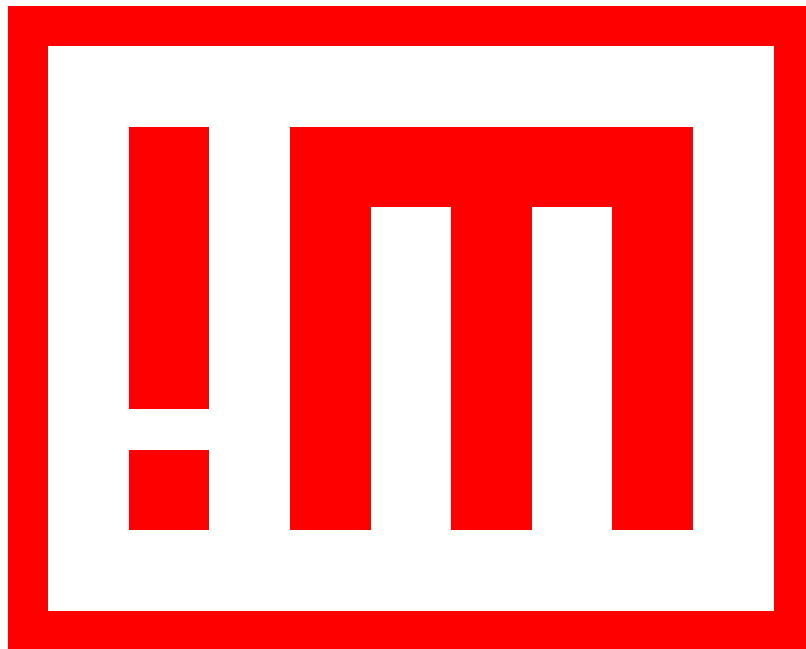


NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A



NX Server Manager Installation and Configuration Guide

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Index

1. NX Server Manager Installation	4
1.1. Document Conventions.....	4
1.2. Resources on the Web.....	4
2. What is NX Server Manager	5
2.1. What NX Server Manager Allows You to Do	5
2.2. What the NX Server Manager Package Includes.....	5
3. Installation of NX Server Manager	6
3.1. Available Packages and Supported Platforms.....	6
3.2. Prerequisites	6
3.3. Remarks to Installation Instructions.....	7
4. NX Server Manager Installation Instructions for Linux Platforms.....	7
4.1. Installing the NX Server Manager RPM Package.....	7
4.2. Updating the NX Server Manager Installation from RPM Package.....	7
4.3. Removing the NX Server Manager Installation from RPM Package.....	7
4.4. Installing the NX Server Manager DEB Package	8
4.5. Updating the NX Server Manager Installation from DEB Package	8
4.6. Removing the NX Server Manager Installation from DEB Package	8
4.7. Installing the NX Server Manager Compressed TAR Package.....	8
4.8. Updating the NX Server Manager Installation from Compressed TAR Package	9
4.9. Removing the NX Server Manager Installation from Compressed TAR Package	9
5. NX Server Manager Installation Instructions for Solaris Platforms.....	9
5.1. Installing NX Server Manager.....	9
5.2. Updating NX Server Manager.....	9
5.3. Removing NX Server Manager.....	10
6. Making NX Server Manager Operative.....	10
6.1. Configuring the Web Server to Run NX Server Manager	10
6.2. Configuring NX Server Manager	11
6.3. Setting the Proper Permissions for NX Server Manager	12
6.4. Running NX Server Manager.....	12
7. Administering NX Server Manager	12
7.1. Log-in as Administrator to NX Server Manager.....	13
7.2. Creating the List of NX Servers	13
7.3. Creating Web Users to Access NX Server Manager.....	13
7.4. Apply Access Restrictions to NX Server Manager	13
8. Administering the NX Server	13
8.1. Creating an Account with Administrative Privileges on NX Server.....	14
8.2. Log in to the NX Server.....	14
8.3. Administering NX Users.....	14

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

8.4. Enabling Profiles on NX Server.....	14
8.5. Set Profiles on a Per-System and Per-User Basis.....	14
8.6. Classes of Rules.....	14
8.7. Administering NX Sessions.....	15
8.8. Administering NX Nodes.....	15
8.9. Enabling the Multi-Node Support.....	15
8.10. Setting the Connection Type between NX Server and the Node	15
8.11. Disabling Starting of Sessions on the Node.....	16
8.12. Opening xterm on NX Server.....	16
9. Retrieving System and NX Statistics.....	16
9.1. Starting the NX Statistics Daemon.....	16
10. Configuring the NX Server.....	17
10.1. Changing the NX Server Settings.....	17
10.2. Restoring the NX Server Default Settings.....	18

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

1. NX Server Manager Installation and Configuration Guide

Welcome to the Installation and Configuration Guide for NX Server Manager version 3.x or higher. This document is intended to be an overview on how NX Server Manager can be installed and configured on your Operating System. It provides also some instructions for exploiting all functionalities provided by the Manager to administer your NX Servers.

1.1. Document Conventions

The following conventions are used in this guide:

- X.Y.Z-W indicates the version of the NX Server Manager package.
E.g. nxmanager-X.Y.Z-W.i386.rpm.
- Commands to be executed on command line via xterm or similar are tagged with a '#'.
- Commands to install, update and remove packages on Linux and Solaris are using the sudo utility. If you don't have the sudo utility installed, log on as superuser ("root") and run the commands without sudo.

1.2. Resources on the Web

The NoMachine Web site, www.nomachine.com, provides you with a variety of on-line resources in conjunction with the software and its usage:

The NX Packages

You can download the latest available version of the NX packages suitable for your O.S. at: <http://www.nomachine.com/download>

Latest News

Updated in real time with the most recent release of the NX software. You may also subscribe to the NX Announce ML: <http://www.nomachine.com/maillinglist.php>

The KnowledgeBase

The NoMachine Knowledge Base, <http://www.nomachine.com/kb>, makes available both technical documents and end-user oriented guides, as well as articles on specific topics and How Tos.

Leave feedback about this guide

Our goal is provide comprehensive and clear documentation for all the NX products. If you would like to send us your comments and suggestions, you can use the Web contact facility available at <http://www.nomachine.com/contactus.php> and selecting Web Quality

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

Feedback as your option.

2. What is NX Server Manager

NX Server Manager is a Web application, based on a perl CGI, which provides an easy-to-use interface for administering and monitoring NX Servers, users and sessions from whatever location.

2.1. What NX Server Manager Allows You to Do

NX Server Manager puts at your disposal:

- An administrative interface to configure and administer the NX Server Manager Web application, for example by defining the user level access to the Web application and creating the pre-defined list of NX Servers to be administered.
- 3 levels of Web users: the NX Server Manager administrator who can access the Manager's administrative interface, the manager users who can create their permanent list of NX Servers and the guest manager users who can create their own temporary list of NX Servers to be administered during the life of the NX Server Manager Web session.
- An administrative interface to manage NX Server, sessions and users once logged to the server. Note that there are 2 levels of users for the NX Server: the NX administrator, who has full control over the server functionalities and can administer NX sessions and users, and the user who can administer his/her own sessions through the NX Server Manager interface.

2.2. What the NX Server Manager Package Includes

The NX Server Manager package, named nxmanager, includes:

- The nxmanager binary written in Perl.
- The NX Server Manager front-end.
- A configuration file, manager.conf, to be included in the Web Server configuration file for deploying the application on the Web.
- A configuration file, manager.cfg, to be updated in order to fit the installation environment.

NX Server Manager is installed in the /usr/NX location, where:

- Binary, nxmanager, is placed in the /usr/NX/bin directory.
- The front-end set of images, templates and stylesheets is stored in the /usr/NX/share/htdocs/nxmanager/ directory.
- The configuration files, manager.conf and manager.cfg are available in the

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

/usr/NX/etc/ directory.

3. Installation of NX Server Manager

3.1. Available Packages and Supported Platforms

The following NX Server Manager packages are available:

- RPM, DEB i386/AMD64 for Linux
- Compressed TAR i386/AMD64 for Linux
- SPARC.GZ for Solaris SPARC

For a complete and updated list of the currently supported Platforms and Operating Systems, you may refer to the download page:

<http://www.nomachine.com/download.php>

3.2. Prerequisites

Before going ahead with the installation of NX Server Manager, please be sure you have installed a Web Server on your NX Server Manager host machine. Apache HTTP Server is suggested.

Installation environment

Operating System

- Linux kernel 2.2/2.4/2.6 (i386 or AMD/64) for SuSE, RedHat, Mandriva, Debian and a number of other Linux distributions
- SunOS kernel 5.8/5.9/5.10 (SPARC) for Solaris 8, 9 and 10.

Hardware requirements

- 400 MHz processor
- 128 MB RAM
- 15 MB free disk space on your hard drive
- Network connection (either a LAN, or Internet link: dial-up (minimum 33.6 Kbps modem), broadband, cable, DSL, etc...)

Software requirements

- Apache HTTP Server 1.3.x/2.x or a compatible Web server
- The SSH server daemon (SSHD)
- NX Client
- NX Node
- NX Server

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

End-user environment

Any browser supporting JavaScript.

3.3. Remarks to Installation Instructions

Once the installation of NX Server Manager has been completed, it is necessary to configure NX Server Manager to fit your environment and make the application accessible from the Web. Please refer to the 'Making NX Server Manager Operative' section of this guide.

4. NX Server Manager Installation Instructions for Linux Platforms

4.1. Installing the NX Server Manager RPM Package

- Open an xterm terminal or similar, move to the directory where you have downloaded the package from the NoMachine Web site.
- Install the package using the rpm utility:

```
# sudo rpm -ivh nxmanager-X.Y.Z-W.i386.rpm
```

Alternatively you can use the graphical package manager provided by your Linux distribution.

4.2. Updating the NX Server Manager Installation from RPM Package

- Open an xterm terminal or similar, make a backup of your current NX installation and protect sensitive information that may be present inside the TAR archive by making the backup readable only by the 'root' user:

```
# sudo tar cvzf /root/nx-BACKUP.tar.gz /usr/NX
# sudo chmod 0600 /root/nx-BACKUP.tar.gz
```

- Move to the directory where you have downloaded the package from the NoMachine Web site and run:

```
# sudo rpm -Uvh nxmanager-X.Y.Z-W.i386.rpm
```

4.3. Removing the NX Server Manager Installation from RPM Package

- Open an xterm terminal or similar and run:

```
# sudo rpm -e nxmanager
```

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

4.4. Installing the NX Server Manager DEB Package

- Open an xterm terminal or similar, move to the directory where you have downloaded the package from the NoMachine Web site.
- Install the package using the dpkg utility:

```
# sudo dpkg -i nxmanager_X.Y.Z-W_i386.deb
```

4.5. Updating the NX Server Manager Installation from DEB Package

- Open an xterm terminal or similar, make a backup of your current NX installation and protect sensitive information that may be present inside the TAR archive by making the backup readable only by the 'root' user:

```
# sudo tar cvzf /root/nx-BACKUP.tar.gz /usr/NX
# sudo chmod 0600 /root/nx-BACKUP.tar.gz
```

- Move to the directory where you have downloaded the package from the NoMachine Web site and run:

```
# sudo dpkg -i nxmanager_X.Y.Z-W_i386.deb
```

The dpkg utility will automatically uninstall the old version present on the system and install the new one.

4.6. Removing the NX Server Manager Installation from DEB Package

- Open an xterm or similar and uninstall the package using the dpkg utility:

```
# sudo dpkg -r nxmanager
```

4.7. Installing the NX Server Manager Compressed TAR Package

- Open an xterm terminal or similar. You should have downloaded the tar.gz package to the /usr directory. If not, move the package to the /usr directory:

```
# sudo mv nxmanager-X.Y.Z-W.i386.tar.gz /usr
# cd /usr
```

- Extract the archive:
sudo tar xvfz nxmanager-X.Y.Z-W.i386.tar.gz
- And install NX Server Manager:
sudo /usr/NX/bin/nxmanager --install

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

4.8. Updating the NX Server Manager Installation from Compressed TAR Package

- Open an xterm or similar, make a backup of your current NX installation and protect sensitive information that may be present inside the TAR archive by making the backup readable only by the 'root' user:

```
# sudo tar cvzf /root/nx-BACKUP.tar.gz /usr/NX
# sudo chmod 0600 /root/nx-BACKUP.tar.gz
```

- Ensure that the downloaded package is in the /usr directory and extract the archive:

```
# sudo tar xvzf nxmanager-X.Y.Z-W.i386.tar.gz
```

This operation will preserve the previous NX Server Manager configuration file.

- Set proper ownership and permissions on the NX Server Manager back-end:

```
# sudo /usr/NX/bin/nxmanager --update
```

4.9. Removing the NX Server Manager Installation from Compressed TAR Package

This operation will also remove the NX Client, the NX Node and the NX Server installations. Please note that it is advisable to uninstall the NX Server before removing the /usr/NX directory. This will ensure a clean installation of any successive NX Server version.

- Open an xterm or similar and remove the installation directory:

```
# sudo rm -rf /usr/NX
```

5. NX Server Manager Installation Instructions for Solaris Platforms

5.1. Installing NX Server Manager

- Open a terminal and move to the directory where you have downloaded the package from the NoMachine Web site.
- Expand the package archive and install it using the pkgadd utility:

```
# sudo gunzip nxmanager-X.Y.Z-WW.sparc.gz
# sudo pkgadd -d nxmanager-X.Y.Z-WW.sparc
```

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

5.2. Updating NX Server Manager

- Open a terminal, make a backup of your current NX installation and protect sensitive information that may be present inside the TAR archive by making the backup readable only by the 'root' user:

```
# sudo gtar cvzf /root/nx-BACKUP.tar.gz /usr/NX
# sudo chmod 0600 /root/nx-BACKUP.tar.gz
```

- Then remove the previous installation, otherwise the installation will fail because only a single instance of the package is supported at one time on the same system:

```
# sudo pkgrm NXmanager
```

- Expand the package archive and install it using the pkg utility:

```
# sudo gunzip nxmanager-X.Y.Z-WWW.sparc.gz
# sudo pkgadd -d nxmanager-X.Y.Z-WWW.sparc
```

5.3. Removing NX Server Manager

- Open a terminal and remove the NX Server Manager installation using the pkgrm utility:

```
# sudo pkgrm NXmanager
```

6. Making NX Server Manager Operative

In order to have your NX Server Manager fully operative you need to ensure that:

- You have configured the Web Server to run NX Server Manager.
- You have configured NX Server Manager to fit your environment.
- You have set the proper permissions for the NX Server Manager back-end.

IMPORTANT

It is strongly suggested you modify the NX Server Manager administrator password once logged in.

6.1. Configuring the Web Server to Run NX Server Manager

The NX Server Manager package provides a configuration file, namely /usr/NX/etc/manager.conf, containing the directives for the Web Server required to run the application. This file should be included in the Web Server configuration file. In the case of Apache Web Server, the configuration file is usually the httpd.conf file. It can be updated

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

by adding the following directive before the "Global Environment" section:

Include /usr/NX/etc/manager.conf

Then restart your Web Server.

Some possible locations for the Apache configuration file, depending on the Operating System and Apache Web Server version, are:

- Fedora release 8, Apache/2.2.8 /etc/httpd/conf/httpd.conf
- SuSE Linux 9.1, Apache/2.0.49 /etc/apache2/default-server.conf
- SUSE LINUX 10.1, Apache/2.2.0 /etc/apache2/default-server.conf
- Solaris Sparc 10, Apache/1.3.41 /etc/apache/httpd.conf

The manager.conf file provides the following directives:

Alias /nxmanager/ "/usr/NX/share/htdocs/nxmanager/"
ScriptAlias "/nxmanager" "/usr/NX/bin/nxmanager"

<Directory "/usr/NX/">
AllowOverride None
Options None
Order allow,deny

ADDRESS RESTRICTIONS START
Allow from all
ADDRESS RESTRICTIONS STOP

</Directory>

IMPORTANT

Please don't modify the comments related to the Address Restrictions. These are required to configure the restrictions via Web through the NX Server Manager application.

If your Apache configuration file provides restrictive directives, you should verify that they don't override the directives set in the manager.conf file.

6.2. Configuring NX Server Manager

The NX Server Manager package provides a configuration file, namely /usr/NX/etc/manager.cfg, containing the configuration variables needed by the Manager to

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

work properly in the hosting environment. Among them, there are defined username and group for the Web Server (namely Apache) user, which are necessary to set correct permissions for files constituting the NX Server Manager back-end.

In particular, you should ensure that the following keys are set according to the configuration of the Web Server on your system:

```
#
# Specify user name of Apache owner.
#
ApacheUname = "nobody"

#
# Specify group name of Apache owner.
#
ApacheGname = "nogroup"

#
# Specify the Apache reload command.
#
ApacheHTTPDReloadCommand = "/etc/init.d/apache2 graceful"
```

In order to make the new settings applied in the manager.cfg file effective, you need to run the NX Server Manager update procedure which will set the proper permissions on the NX Server Manager back-end.

6.3. Setting the Proper Permissions for NX Server Manager

Based on values set in the manager.cfg file for the Web Server user, the NX Server Manager update procedure sets proper ownership and permissions on the NX Server Manager back-end. This procedure can be executed by running:

```
# sudo /usr/NX/bin/nxmanager --update
```

6.4. Running NX Server Manager

NX Server Manager is a Web application based on perl CGI. You can run it by pointing your browser to the proper URL according to the CGI directory you have specified in the configuration file of your Web Server:

e.g. <http://localhost/nxmanager/>

7. Administering NX Server Manager

This section is intended for the NX Server Manager Web administrator.

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

The administrative interface of the NX Server Manager allows you to:

- Create Web accounts to access the NX Server Manager Web application with or without privileges for administering the NX Server Manager Web application.
- Apply restrictions to allow only a set of IP Addresses to access NX Server Manager.

7.1. Log-in as Administrator to NX Server Manager

The NX Server Manager application is provided with a default Web administrator user. You can enter the application the first time by using the following default credentials

Username: nxmanager
Password: nxmanager

IMPORTANT

It is strongly suggested you modify the NX Server Manager administrator default password once logged in.

7.2. Creating the List of NX Servers

Once you are logged in to NX Server Manager as Administrator or as a Manager User, you can create the list of NX Servers to be administered. This list is a personal one for each user.

7.3. Creating Web Users to Access NX Server Manager

As the NX Server Manager administrator you are able to create new Web user accounts for entering the Web application. These accounts can have administrative privileges set or can be Manager users, i.e. accounts that are able to fully exploit the NX Server Manager functionalities but don't have administrative control over the Web application itself.

7.4. Apply Access Restrictions to NX Server Manager

If you are logged-in to NX Server Manager as Administrator, you can enter the 'Access Restrictions' interface to restrict access to NX Server Manager to only those IP addresses that you have specified there. Your settings are applied to the manager.conf file, usually placed at /usr/NX/etc/, which is included into your Web Server configuration file.

8. Administering the NX Server with NX Server Manager

If you want to perform administrative operations on an NX Server, you need to log-in to the server by using an account which such privileges. As an alternative, you may log-

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

in to NX Server with a non-administrative account and manage your own items, for example you could monitor or terminate your sessions and change your password.

The following paragraphs mainly refer to administrative operations on NX Server.

8.1. Creating an Account with Administrative Privileges on NX Server

Open an xterm or similar on your NX Server host machine and execute the `nxserver --useradd` command with the `--administrator` option.

To create a new system account with administrative privileges:

```
# /usr/NX/bin/nxserver --useradd USERNAME --system --administrator
```

To give administrative privileges to an existing account:

```
# /usr/NX/bin/nxserver --useradd USERNAME --administrator
```

8.2. Log in to the NX Server

Once you are logged in to NX Server Manager and you have added your NX Server to the list, click on the server and provide your access credentials.

8.3. Administering NX Users

Besides having the complete list of all the active NX users on your server, you can create or remove accounts via NX Server Manager, as well as set profiles on a per-user basis, if your NX Server supports this capability.

8.4. Enabling Profiles on NX Server

Access via the NX Server Configuration interface of NX Server Manager. Choose the 'General' panel and set value 'Enabled' for the `EnableUserProfile` configuration key. Save this change to make it immediately effective.

8.5. Set Profiles on a Per-System and Per-User Basis

If your NX Server supports profiles, you can specify rules via NX Server Manager to set profiles on a per-system and/or on a per-user basis. When rules are set for the whole system, they apply to all user logins to NX Server. In the case of profiles set on a per-user basis, a different set of rules may be defined for each user.

The 'System Profile' section in the NX Server Manager interface allows for the definition of rules to be applied to the whole system.

In order to create a profile for the user, you should select the user from the NX Users list

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

and create proper rules which are specific for that user.

8.6. Classes of Rules

The number of rules that can be set to create a profile can be grouped in the following classes:

- Session - to allow/forbid the starting of a specific type of session (unix-kde, unix-gnome etc...)
- Service - to allow/forbid to run services such as media, printing and audio.
- Feature - to control features such as copy&paste or available bandwidth.
- Node - to allow/forbid the starting of sessions on a specific node.
- Startup script - to specify path of X window system startup script.

IMPORTANT

When a rule explicitly allows a class type, it implicitly forbids all the other types belonging to this class and vice-versa. That's to say, if you explicitly allow unix-kde sessions, you are forbidding all the other session types. If you forbid unix-kde sessions, you are allowing all the other session types. You can allow or forbid as many class types as you like.

Rules to allow/forbid access to node(s) can be set only when the multi-node support is enabled and the node(s) is added to the NX Node DB.

If you would like to disable copy&paste operations you need to deny both the client-clipboard feature and the server-clipboard feature.

8.7. Administering NX Sessions

The Session list interface of NX Server Manager allows you retrieve the whole NX Server history and manage running sessions: you may disconnect or terminate them, retrieve logs and protocol statistics and send a message. Messages can be sent to a specific session by selecting it in the Manager interface and accessing its Details section.

8.8. Administering NX Nodes

If your NX Server supports multi-node capabilities and load-balancing is enabled, the Nodes list section in NX Server Manager allows you to access the list of available nodes from which you can add, delete and modify each node. You might also want to temporarily disable starting of sessions on a particular node by means of the enable/disable functionality.

8.9. Enabling the Multi-Node Support

Access the NX Server Configuration interface via NX Server Manager. Select the 'General' panel and set value 'Enabled' for the EnableLoadBalancing configuration key. Finally make this change operative by saving it.

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

8.10. Setting the Connection Type between NX Server and the Node

When adding the Node, you can specify the connection type to be allowed between server and node. If the connection is not provided, the server assumes it is 'user', i.e., both unencrypted and encrypted connections can be allowed, depending on the value set for the EnableUnencryptedSession key in the /usr/NX/etc/node.cfg configuration file.

8.11. Disabling Starting of Sessions on the Node

You can disable/enable starting of sessions on the Node by selecting the node and clicking on the 'Enable/Disable' button.

8.12. Opening xterm on NX Server

If you have NX Client installed on your PC, you may run an xterm on an NX Server via NX Server Manager. By clicking on the console icon available in the secondary toolbar, you will be able to run the console application on the server.

9. Retrieving System and NX Statistics

With NX Server Manager you can visualize real-time graphics about both systems, such as for example, CPU usage, free memory, network traffic; and about NX sessions such as number of sessions running. All graphics are available on an hourly, weekly, monthly and yearly basis.

9.1. Starting NX Statistics Daemons

In order to produce statistics via NX Server Manager, you need to start the nxsensor daemon on the NX Node host and the nxstat daemon on the NX Server host. The nxsensor daemon is in charge of producing data that is then elaborated by nxstat and provided to the Manager. To start nxsensor, you need firstly to edit the node configuration file on the NX Node host. Enable the EnableSensor key in the node.cfg file and ensure that values set for the following keys do fit your environment:

StatisticsHost = "127.0.0.1"

The hostname or IP address where the nxstat daemon, in charge of collecting and elaborating data provided by nxsensor, will be assumed to be running.

NodeSensorPort = "19250"

The port where the NX server will contact nxsensor daemon to collect the statistics data. The key is also used by nxsensor to know the network interface where it will listen for incoming connections.

The commands to handle the nxsensor daemon, in charge of producing data related to the node host, are:

```
nxnode --sensor start
```


NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

```
nxnode --sensor restart
nxnode --sensor stop
```

In order to activate the nxstat daemon, edit the server configuration file available in the default installation at /usr/NX/etc/server.cfg to activate the EnableStatistics key and configure the following key to fit your environment:

ServerSensorPort = "19250"

Specify the port where the server will contact the nxsensor daemon to collect the statistics.

The commands to handle the nxstat daemon, in charge of elaborating the data provided by the nxsensor daemon running on the node host, are:

```
nxserver --statistics start
nxserver --statistics restart
nxserver --statistics stop
```

10. Configuring the NX Server

NX Server installs with a default configuration suitable for your Operating System. However, you might want to change some default settings to better fit your needs. You can use the 'Server Configuration' interface provided by NX Server Manager for this purpose.

10.1. Changing the NX Server Settings

The NX Server Configuration keys are grouped into the following categories:

General

To set general behaviour of the NX Server, as for example the authentication method to be used (System or NX authentication), enabling/disabling of advanced capabilities (multi-node support, profiles ...) and so on.

Session

To define settings specific for session management, such as log level, maximum number of concurrent sessions, desktop sharing and session shadowing behaviour and so on.

Custom scripts

To specify path to the scripts to be executed upon NX Server events such as: before user login, after user login, before session start-up, after session start-up etc...

Guest

To specify settings for the automatic creation of guest accounts. Note that these settings can be applied only if the server supports provision of guest users.

NOMACHINE		NX Server Manager Installation and Configuration Guide	
Prepared by: Silvia Regis		N°: D-904_001-NXM-MII	
Approved by: Sarah Dryell	Signature:	Date: 14/04/2009	Amended: A

Command

To specify the 'sessreg' command needed for tracking user's operations into utmp/wtmp files.

10.2. Restoring the NX Server Default Settings

Each section in the 'Server Configuration' interface has a 'Restore' button which allows you to revert to the default settings provided by the NX Server installation.