sensitive.


6. Extract the nimldr.tar file using this command:

   # tar xf nimldr.tar

   This makes a directory on your disk with sub-directories that contain the nimldr command appropriate for various different UNIX®-based platforms:
7. Enter the appropriate sub-directory for your UNIX®-based platform, (for example, LINUX_23_64) and run the nimldr command.

If the UNIX®-based system is on the same network segment as the Nimsoft Server computer, use this command:

```
# ./nimldr
```

If the UNIX®-based system is on a different network segment, use this command:

```
# ./nimldr -I <IP-address_of_Nimsoft_Server>
```

**Unix Installation Utility (nimldr) usage**

**Notes:**

- For the flag "-f", make sure you do not include the ".zip" extension in the file name. Also note that the file name is case sensitive.
- The "-E" and "-X" flags require that the install file is saved on your local computer.

The following is an example:

```
[root@unixbuilder stian]# ./nimldr -?
Usage: ./nimldr [flags]
```

Common flags:

- `-d <debuglevel 0-5>`
  - default=0
- `-l <installation logfile>`
  - default=nimldr.log
- `-t <path to use for temporary files during installation>`
  - default=/opt/nimsoft/tmp
- `-D <NimBUS Domain name>`
- `-H <NimBUS Hub name>`
- `-N <Override Robot name>`
- `-p <NimBUS installation path>`
  - default=/opt/nimsoft
- `-f <Override package file name>`
  - default installation file is detected by the program
  - NOTE: Case sensitive, and without the .zip extension
- `-u install as current user, not as root`
  - NOTE: This is NOT recommended!
- `-o <first probe port>`
- `-R <IP address for this robot>`
  - This is mostly useful for systems with multiple network cards
- `-a set the automatic unregister flag`
  - default = 'no'
- `-s set the robot to passive mode`
- `-v prints version of ./nimldr`
-h prints this help text

Installation file on local machine:
-F <directory containing installation file>

Installation file on a NimBUS Distribution Server:
-I <IP address of NimBUS Hub running a Distribution Server>
   NOTE: This will override the -H option
-V <package version>
   get the specified version of the package, not the latest one

Installation modes:
-r install Robot only (default mode)
-i install Infrastructure (Robot, Hub, Nas and Distsrv)
-E express installation (uses defaults or supplied flags)
-X silent express installation (fails instead of going to interactive mode)

Cloud installation:
-C <number of restarts until Robot should become active>
-M <DNS name of the machine running the Hub>

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Robot Installation from the Nimsoft Archive

linux-jvrz:/tmp # ./nimldr

This program will help you install Nimsoft Server on the current system.
You will be given a series of questions, default answers are in brackets:
query? ==>[default]
Pressing Enter directly will use the default value, otherwise you should type in the requested information.

If express installation is specified, the default value will be used automatically.

A log of the installation is found in the file: nimldr.log
WARNING: The temporary files directory is removed after installation!

Where should nimldr store temporary files?
==>[/opt/nimsoft/tmp]
Beginning Robot installation:

Is this a Cloud installation?
==> [no]
Do we have the installation file locally?
->[no]

Is there a host running a Nimsoft Hub we can query for the installation file?
->[yes]

What is the IP address of the host running a Nimsoft Hub?
->[193.71.55.147]

Preparing to search for Archives:

What is the Nimsoft Domain called (*=search)?
->[Development]

What is the Nimsoft Hub called (*=search)?
->[w7stian]

What is the installation file called?
->[install_LINUX_23]

Searching for Archives:
1 /Development/w7stian/unixbuilder/distsrv
2 /Development/w7stian/w7stian/distsrv

Which of these archives would you like to connect to?
->[1] 2

We need to log in to the Nimsoft Server to query the Archive
Enter Nimsoft username and password...
   Username: administrator
   Password:

Beginning download of install_LINUX_23
\

Done!

What are we installing? (1=Robot,2=Infrastructure)
->[1]

Extracting files from archive /opt/nimsoft/tmp//install_LINUX_23.zip to temp directory /opt/nimsoft/tmp/

Where should the Nimsoft software be installed?
->[/opt/nimsoft]

Automatically unregister Robot from Hub on termination?
->[yes]
Should this Robot run in passive mode?
==>[no]

What is this Nimsoft Domain called?
==>[Development]

Which Nimsoft Hub should this Robot connect to?
==>[w7stian]

What is that Nimsoft Hub's IP address?
==>[] 193.71.55.147
Starting the software:

Cleaning up temporary files
Finished Robot installation!

Infrastructure Installation from Local File

This program will help you install Nimsoft Server on the current system. You will be given a series of questions, default answers are in brackets:
query? ==>[default]
Pressing Enter directly will use the default value, otherwise you should type in the requested information.

If express installation is specified, the default value will be used automatically.

A log of the installation is found in the file: nimldr.log
WARNING: The temporary files directory is removed after installation!

Where should nimldr store temporary files?
==>[/opt/nimsoft/tmp]
Beginning Robot installation:

Is this a Cloud installation?
==>[no]

Do we have the installation file locally?
==>[no] yes

Where do we have the installation file(s)?
What are we installing? (1=Robot,2=Infrastructure)
===[1] 2
A Nimsoft Robot and Hub will be installed.

Would you like to install the Nimsoft Alarm Server (nas)?
===[yes]

Would you like to install the Distribution Server (distsrv)?
===[yes]
Extracting files from archive /tmp/install_LINUX_23 to temp directory
/opt/nimsoft/tmp/

Where should the Nimsoft software be installed?
===[/opt/nimsoft]

Automatically unregister Robot from Hub on termination?
===[yes]

Should this Robot run in passive mode?
===[no]

What is this Nimsoft Domain called?
===[] Development

What is this Nimsoft Hub called?
===[linux-jvrz]

What is this Nimsoft Hubs IP address?
===[193.71.55.62]
Starting Nimsoft:

Waiting for Hub to start...
Are you setting up a Tunnel between this Hub and another Hub?
===[no]

Would you like to initialize the security settings on this Hub?
===[yes]

Please specify the administrator user password:
    Type password:
    Retype password:
Initializing security for this Hub...Security initialized!
Cleaning up temporary files
Finished Robot installation!

```
linux-jvrz:/tmp #
```

## Installing Nimsoft Infrastructure on a UNIX®-based Computer in a DMZ

In this installation procedure, you will copy files from the Nimsoft Server webpage and copy them to the DMZ host (using a CD, thumbdrive, or ftp).

1. Open a web browser on the computer where you want to install the robot, and enter the URL of your Nimsoft Server:
   ```
   http://<servername_or_server_IPaddress>:8008/
   ```
   **Note:** You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the Client Installation label on the left side of the page. The Client Installation section appears in the main window.

3. In the **Infrastructure** table, click the UNIX installation utility (nimldr) for all platforms link. The **Download** dialog pops up.

4. Select **Save** to save the `nimldr.tar.Z` file to disk in order to run the installation later. The file will be saved on your disk.
   **Note:** Some browsers (notably some versions of Internet Explorer) have problems saving the file with the correct name and extension. The name of the file is `nimldr.tar.Z`, and the capital "Z" is important because UNIX® is case sensitive.

5. In the **Infrastructure** table, click the installation archive that is appropriate for your UNIX®-based platform. The **Download** dialog pops up.

6. Select **Save** to save the ZIP file to disk.

7. Copy the files into a directory on the DMZ host.
   **Note:** Again, the name of the file is `nimldr.tar.Z`: the capital "Z" is important because UNIX® is case sensitive.

8. Uncompress the file:
   ```
   # uncompress nimldr.tar.Z
   ```

9. Extract nimldr.tar:
   ```
   # tar xf nimldr.tar.
   ```
   This creates a directory with sub-directories, where you can access the nimldr command that is specific for different UNIX®-based platforms.
10. Enter the appropriate sub-directory to the UNIX® platform was copied (for example, LINUX_23_64) and run the nimldr command.

   If the UNIX®-based system is on the same network segment as the Nimsoft Server computer, use this command:
   
   # ./nimldr

   If the UNIX®-based system is on a different network segment, use this command:
   
   # ./nimldr -I <IP-address_of_Nimsoft_Server>

   For details on usage, see UNIX Installation Utility (nimldr) usage (see page 85).

   **Note:** Your next steps depend on the direction of the tunnel through the firewall, as described below.

   **Important:** The hub in the DMZ must have a public IP address if you want to access it from the Internet.

**To open the tunnel from the DMZ:**

   a. Run the procedure described in the section Infrastructure Installation, Tunnel Server (see page 97) on the DMZ computer.

   b. Make a note of the password and save the client certificate file.

   c. Go to the hub in the secure zone and configure the tunnel client as described in the section Infrastructure Installation, Tunnel Client (see page 100).

**To open the tunnel from the secure zone:**

   a. Configure the hub in the secure zone as tunnel server as described in the section Infrastructure Installation, Tunnel Server (see page 97).

   b. Bring the client certificate file (and password) to the DMZ computer.

   c. Run the procedure described in the section Infrastructure Installation, Tunnel Client (see page 100) to install the tunnel client component.

For further details, see the section Installation in a Firewalled Environment (see page 92).
Installation in a Firewalled Environment

This section describes the installation of Nimsoft components in a firewalled environment.

Introduction

Using the tunnel mechanism provided by the hubs, a secure connection can be set up between hubs located in the DMZ and hubs residing in the secure zone inside the DMZ firewall.

This same mechanism is also the basis for setting up web dashboards in the DMZ. By opening a selected few ports in the outer firewall from the DMZ to the Internet, fully functional dashboards can be viewed in ActiveX-supported web browsers.

Note that you are not required to set up an internet solution within a DMZ, you may rather use a solution with direct QoS Access. An open configuration with direct QoS data access provides the best performance. See the next section Open Internet solution with Direct QoS Access (see page 93).
Installing Nimsoft components in a DMZ

The installation of Nimsoft components in a DMZ is described in the sections Installing Windows Robot, Hub, Distribution Server and Alarm Server (see page 79) and Installing Nimsoft Infrastructure on a UNIX®-based computer in a DMZ (see page 90).

Open Internet solution with Direct QoS Access

From a performance point of view, the most efficient way to access the QoS data is to process the database queries directly from the various dashboards and not through the use of tunnels. However, this solution requires you to open your port access to your SQL server and a number of other ports as well.

The SQL server port is typically 1433, and the ports required to be opened are typically found within the range 48000 to 48020. Remember to configure the 'First Probe Port Number' parameter in the controller to ensure that Nimsoft components will be assigned port numbers beginning just after 48000. The Nimsoft components that the open intranet/internet solution needs access to are the hub, controller, distsrv and nas.

What is a DMZ

In computer networks, a DMZ is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company data.

A DMZ is an optional and more secure approach to a firewall and effectively acts as a proxy server as well.

Requests from the inside

In a typical DMZ configuration for a small company, a separate computer (or host in network terms) receives requests from users within the private network for access to Web sites or other companies accessible on the public network. The DMZ host then initiates sessions for these requests on the public network. However, the DMZ host is not able to initiate a session back into the private network. It can only forward packets that have already been requested.

Requests from the outside

Users of the public network outside the company can access only the DMZ host. The DMZ may typically also have the company's Web pages so these could be served to the outside world. However, the DMZ provides access to no other company data.
What is a tunnel

Most companies today have one or more firewalls in their network, both internally between different networks and externally against a DMZ or Internet. Network administrators are often reluctant to open a firewall for a lot of IP addresses and ports in order to make it possible for Management applications to work. This makes it difficult to administer and monitor the whole network from a central location.

The solution is to set up a tunnel between two Hubs that is separated by a firewall. The tunnel sets up a VPN-like (Virtual Private Network) connection between the two Hubs and enables all requests and messages to be routed over the tunnel and dispatched on the other side. This routing will be transparent to all the users within the Nimsoft Monitor domain.

**Note:** Do not use static Hubs when setting up a tunnel!

Security is the main issue when opening a firewall for external connections. The tunnel is implemented using the SSL (Secure Socket Layer) protocol, which is currently the most widely deployed security protocol (the protocol behind Secure HTTP (HTTPS)). The security is handled in two ways; certificates to authenticate the Client and encryption to secure the network traffic (e.g. over Internet):

- **Authorization and Authentication**
  The tunnel provides authorization and authentication by using certificates. Both the client and the server need valid certificates issued by the same CA (Certificate Authority) in order to set up a connection. In the case of setting up a tunnel, the machine receiving the connection (the server) is its own CA and will only accept certificates issued by itself.

- **Encryption**
  The encryption settings spans from None to High. No encryption means that the traffic is still authenticated and is therefore recommended for tunnels within LANs and WANs. You should be careful when selecting higher encryption level since this will be more resource intensive for the machines at both ends of the tunnel.

Installing Nimsoft in a firewalled environment requires that installation happen in a given order. There is also the issue of which ports to open in the different firewalls to allow users to access Dashboards and view web reports.
Installation in a DMZ

The installation of Nimsoft components in a DMZ is described in the sections Installing Nimsoft Infrastructure on Windows (see page 76) and Installing Nimsoft Infrastructure on a UNIX®-based computer in a DMZ (see page 90).

The illustration below shows the different components installed and the ports that need to be opened in a firewall:

![Diagram showing different components and ports in a DMZ]

**Note:** Logging on a Hub through a translated (NAT) address is not supported with Nimsoft consoles.

The HUB GUI, Tunnels > Advanced tab:

![Screenshot of the HUB GUI showing the advanced tab with options for ignoring first probe port settings and specifying the first tunnel port]

**First Tunnel Port:** 50000

**Tunnel is Hanging Timeout:** 120
1. **Secure zone**

Nimsoft Server can be installed first. If you already have a running Nimsoft installation, then this is already in place.

2. **Firewall between Secure zone and DMZ**

The Hub in the secure zone needs to be able to access the Hub in the DMZ on configured tunnel server port (default port 48003). How this is set up in the firewall is of course firewall-dependant, and you should check your firewall’s documentation on how to open a connection between the two systems.

3. **DMZ**

When installing Nimsoft components in a DMZ, you are given the option of installing in DMZ mode, as described in the sections [Installing Nimsoft Infrastructure on Windows](#) (see page 76) and [Installing Nimsoft Infrastructure on a UNIX®-based computer in a DMZ](#) (see page 90).

Once that is set up, you can generate a Client certificate for the Hub in the secure zone.

**Note:** The hub in the DMZ must have a public IP address, if you want to access it from the Internet.

You now have an access point into Nimsoft installed in the DMZ. To allow people to connect to Nimsoft through this Hub you must allow traffic to some ports on the Hub computer in the DMZ.

Port 80 (http) is required if you want to give people access to web components like SLA reports and Dashboards. A web server such as IIS or Apache can be used.

If you are allowing Dashboards to be accessed, you must, in addition, open port 48000 (Controller), 48002 (Hub) and 50000 (Tunnel data).

50000 is not a fixed port, you can set any port you want to use. Set up this port by setting the **First Tunnel port** to e.g. 50000 on the Tunnels > Advanced tab on the HUB GUI (see screenshot above).

**Note:** Make sure the port selected is not in the same range as the port configured as **first probe port number** on the controller probe.

Note that also the option **Ignore first probe port setting from controller** on the HUB GUI must be checked, even if the first probe port not is set on the Controller.
Finally, after you have opened the external firewall for the listed ports, you must make Dashboards and SLA reports available on the DMZ system. This can be accomplished using the WebExport utility for Dashboards and by setting up an FTP profile in the SLA system.

Please note that users still have to log in to Nimsoft Monitor unless you specify user/password information in the Dashboard (in which case you should use an extremely limited user!).

Users should now be able to access Nimsoft Monitor content from the Internet or Intranet depending on how you set the system up.

**Infrastructure installation, Tunnel Server**

This section applies to an installation where you install the tunnel server component on the DMZ host, and then bring the client certificate file (and password) to the hub on the outside and install the tunnel client component there.

**NOTE:** Copy the file `/opt/nimsoft/client.txt` to a removable storage medium or transfer it electronically to the client Hub and set up the Tunnel Client there. Communication will be possible between the two systems on port 48003/tcp.

```
linux-jvrz:/tmp # ./nimldr
```

This program will help you install Nimsoft Server on the current system. You will be given a series of questions, default answers are in brackets:

```
query? ==>[default]
```

Pressing Enter directly will use the default value, otherwise you should type in the requested information.

If express installation is specified, the default value will be used automatically.

A log of the installation is found in the file: nimldr.log

**WARNING:** The temporary files directory is removed after installation!

```
Where should nimldr store temporary files?
==>[/opt/nimsoft/tmp]
```

Beginning Robot installation:

```
Is this a Cloud installation?
==>[no]
```

Do we have the installation file locally?
```
==>[no] yes
```
Where do we have the installation file(s)?
==> [ ] /tmp

What are we installing? (1=Robot, 2=Infrastructure)
==> [1] 2
A Nimsoft Robot and Hub will be installed
Would you like to install the Nimsoft Alarm Server (nas)?
==> [yes]

Would you like to install the Distribution Server (distsrv)?
==> [yes]
Extracting files from archive /tmp/install_LINUX_23 to temp directory
/opt/nimsoft/tmp/

Where should the software be installed?
==> [ ] /opt/nimsoft

Automatically unregister Robot from Hub on termination?
==> [yes]

Should this Robot run in passive mode?
==> [no]

What is this Nimsoft Domain called?
==> [ ] Development

What is this Nimsoft Hub called?
==> [linux-jvrz]

What is this Nimsoft Hubs IP address?
==> [10.0.0.12]
Starting the Nimsoft software:

Waiting for Hub to start...

Are you setting up a Nimsoft Tunnel between this Hub and another Hub?
==> [no] yes

We need to login to Nimsoft to set Tunnel options
Enter Nimsoft username and password...
   Username: administrator
   Password:
Is this Hub going to be a Tunnel Server?
==> [no]
Setting up the Server:
The Server needs to generate a CA certificate
This certificate will be used to sign Client certificates

What is the name of your organization?
==>[My Company Inc.] MyCompany

What is the name of the organizational unit?
==>[SysAdmin] Development

What is the administrator email address?
==>[sysadmin@some.company.com] developers@my.company.com

What password should we use for the Server certificate?
   Type password:
   Retype password:

Generating CA certificate - this may take a few moments...

Done generating CA certificate!

Creating a Client Certificate:

The Client will need this certificate to connect to this Server

What is the IP address of the Client Hub?
==>[] 10.1.1.1

What is the name of your organization?
==>[MyCompany]

What is the name of the organizational unit?
==>[Development] DMZ

What is the administrator email address?
==>[developers@my.company.com]

What password should we use for this certificate?
   Type password:
   Retype password:

What file should the certificate be written to (full path)?
==>[/opt/nimsoft/client.txt]

Generating Client certificate - this may take a few moments...
Done creating Client certificate /opt/nimsoft/client.txt
Cleaning up temporary files
Finished Robot installation
Infrastructure installation, Tunnel Client

This section applies to an installation where you install the tunnel client component. Note that you will need the client certificate file that was generated when you installed the tunnel server component, as well as the password you used.

Copy the certificate file (client.txt) to e.g. the /tmp directory.

```
linux-jvrz:/tmp # ./nimldr
```

This program will help you install Nimsoft Server on the current system. You will be given a series of questions, default answers are in brackets:

query? ==>[default]

Pressing Enter directly will use the default value, otherwise you should type in the requested information.

If express installation is specified, the default value will be used automatically.
A log of the installation is found in the file: nimldr.log
WARNING: The temporary files directory is removed after installation!

Where should nimldr store temporary files?

```
==>/opt/nimsoft/tmp
```

Beginning Robot installation:

Is this a Cloud installation?

```
==>[no]
```

Do we have the installation file locally?

```
==>[no] yes
```

Where do we have the installation file(s)?

```
==>[/tmp]
```

What are we installing? (1=Robot,2=Infrastructure)

```
==>[1] 2
```

A Nimsoft Robot and Hub will be installed.

Would you like to install the Nimsoft Alarm Server (nas)?

```
==>[yes]
```

Would you like to install the Distribution Server (distsrv)?

```
==>[yes]
```

Extracting files from archive /tmp/install_LINUX_23 to temp directory /opt/nimsoft/tmp/
Where should the Nimsoft software be installed?
==>/opt/nimsoft

Automatically unregister Robot from Hub on termination?
==>yes

Should this Robot run in passive mode?
==>no

What is this Nimsoft Domain called?
==>[] Development

What is this Nimsoft Hub called?
==>[linux-jvrz]

What is this Nimsoft Hubs IP address?
==>[193.71.55.62]
Starting Nimsoft software:
Waiting for Hub to start...

Are you setting up a Nimsoft Tunnel between this Hub and another Hub?
==>no

We need to login to Nimsoft to set Tunnel options
Enter Nimsoft username and password...
Username: administrator
Password:

Is this Hub going to be a Tunnel Server?
==>no

Is this Hub going to be a Tunnel Server?
==>no

Is this Hub going to be a Tunnel Client?
==>yes

What is the IP address of the Tunnel Server Hub?
==>[] 10.1.1.6

What port is the Server listening on?
==>48003
What password was used to generate this certificate?
Type password:
Installing the robot on AS400

To install the Nimsoft infrastructure on an AS400 computer, follow these steps:

1. Open a web browser on the computer where you want to install the robot, and enter the URL of your Nimsoft Server:
   http://<servername_or_server_IPaddress>:8008/
   **Note:** You must specify port 8008 as shown to access the Nimsoft Server web page.

2. Click the Client Installation label on the left side of the page. The Client Installation section appears in the main window.

3. In the *Infrastructure* table, click the *iSeries Robot Program Files* link. The Download dialog pops up.

4. Click the **Save** button to save the *NimBUS.savf* file. This save file contains the program files for the iSeries Robot.

5. In the *Infrastructure* table, click the *iSeries Robot File Structure* link. The Download dialog pops up.

6. Click the **Save** button to save the *nimsoft.savf* file. This save file contains the file structure for the iSeries Robot together with some configuration files.

Continue with the procedure described below:

**On the AS400**

Create the user NIMBUS:
CRTUSRPRF USRPRF(NIMBUS) PASSWORD()
USRCLS(*SECOFR) TEXT('Nimbus User for Nimsoft Management')

Create temporary files for the 'save files':
CRTSAVF <<LIBRARY>>/NIMBUS TEXT('Savf of Nimsoft LIB')
CRTSAVF <<LIBRARY>>/NIMSOFT TEXT('Savf of Nimbus_Software')
Copy files from workstation to AS400

Copy the two files you saved during the Client Installation section above (NIMBUS.savf and NIMSOFT.savf) to the AS400:

\texttt{ftp <AS/400 name>}

Log on to the AS400 and run the following FTP commands:
\begin{itemize}
  \item \texttt{LCD <the folder where savefiles are located on the workstation>}
  \item \texttt{CD <LIBRARY where the temporary save files were created on AS400>}
  \item \texttt{BIN}
  \item \texttt{PUT NIMBUS.savf}
  \item \texttt{PUT NIMSOFT.savf}
  \item \texttt{Quit}
\end{itemize}

Installing the Robot

Restore \texttt{/qsys.lib/Nimbus.lib}
\begin{verbatim}
  RSTLIB SAVLIB(NIMBUS) DEV(*SAVF) SAVF(<LIBRARY>/NIMBUS)
\end{verbatim}

Restore \texttt{/Nimbus\_Software/NimBUS file-tree}
\begin{verbatim}
  QSYS/CRTDIR DIR('/Nimbus\_Software')
  QSYS/CRTDIR DIR('/Nimbus\_Software/NimBUS/')
  QSYS/RST DEV('/QSYS.lib/<<LIBRARY>>.lib/NIMSOFT.file')
  OBJ('/Nimbus\_Software/NimBUS/*')
\end{verbatim}

Edit the configuration file \texttt{/Nimbus\_Software/NimBUS/robot.cfg} according to the example below. The fields with bold text in the example below must be modified according to your system configuration.

\begin{verbatim}
<controller>
  domain = Nimsoft
  hub = Development
  hubrobotname = src1
  hubip = 10.0.0.10
  robotname = server3
  robotip = 10.0.0.11
</controller>
<remote>
  contip = 10.0.0.11
</remote>
\end{verbatim}

Start the robot with the command:
\texttt{STRSBS NIMBUS/NIMBUS}
The robot can be stopped with the command:

```plaintext
ENDSBS NIMBUS
```

**Note:** If you want to shut down the system/tcpip each night for backup, you should also stop Nimsoft and start it again after tcpip has been restarted.

Stopping and starting Nimsoft can be done in jobscte as described in the example below (stop time 01.00.00 and start time 07.00.00, every day):

```plaintext
ADDJOBSCTE JOB(ENDNIMSOFT) CMD(ENDSBS SBS(NIMBUS) DELAY(120)) FRQ(*WEEKLY) SCDDATE(*NONE) SCDDAY(*ALL) SCDTIME('01.00.00') USER(NIMBUS) TEXT('End Nimsoft')
ADDJOBSCTE JOB(STRNIMSOFT) CMD(STRSBS SBSD(NIMBUS/NIMBUS)) FRQ(*WEEKLY) SCDDATE(*NONE) SCDDAY(*ALL) SCDTIME('07.00.00') USER(NIMBUS) TEXT('Str Nimsoft')
```

If you later want to change the schedules, use WRKJOBSCTE.
Appendix A: Bulk Robot Deployment: Robot_msi_rpm Packages

Robot_msi_rpm packages provide a push alternative to the standard pull robot distribution method. They are useful when deploying robots in bulk to remote computers and virtual machines.

The robot_msi_rpm package set includes, as its name suggests, both Windows 32-bit & 64-bit MSI (Microsoft Installer) packages as well as Linux (SUSE and RedHat) 32-bit & 64-bit RPM (RedHat Package Manager) packages. These packages can be used with almost any third-party remote software deployment solution.

These packages can be found on the NM Server page <http://localhost:8008> along with other component install packages.

**Important:** The robot_msi_rpm installer packages require an answer file and are designed to execute silently.

This section contains the following topics:

- [Platform Support](#)
- [Requirements](#)
- [Robot Install Packages](#)

### Platform Support

The robot_msi_rpm installer packages are supported on these platforms:

- Red Hat Enterprise Linux (RHEL) version 5.6 or greater on X86 and AMD64 hardware
- SUSE Linux Enterprise Server (SLES) version 11.4 and greater on X86 and AMD64 hardware

### Requirements

The following software components are required:

- .NET 2.0 runtime library (or newer)
Robot Install Packages

- Microsoft Visual Studio C++ 2008 redistributable runtime library (or SP1)
  The library, either vcredist_x86.exe (32-bit) or vcredist_x64.exe (64-bit), can be downloaded from [www.microsoft.com](http://www.microsoft.com).
- Linux RPM packages require `/bin/sh` (bash) and `glibc`

Robot Install Packages

This section describes the robot_msi_rpm installer packages and how they are used with a third-party mass (remote) deployment mechanism.

Many IT environments already have a mass software deployment mechanism in place. Some examples are Puppet (Linux), Yum (Linux), Altiris (Windows), or Microsoft System Center Configuration Manager (Windows). However, nearly any similar mechanism can be used. All that is required is that the mechanism can do the following:

1. Copy the robot installer to the remote machine
2. Copy an answer file (in the format specified below)
3. Execute the installer

Answer File

The RPM and MSI packages require an answer file called ‘nms-robot-vars.cfg’.

This answer file is deployed to a directory on the target machine:

- In Windows this is the same directory in which you place the installer
- In Linux this is `/opt`
- An alternative to deploying an answer file is to place a robot configuration file (`robot.cfg`) in the `/opt/nimsoft/robot` directory prior to robot startup.

This can be done manually per robot or by using available automated deployment tools.

The format of the answer file should match the example below. Replace the capitalized text with your information. Fields marked in **bold** are the minimum required, others are optional.

**Note:** Optional fields with no answer are valid. However, if you rather not set a field to empty, don't include the field in the answer file.
domain = DOMAINNAME
robotip = ROBOTIPADDRESS
robotname = ROBOTNAME
robotip_alias = ROBOTIP_ALIAS
controller_port = CONTROLLER_PORT
spooler_port = SPOOLER_PORT
hubip = HUBIP
hub_dns_name = HUB_DNS_NAME
hubdomain = HUBDOMAIN
first_probe_port = FIRST_PROBE_PORT
hub = HUB
hubrobotname = HUBROBOTNAME
hubport = HUBPORT
access_0 = 0
access_1 = 1
access_2 = 2
access_3 = 3
access_4 = 4
secondary_domain = SECONDARY_DOMAIN
secondary_hub = SECONDARY_HUB
secondary_hubrobotname = SECONDARY_HUBROBOTNAME
secondary_hubip = SECONDARY_HUBIP
secondary_hubport = SECONDARY_HUBPORT
secondary_hub_dns_name = SECONDARY_HUB_DNS_NAME
secondary_robotip_alias = SECONDARY_ROBOTIP_ALIAS
robot_mode = ROBOT_MODE
os_user1 = OS_USER1
os_user2 = OS_USER2
set_qos_source = SET_QOS_SOURCE
system_uptime_qos = SYSTEM_UPTIME_QOS
autoremove = AUTOREMOVE
default_priority_level = DEFAULT_PRIORITY_LEVEL
proxy_mode = PROXY_MODE
proxy_log = PROXY_LOG
hub_update_interval = HUB_UPDATE_INTERVAL
loglevel = LOGLEVEL
logsize = LOGSIZE
logfile = LOGFILE
config_lock_timeout = CONFIG_LOCK_TIMEOUT
port_alive_check = PORT_ALIVE_CHECK
port_alive_include_local = PORT_ALIVE_INCLUDE_LOCAL
startup_timeout = STARTUP_TIMEOUT
suspend_on_loopback_only = SUSPEND_ONLOOPBACK_ONLY
temporary_hub_broadcast = TEMPORARY_HUB_BROADCAST
do_not_broadcast = DO NOT BROADCAST
unmanaged_security = UNMANAGED_SECURITY
send_alive = SEND_ALIVE
alarm_level_comfail_restart = ALARM_LEVEL_COMFAIL_RESTART
alarm_level_dispatch_error = ALARM_LEVEL_DISPATCH_ERROR
alarm_level_max_restarts = ALARM_LEVEL_MAX_RESTARTS
alarm_level_start_error = ALARM_LEVEL_START_ERROR
alarm_level_suspended = ALARM_LEVEL_SUSPENDED
alarm_level_timed_not_finished = ALARM_LEVEL_TIMED_NOT_FINISHED
alarm_level_timed_error_return = ALARM_LEVEL_TIMED_ERROR_RETURN
alarm_level_unregister = ALARM_LEVEL_UNREGISTER
alarm_level_request_error = ALARM_LEVEL_REQUEST_ERROR
alarm_level_postinstall = ALARM_LEVEL_POSTINSTALL
audit = AUDIT
audit_max_config_size = AUDIT_MAX_CONFIG_SIZE
audit_checkpoint_count = AUDIT_CHECKPOINT_COUNT
alarm_timeout = ALARM_TIMEOUT
wait_after_unregister = WAIT_AFTER_UNREGISTER
tz_offset = TZ_OFFSET
config_locking = CONFIG_LOCKING
capture_output = CAPTURE_OUTPUT
default_fail_window = DEFAULT_FAIL_WINDOW
max_restarts = MAX_RESTARTS

Note: RPM and MSI installers support all available fields for a robot. Full description of all Robot configuration parameters is documented in the Robot Controller technical brief.

Package Execution

The robot_msi_rpm installer packages differ from other installers in that they require an answer file. Robot_msi_rpm installer packages are designed to execute silently, so insure that the 'nms-robot-vars.cfg' file exists as described in the previous section.

These are the commands for executing the RPM and MSI install packages when installing manually or using a third-party installation tool:

<table>
<thead>
<tr>
<th>Install Package</th>
<th>Install/ Uninstall</th>
<th>Command(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSI (Windows)</td>
<td>Install</td>
<td>‘msiexec /i [msiname] /qn’ Other options can be specified. Here is an example specifying the target directory: ‘msiexec /i [msiname] /qn TARGETDIR=&quot;D:\Microsoft Application Center\”’</td>
</tr>
<tr>
<td></td>
<td>Uninstall</td>
<td>‘msiexec /x [msiname] /qn’</td>
</tr>
<tr>
<td>RPM (Linux)</td>
<td>Install</td>
<td>rpm -ivh [rpm_name]</td>
</tr>
<tr>
<td></td>
<td>Uninstall</td>
<td>rpm -e [rpm_name minus the ‘.rpm’ extension]</td>
</tr>
</tbody>
</table>
**Important:** In Linux, RPMs must be executed as ‘root’, so the username can only be a root user.

**Note:** RPM default behavior is to *not* auto-start the robot following installation. MSI default behavior *does* auto-start the robot.
Appendix B: Installing Nimsoft in an active/passive Microsoft Cluster

This section describes the steps to install the Nimsoft Server (or Hub/Robot) in an active/passive Microsoft Cluster. By doing so, you minimize the risk of having a single point of failure due to hardware problems or maintenance. All client applications (as well as other interconnecting Hubs) will operate as if nothing had happened if the cluster nodes change state.

The illustration below shows the various elements in the resource group that we need to define later.
One of the initial tasks is to install the infrastructural component that you require to run in a clustered environment. Typically a Nimsoft Server (or Hub) will be the target for an installation. Our example will install a Nimsoft Server to the S:\Nimsoft drive. This drive will in turn be part of the resource group together with a virtual IP address, name and service resource.

This section contains the following topics:

- **Preparations** (see page 112)
- **Installing and configuring** (see page 112)
- **Reinstalling Nimsoft in an active/passive Microsoft Cluster** (see page 119)

## Preparations

Before starting, make sure:

- you have administrative access to a 2-node cluster
- you have the appropriate disk hardware (RAID)
- All resources are available to both cluster nodes

We recommend *not* installing the Nimsoft Consoles (Infrastructure Manager, Enterprise Console and Service Level Manager) on the cluster nodes, but rather installing them on a workstation.

## Installing and configuring

Follow these steps to install and configure Nimsoft in a Microsoft Cluster:

1. Start Cluster Administrator from the Administrative Tools menu

2. Create a cluster group named Nimsoft.
3. Add an IP address resource from the action menu, e.g. 10.1.1.100
4. Add a Network name, e.g. cl-Nimsoft, enable the update dns checkbox.
5. Add a Physical disk, e.g. S:

Test whether the above configuration works by moving it from one cluster node to the other. Bring up a command shell from the Start/Run menu, and check that the virtual IP address is available using the ipconfig command, that you may access the disk resource by dir S:

6. Prepare to install the Nimsoft infrastructure component of your choice. We chose to install a complete Nimsoft Server.

7. Modify the install directory to e.g. S:\Nimsoft (the physical disk from the figure above).
8. Give the hub a name, e.g. CL-NIMSOFT and complete the installation acc. to your needs. Do not install Nimsoft consoles.

9. The installation program will detect multiple network interfaces and will present them in a list. Choose "Automatic".

10. Log in with Infrastructure Manager from another machine.

11. Configure the controller to use a specific IP address (use the virtual address set, see fig. 3) and override the robot name to e.g. 2003cluster.

12. Let the Robot and Hub restart and check for the changes made. If experiencing trouble with the data_engine and/or dashboard server probes, you can solve this by restarting the computer.

   **Note:** Changing IP invalidates security information in the Hub. If this is NOT the only Hub in the Domain, the Hub will get updated with security information from one of the other Hubs.
Otherwise, you should set the probes shown in the figure below to the access and IP-mask as shown (using the Security > Probe administration from the menu bar in the Infrastructure Manager) and then restart the computer.

13. Create a Generic Service resource in the Cluster Group Nimsoft, and enter NimsoftWatcherService as the service name. Add dependencies to the disk resource, IP address and network name. Add the following root-key to the Registry replication list, SOFTWARE\Nimsoft Software\Nimsoft Installation.

   Note: On 64-bit systems, it should look like this: SOFTWARE\Wow6432Node\Nimbus Software\Nimbus Installation

14. Bring the Nimsoft Service resource to an online state in the Cluster Administrator using the action menu on the selected item.

15. Install the vs2008_redist_x64 and vs2008_redist_x86 packages, available from Microsoft on the other cluster machines.

16. Register Nimbus.dll on the other computer (the one you are NOT installing from).

   Example: regsvr32 S:\Nimsoft\lib\Nimbus.dll

17. Export the "Nimbus Watch Service" entry from under "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services" and import it on to cluster member.

18. Reboot the computer for the DLL registration and the service entry to take effect.

Complete the installation on the second cluster node

1. Move the Nimsoft Cluster Group in the Cluster Administrator; observe that all resources should move, and that the Nimsoft Service resource is still in an online state.
2. Register Nimbus.dll on the other computer (the one you are NOT installing from). Example:
   regsvr32 S:\Nimsoft\lib\Nimbus.dll

3. Move the Nimsoft Cluster Groups between the nodes and verify that the Nimsoft probes come up on both nodes.

   You should now have Nimsoft running in your cluster.

## Reinstalling Nimsoft in an active/passive Microsoft Cluster

When reinstalling Nimsoft in an active/passive Microsoft Cluster, you should follow the steps below.

Perform an upgrade/reinstallation on the same server you did the previous installation of Nimsoft.

- Bring the Nimsoft Service offline in the Cluster Administrator.
- Upgrade/reinstall Nimsoft.
  Just ignore warnings that probes like data_engine, report_engine, sla_engine, group_server and so on, couldn't be enabled.
  Also ignore the warning "The installation did not complete successfully due to the following probe(s) that did not start...." and the recommendation for a full uninstallation.
  Bring the Nimsoft Service online again in the Cluster Administrator.
- Log into Infrastructure Manager and activate the probes which are not running.
- If upgrading Nimsoft Server from an version older than Nimsoft Server 3.60:
  Install the following files on the second cluster node:
  vcredist_x64.exe
  vcredist_x86.exe
  [Download link](http://www.microsoft.com/downloads/details.aspx?FamilyID=9b2da534-3e03-4391-8a4d-074b9f2bc1bf&DisplayLang=en)
Appendix C: Nimsoft Server Installation on Windows (legacy)

**Note:** The legacy installer only supports installation on Windows Server with an SQL Server database.

Follow this procedure to install Nimsoft Server on Windows using the legacy InstallShield wizard.

1. Login and download the Nimsoft Server software for Windows from the Nimsoft Customer Support Center site (http://support.nimsoft.com).

2. Start the installation by double-clicking the downloaded <Nimsoft Server.exe> installer package. Setup starts extracting files. Wait for the Welcome dialog to appear and click the Next button to continue.

3. The License Agreement dialog appears. Read the license agreement carefully and click Yes to continue if you accept the terms, otherwise click No to exit.

4. The next dialog asks you to enter the password for your domain administrator. Enter the password and click the Next button.

5. A dialog containing important installation information pops up. Read this information before clicking the Next button to continue.

6. Select where on your hard drive the files should be installed. You can usually accept the default <c:\Program Files (x86)\Nimsoft>. Click the Next button.
7. The next dialog enables you to select which components to install: Nimsoft Availability Server and/or Nimsoft SLM Server and/or Nimsoft Discovery ACE Components.

Ensure that the component(s) you want to install are checked then click Next.

**Note:** If you select the Nimsoft Discovery ACE Components, the SLM Server will also automatically be installed. The SLM component requires a database that must be case INSENSITIVE!

8. The next dialog lets you choose between Typical and Custom installation.

   Typical searches for existing Nimsoft components on your computer and installs the necessary software. Custom offers you the option of selecting Nimsoft components to be installed. Make your choice and click the Next button to continue.

9. The next dialog allows you to choose either the new Automatic Configuration Engine (ACE) or the legacy (original) ACE component for installation. Make your choice and click Next to continue.

10. The next dialog displays the settings selected so far in the installation process. Click the Back button if you want to change something or click the Next button to continue. The next dialog displays a status bar as Setup searches for previously installed Nimsoft components.

11. The next dialog prompts you for a Domain name (to which the Hub, which will be installed in the next step, will belong). Specify a name and click the Next button to continue.
12. This dialog prompts you for a Hub name. Specify a name and click the Next button to continue (if no name is specified, the name of your computer will be used).

**Note:** It is recommended that at least two Hubs should be installed on the same Domain and network to ensure you have a backup of the user/security data. See the Client Installations for instructions on how to install another Hub after this wizard is finished.

13. The **Hub License** dialog prompts you for a Hub license. On an initial installation, the license field contains an evaluation license string, valid for 30 days.

If it is an upgrade, you will have the option of selecting your existing license, or to use the evaluation license.

Click **Next** to continue.

14. **First Probe Port** dialog appears. You can specify a port number to be used when starting the probes, or leave this field blank if you wish the system to provide a port number. Click the Next button to continue.
15. At this point in the installation, and provided that you selected to install the SLA Server component in step 6, a dialog appears, asking what kind of database you are using.

**Important Note:** Only SQL Server is supported with the legacy installer. To install NM Server with MySQL or Oracle, use the InstallAnywhere-based installer, documented in the section "Nimsoft Server Installation on Windows (new)" (see page 60)."

Please use a login with sysadmin privileges when installing or upgrading a database:

a. If using an existing database, make sure that the login used for installation/upgrade maps to the database’s dbo.

b. If the database is created by the Nimsoft Server installation, the database’s dbo will automatically be mapped to the login used in the installation.

c. If you did NOT select to install the SLA Server component in step 7, clicking the **Next** button brings you to step 23.

If selecting the option **I have access to a SQL Server with database authentication**, clicking the **Next** button brings you to step 16.

If selecting the option **Using Windows authentication, I have access to a SQL Server**, clicking the **Next** button brings you to step 17.

If selecting the option **I will use MSDE or SQL Server Express**, clicking the **Next** button brings you to step 18.
16. You have selected the option **I have access to a SQL Server with database authentication** in step 15. Click the **Next** button and proceed with step 19.

17. You have selected the option **Using Windows authentication, I have access to a SQL Server** in step 15.

   If you have prepared the database as described in this dialog before you started this wizard, click the **Next** button and proceed with step 19.

   If the database was not prepared as described in this dialog before you started the wizard, you should now read the instructions in this dialog, and then click the **Cancel** button to finish the setup. Follow the instructions given in the dialog, and note that you must run the wizard again to install the SLM component.

18. You have selected the option **I will use MSDE or SQL Express** in step 15.

   If you have prepared the database as described in this dialog before you started this wizard, you click the **Next** button and proceed with step 19.

   If the database was not prepared as described in this dialog before you started the wizard, you should now read the instructions in this dialog, and then click the **Cancel** button to finish the setup. Follow the instructions given in the dialog, and note that you must run the wizard again to install the SLM component.

   The installation procedure is a bit awkward if you want to use SQL Server Express with the command line parameters depicted above. This is due to the fact that the program SQLEXPR.EXE extracts the real Setup files to a directory and then invokes the Setup.exe program (see http://msdn2.microsoft.com/en-us/library/ms143793(SQL.90).aspx).

   It is the Setup.exe program that recognizes the command line parameters SAPWD etc.

   For example:

   ```
   setup.exe SAPWD="<password>" SECURITYMODE=SQL DISABLENETWORKPROTOCOLS=0
   ```
19. In the next step, you must connect to a database server, using a valid server name, database user name and password.

Note that the server name must be prepended to `\SQLEXPRESS` if you are using SQL Server Express, e.g. `fluffy\SQLEXPRESS`.

Click the **Next** button to continue.

20. In this step you select the NIS database.

   Clicking **Simple**, you select to use the default database which will be created (if it does not exist). A new dialog appears, confirming the selected database settings. Click the **Next** button to continue. You will then proceed with step 22.

   Clicking **Advanced**, you are allowed to select a database from the list. You will then proceed with the next step.

21. Clicking **Advanced** in step 20, this dialog pops up, allowing you to select a database from the list (or create a new one). Make your choice and click the **Next** button.

22. Give the new database a name and click the **Next** button.

23. A new dialog appears, confirming the selected database settings. Note that if you are running a Custom installation, a dialog appears where you must select one of the databases listed. Click the **Next** button to continue.

24. At this point in the installation, and provided that you selected to install the Discovery ACE Components component in step 7, a dialog appears. This lets you select the network (or discovery scope) to be scanned for computer systems to be monitored.
Reinstalling Nimsoft in an active/passive Microsoft Cluster

Note: The dialogs in step 23-28 will be presented only once for each database, so if you use an existing database, these steps will be skipped.

The Discovery Agent needs to know which discovery scope (IP range) to explore and search for computer systems. This information must be specified here and can further be modified using Remote Administrator (or the NIS Manager). Specify a network as an IP address/mask or IP Address range. Optionally you may specify an exclude IP range, excluding parts of the network from the discovery.

If you wish to skip discovery during installation, do not leave the top field in the dialog box blank, as it will generate a syntax error message. You can minimize discovery by entering 127.0.0.1/24 (loopback) which will result in discovery finding only the machine you are installing on.

Specify the network and click Next to proceed.

Note that you may later modify the network specification in Remote Administrator (or the NIS Manager).

25. The devices found by the discovery process can later be found under the Dynamic Views node in the Enterprise Console (and the Unified Management Portal, provided that you install it afterwards), but they will NOT be monitored and will NOT send QoS values before you set them to Managed in the Remote Administrator (or the NIS Manager)!

This dialog lets you select the network authentication protocols to be used to communicate with the computer systems in the network specified. Valid options are Windows Management Instrumentation (WMI), Simple Network Management Protocol (SNMP), and Secure Shell UNIX login (ssh).
Make your selection and click **Next** to proceed.

26. Specify the community for SNMP authentication and a user name (Domain\username) and password the WMI authentication.

   **Note:** You may later modify these settings in Remote Administration (or NIS Manager).

    ![Nimsoft Server Setup](image)

    Click **Next** to proceed.

27. Specify authentication parameters for Secure Shell UNIX Login (ssh). Click **Next** to proceed.

28. Now a dialog appears, enabling you to select one or more Service Catalogs to be created in the database. Note that you may later add and delete Service Catalogs in Remote Administrator (or the NIS Manager).

    The different computer systems discovered on the network will be grouped into Service Catalogs, depending on type of computer system. Pre-defined filters define which kind of computer systems to be placed in the different Service Catalogs. These filters can be modified in Remote Administrator (or the NIS Manager). You can filter on a lot of parameters, such as IP-range, OS etc.

    Selecting the **Auto Configure Managed Systems only** option, a pre-defined configuration profile will be used for all computer systems set to Managed state in Remote Administrator (or the NIS Manager). The Managed state must be set manually for each of the system.
If this option is **not** set, the pre-defined configuration profile will be used for all computer systems, independent of state set in Remote Administrator (or the NIS Manager).

29. The next dialog shows the Discovery parameters chosen. If you want to modify these parameters, click the Back button and make your changes, and then proceed the wizard. Otherwise click the Next button to continue.

30. Setup starts copying files.

31. The Setup will now check if one or more of the Nimsoft user interfaces already are installed on your computer:
   a. Infrastructure Manager
   b. Service Level Manager
   c. Enterprise Console (note that this has been superseded by the Unified Management Portal (UMP) interface, installation of which is covered in Unified Management Portal Installation).

If any of these are found with older version than the current version (included in this installation package), the current version will be installed automatically. If not found, you will be asked if you want to install them.
Reinstalling Nimsoft in an active/passive Microsoft Cluster

**Note:** After each of these consoles has been successfully installed, you may be asked if you want to restart your computer. We recommend answering No and rather manually restarting your computer after the Nimsoft Server installation is completed.

32. When finished, the following dialog appears. Note the checkbox **Start Nimsoft Server window**.

When checked, the **Start Nimsoft Server window** will be launched when you have clicked the Finish button in this dialog.

Otherwise you will have to launch it by clicking the Nimsoft Server icon that will be added to your desktop.

Click the **Finish** button to exit.
Appendix D: MySQL Installation on Windows

This section contains the following topics:

- **MySQL Installation Guide** (see page 131)
- **Windows Installation** (see page 132)
- **Basic tuning configuration changes** (see page 134)
- **Deployment statistics and estimations** (see page 136)
- **Schema and data management** (see page 137)

MySQL Installation Guide


Standard Post installation configuration

To enable mysql startup at boot time, and simplify the server control, copy the server startup scripts to the relevant location:

From the mysql directory:

cp support-files/mysql.server /etc/init.d/mysqld

This allows the server to be started using:

/etc/init.d/mysqld [start|stop|restart|status]

Create an empty file: /etc/my.cnf (or modify one of the standard configurations as specified in [Basic tuning configuration changes](#) (see page 134))

Insert the following into the my.cnf file under the «mysqld» section:

```
[mysqld]
innoodb_file_per_table
slow_query_log_file=[path/to/chosen/location/for/slowlog.log]
datadir=[path/to/datafile/location]
```
Windows Installation


MySQL should be installed using the 'administrator' user to mitigate against problems with paths, environment variables or accessing the 'service control manager'. Once the installation is complete, however, MySQL does not require to be run as the administrator user.

Windows specific prerequisites and considerations

There are a number of potential issues to be aware of when installing MySQL on Windows. In no particular order:

1. If table sizes are expected to exceed 4GB, then MySQL must be installed on an NTFS or newer file-system.

2. Virus scanning software can sometimes generate erroneous alerts incorrectly identifying the datafile contents as malicious. This is due to the combination of the frequency of update of the MySQL datafiles and the fingerprinting used by some anti-virus packages. It is recommended that after installation, any anti-virus software be prevented from scanning the main data directory (datadir) and any other directory used by MySQL for temporary datafile creation.

3. Windows XP and later include a firewall which specifically blocks ports. If you intend to use MySQL through a network port then you should ensure the relevant ports are open before installation.
Installation procedure

The steps to perform the initial install of MySQL on windows, using the GUI interface of the MSI installer, is relatively straightforward.

1. Run the installer package.
2. Acknowledge any security warnings.
3. Select install type: For this installation, the Complete option is recommended. (If you wish to specify datafile locations, such as on a separate, high-performance disk, then select «custom» and specify the paths where required. This can be done post-install by rerunning the installer and selecting «modify» on the basis that there's no data installed as yet, as existing datafiles will not be copied).
4. In the Ready to install dialogue window select the Continue option. The installation proceeds.
5. Information regarding MySQL Enterprise appears on your screen, which can be ignored.
6. The basic install Wizard is now complete.

You now have the option to configure the MySQL instance, where you have the options to create the root password, additional users and other configurations such as the location of the datafiles.

On completion of the basic configuration, the installer allows you to «Register MySQL as a Service». This is the recommended option, as it allows control of MySQL from Window's Service Manager and ensures the database is started automatically, if required.

There are no specific post-installation steps to carry out from a Windows install, as the paths, directories, system tables and service manager registration are all carried out by the installer.
Basic tuning configuration changes

These basic tuning parameters are dependent on the hardware, memory, number of expected connections and throughput/queries per second. As more of this information is available and known, the configuration and tuning parameters can be modified to ensure optimal performance for the NIS database environment. However, without this information we are still able to establish a good initial setup with the parameters and configuration settings as follows.

There are, , a number of pre-populated my.cnf or my.ini configuration files bundled with MySQL, which are 'my-small', 'my-medium', 'my-large', and 'my-huge'.

Within those configuration files are indicators of the size of system for which they might be appropriate.

Once a configuration file has been chosen, additional adjustment of the parameters can be made depending on the performance of the hardware.

The **max_connections** parameters can be estimated based on the total RAM available with the following calculation:

\[
\frac{[\text{Total available RAM}] - [\text{Global Buffers}]}{\text{total size of thread buffers}}
\]

(The values of the following variables can be obtained by executing a «show variables» from the MySQL command line)

The [Global Buffers] can be calculated by summing the values of:
- key_buffer_size
- innodb_buffer_pool_size
- innodb_log_buffer_size
- innodb_additional_mem_pool
- net_buffer_length

The thread buffers size can be calculated by summing the values of:
- sort_buffer_size
- myisam_sort_buffer_size
- read_buffer_size
- join_buffer_size
- read_rnd_buffer_size

An estimate of the open_files_limit can also be calculated as double the number of max_connections summed with the table_cache.

Considering that this installation is InnoDB specific, we can suggest the following parameters as a starting point:
- **innodb_buffer_pool_size**: Typically 70%-80% of the RAM available.
Basic tuning configuration changes

- `innodb_log_file_size`: Depending on recovery speed requirements, 256Mb is seen as a good balance.
- `innodb_log_buffer_size`: 4 MB is a standard setting and is effective for most installations unless large amounts of binary data are in use.
- `innodb_flush_log_at_trx_commit`: This can make a significant difference to performance at the risk of losing the last second or two of data in the event of a crash, then this can be set to «2».
- `innodb_thread_concurrency`: The default value is 8 and is a good starting point.
- `innodb_flush_method`: To avoid double buffering and reduce swap usage, this setting of «O_DIRECT» can improve performance. (n.b. Without a battery-backed-up RAID cache write, IO may suffer)
- `innodb_file_per_table`: This must be set to take full advantage of disk data allocation in partitioning. It does not affect performance directly, but makes data management and disk/OS housekeeping more manageable.

All of the above parameters will appear in the my.cnf and can be changed there to be made available when the server is restarted.

Some parameters are dynamic and can be changed via the MySQL client for immediate benefit.

A complete list of the server option parameters, and their status as dynamic or configuration only can be seen in:


More accurate tuning can be performed once throughput, load and data-size are known.
Deployment statistics and estimations

The average row-length for the schema as seen in appendix Schema and data management (see page 137) is 170 bytes.

Deployments can be considered small, medium or large if they operate with insert rates of 1000 rows/second, 5000 rows/second or 20000 rows/second respectively.

- Small Deployment:
  1000 rows/second
  Average row length 170 bytes
  Data growth rate would be approximately 9.7 Mb/min or 12 GB per day.

- Medium Deployment:
  5000 rows/second
  Average row length 170 bytes
  Data growth rate would be approximately 48 Mb/min or 68 GB per day.

- Large deployment: destinies
  20000 rows/second
  Average row length 170 bytes
  Data growth rate would be approximately 194 Mb/min or 273 GB per day.

There are no specific disk configurations required to accommodate this data, as MySQL does not use the same logging configurations as other RDBMSs.
**Schema and data management**

The table schema is as follows:

```sql
CREATE TABLE `test`.`RN_QOS_DATA_xxxx` (  
  `table_id` int(11) NOT NULL,  
  `sampletime` timestamp NOT NULL,  
  `samplevalue` bigint(20) DEFAULT NULL,  
  `samplestdev` bigint(20) NOT NULL,  
  `samplerate` bigint(20) NOT NULL,  
  `samplemax` bigint(20) NOT NULL,  
  `compressed` tinyint(4) DEFAULT '0',  
  `tz_offset` bigint(20) NOT NULL,  
  `inserttime` timestamp NOT NULL,  
  PRIMARY KEY (`sampletime`,`table_id`)  
) ENGINE=InnoDB;
```
Appendix E: Modifications Made by the Installer

This appendix describes the modifications made on computers when Nimsoft is installed, such as:

- New folders
- Updated DLLs
- Registry entries

This section contains the following topics:

Modifications made when Nimsoft Server or Nimsoft Infrastructure is installed (Windows) (see page 139)
Modifications made when Robot is installed (Windows) (see page 140)

Modifications made when Nimsoft Server or Nimsoft Infrastructure is installed (Windows)

Valid on Windows Server 2003/2008

When installing the Nimsoft Server or Nimsoft Infrastructure, a VB runtime can be selected. When this is done, the following additional components are installed:

Windows system directory

`atl.dll`

Only updated if the existing version is old. This should not be the case on Windows XP or Windows 2000 with an updated service pack.

`asycfilt.dll`
`stdole2.tlb`

Only updated if nonexistent, or the existing version is old.

`comcat.dll`
`msvbvm60.dll`
`oleaut32.dll`
`olepro32.dll`

Only updated if nonexistent or the existing version is old. This dll is also registered.

<registered>

`...\Nimsoft\lib\Nimbus.dll`
Modifications made when Robot is installed (Windows)

Valid on Windows Server 2003/2008

.../Nimsoft

This is the product directory specified by the user and thus the directory where the
Nimsoft product files reside.

Normally this is C:\Program Files\Nimsoft Monitoring

Windows System directory

msvcrtd.dll (Microsoft C library)

Only updated if the existing version is old. This should not be the case on Window
XP or Windows 2000 with a recent service pack.

New Registry sections

HKEY_LOCAL_MACHINE\Software\Nimsoft Software
HKEY_LOCAL_MACHINE\Software\Nimsoft Software AS
HKEY_LOCAL_MACHINE\Software\Nimsoft Corporation

Stores some variables internally used by Nimsoft.

Start Menu\Programs\Nimsoft Monitoring

A common menu choice to start the Service Controller.

<services>

A service called ‘Nimsoft Watcher’. The service can be managed with the service
controller. The complete service can be removed with the command

...\Nimsoft\bin\Nimsoft -remove