

# HP Network Automation

Software Version: 9.00

---

## Upgrade and Installation Guide

Document Release Date: December 2011  
Software Release Date: August 2010



## Legal Notices

### Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

### Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notices

© Copyright 2010–2011 Hewlett-Packard Development Company, L.P.

### Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

### Acknowledgements

ANTLR, Apache, Bouncy Castle, GNU, Jaxen, Jython, Netaphor, MetaStuff, Radius, Sleepcat, TanukiSoftware

## Documentation Updates

This guide's title page contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

This site requires that you register for an HP Passport and sign-in. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

## Support

You can visit the HP Software Support Online web site at:

**<http://www.hp.com/go/hpssoftwaresupport>**

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software Support Online provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the HP Software Support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.

To find more information about access levels, go to:

**[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)**

To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**



# Table of Contents

<b>Chapter 1: Getting Started .....</b>	<b>9</b>
Overview .....	10
HP Network Automation Support Matrix .....	10
NA 7.0.x and NA 7.2.x Users .....	10
NA 7.5.x and NA 7.60 Users .....	11
NA 9.00 Users .....	11
Upgrading Additional NA Components .....	11
Pre-Installation Checklist .....	12
Supported Platforms .....	16
64-bit Support .....	17
Increasing Memory Allocation .....	17
Allocating Additional Solaris Swap Space .....	18
Solaris CLI Installer .....	18
Supported Databases .....	18
Additional NA Configurations .....	19
Virtual Environments .....	19
Guidelines .....	19
System Requirements .....	20
Performance Issues .....	20
Troubleshooting .....	21
HP Live Network Service .....	21
Installing the HP Live Network Service .....	22
Summary Reports .....	22
 <b>Chapter 2: Upgrading to NA 7.60 .....</b>	 <b>23</b>
Getting Started .....	24
Operating System Upgrades .....	25
Operating System and Database Upgrades .....	26
Running the MySQL Upgrade Installer .....	26
Windows Platform .....	27
Linux or Solaris Platform .....	28
Running the NA 7.60 Service Pack Installer .....	30
Restoring Previous Customization .....	30
Windows Platform .....	31
Linux and Solaris Platforms .....	32
Upgrading Additional NA Components .....	33
NA AAA Log Reader .....	34
NA Syslog Reader .....	34

<b>Chapter 3: Upgrading to or Initially Installing NA 9.00 .....</b>	<b>37</b>
Getting Started.....	38
Upgrade and Installation Caveats.....	38
Upgrading to NA 9.00 .....	39
Operating System Upgrades .....	40
Database Upgrades .....	40
Operating System and Database Upgrades .....	41
Backing Up NA Files .....	42
Running the NA 9.00 Service Pack Installer .....	44
Restoring Previous Customization.....	44
Windows Platform .....	45
Linux and Solaris Platforms .....	45
Installing the latest NA Driver Pack .....	46
Upgrading Additional NA Components .....	46
NA AAA Log Reader .....	47
NA Syslog Reader .....	48
Installing NA 9.00 .....	49
MySQL Database Options .....	49
Oracle Database Options .....	50
Microsoft SQL Server Database Options .....	50
Installing Nmap on Solaris.....	51
Installing Nmap on Linux .....	52
Installing Nmap on Windows.....	52
Obtaining an NA 9.00 License .....	52
Deploying NA License Information .....	53
Windows Platform .....	55
Linux Platform .....	55
Solaris Platform .....	56
 <b>Chapter 4: Uninstalling NA and MySQL.....</b>	<b>59</b>
Overview .....	59
Uninstalling NA from Windows .....	60
Uninstalling NA from Linux or Solaris .....	61
Manually Uninstalling NA (Windows) .....	62
Uninstalling MySQL 5.0.58 (MySQL Installer) .....	63
Uninstalling MySQL 5.0.58 (NA Installer) .....	63
Uninstalling MySQL 3.23.55.....	64
 <b>Chapter 5: Starting/Stopping NA Services.....</b>	<b>65</b>
Windows Platform .....	65

Linux and Solaris Platform..... 65  
System Status Page ..... 66

**Appendix A: IPv6 Readiness..... 67**

Installation..... 67  
Supported Platforms..... 68  
Network Services ..... 68  
Clients..... 69  
IPv6 Presentation..... 69  
Development Environment ..... 69  
NA Features Supporting IPv6..... 70  
Drivers ..... 71

**Appendix B: Troubleshooting ..... 73**

Restoring Databases..... 73  
Port in Use ..... 76  
    Protocols, Databases, and Ports ..... 76  
Configuring the NA Syslog Server..... 79  
NA Architecture ..... 80  
User Authentication Crypto Key Exception ..... 82  
NA 7.60 Upgrade ..... 84  
MySQL Upgrade Installer..... 85  
Advanced Encryption Standard (AES) Encryption..... 86  
Using Gateways..... 86

**Index ..... 87**





# Chapter 1: Getting Started

Use the following table to quickly locate information.

Topic	Refer to:
Overview	<a href="#">"Overview" on page 10</a>
Network Automation Support Matrix	<a href="#">"HP Network Automation Support Matrix" on page 10</a>
Pre-Install Checklist	<a href="#">"Pre-Installation Checklist" on page 12</a>
Supported Platforms	<a href="#">"Supported Platforms" on page 16</a>
64-bit Support	<a href="#">"64-bit Support" on page 17</a>
Supported Databases	<a href="#">"Supported Databases" on page 18</a>
Additional NA Configurations	<a href="#">"Additional NA Configurations" on page 19</a>
Virtual Environments	<a href="#">"Virtual Environments" on page 19</a>
HP Live Network Service	<a href="#">"HP Live Network Service" on page 21</a>
Summary Reports	<a href="#">"Summary Reports" on page 22</a>

## Overview

This guide includes information on upgrading to or installing NA 9.00 on a single NA Core. Distributed System and Satellite configurations require additional information before upgrading. Please consult the Distributed System and Satellite documentation before following the instructions in this guide.

## HP Network Automation Support Matrix

For information on hardware and software requirements, database requirements, cross product compatibility, additional required applications, internationalization and localization support, and other installation requirements, refer to the *HP Network Automation 9.00 Support Matrix* available at [http://support.openview.hp.com/sc/support\\_matrices.jsp](http://support.openview.hp.com/sc/support_matrices.jsp).

**Note:** Access to the “support\_matrices” site requires an active HP software support contract, a valid Support Agreement ID (SAID) or system handle, and a valid HP Passport account.

## NA 7.0.x and NA 7.2.x Users

For NA 7.0.x and NA 7.2.x users upgrading to NA 9.00, you must:

1. If you are using MySQL 3.23.55 as the database platform, run the MySQL Upgrade Installer to upgrade to MySQL 5.0.58.  
Refer to **“Running the MySQL Upgrade Installer” on page 26** for information on the MySQL Upgrade Installer.
2. Run the NA 7.60 Service Pack Installer.  
Refer to **“Running the NA 7.60 Service Pack Installer” on page 30** for information on running the NA 7.60 Service Pack Installer.
3. Run the NA 9.00 Service Pack Installer Refer to **“Chapter 3: Upgrading to or Initially Installing NA 9.00” on page 37** for information on running the NA 9.00 Service Pack Installer.

**Note:** To ensure that no settings or files are lost during an upgrade, back up the entire NA directory to a safe location before starting the upgrade. The current NA

upgrade process does not restore the *<NA Install Dir>\jre\reporting.rcx* file. If you have customized the NA Summary Reports template or specification, such as adding additional report tabs, manually update the customized settings from the backed up version of the files to the new installed version of the file.

## NA 7.5.x and NA 7.60 Users

For NA 7.5.x and greater users, you can upgrade directly to NA 9.00. Refer to [“Chapter 3: Upgrading to or Initially Installing NA 9.00” on page 37](#) for information on installing NA 9.00.

**Note:** Before upgrading to NA 9.00, remove any existing *\*.backup* files from the *<NA install>/server/lib/scripts/Database/Truecontrol* directory.

## NA 9.00 Users

For NA 9.00, you can initially install NA 9.00. Refer to [“Chapter 3: Upgrading to or Initially Installing NA 9.00” on page 37](#) for information on installing NA 9.00.

## Upgrading Additional NA Components

Detailed information on upgrading Multimaster Distributed System, Horizontal Scalability, and Satellite configurations is included in their respective manuals. Refer to [“Additional NA Configurations” on page 19](#) for information.

## Pre-Installation Checklist

To successfully install HP Network Automation (NA), you should review the following pre-install checklist.

**Note:** When upgrading NA from a 32-bit operating system to a 64-bit operating system, all of the wrapper configuration files (files such as *jboss\_wrapper.conf* and *syslog\_wrapper.conf*) will be overwritten.

### Information

#### User Information

How many users will be using NA?

How many different roles will NA users represent?

Are you using individual credentials for tasks or single sign-on?

#### Installation Information

What is the FQDN of the server on which NA will be installed?

What OS will be running on the server onto which NA will be installed?

What path will NA be installed into?

Are there other applications running on the server on which NA will be installed?

What database will you be using (MySQL, Oracle, or Microsoft SQL Server)? (**Note:** If you are using Oracle, you will need to create an Oracle database. Please refer to your Oracle documentation for information on configuring an Oracle database.)

What is the fully qualified domain name of the database server?

For the database server, the user must have privileges to create users and databases. (**Note:** This information is needed during NA install to create the appropriate users and databases.)

What TCP port is the database listening on for remote connections?

If NA installs MySQL as part of the installation, what directory will MySQL be installed into? (**Note:** If MySQL is not installed on the same system as NA, what port is MySQL running on and what is its fully qualified domain name?)

Do you have the proper device credential information to access devices? (**Note:** Devices can be grouped by credential.)

## Information

Do any access-lists need to be modified for the NA server to access devices?

Do you have a device group plan?

Do you plan to use dynamic device groups?

Do you plan to create groups during a bulk import via a CSV file?

Do you plan on using detect network devices and do you have your IP address range(s)?

**Distributed System Configurations** (Refer to the *HP Network Automation 9.00 Multimaster Distributed System on Oracle User's Guide* or the *HP Network Automation 9.00 Distributed System on SQL Server User's Guide*)

Are you using Oracle or Microsoft SQL Server?

Are there firewalls or ACLs between the database servers?

What is the approximate bandwidth between database sites?

Are all NA servers and database servers configured for the same time zone and synchronized by a common time source?

Are you using the distributed system configuration for failover or load balancing (or both)?

What is the total number of NA Cores you are planning to configure? (**Note:** An NA Core is a single NA server and its attached database.)

## Syslog

Is there a Syslog server to which devices are sending messages?

Do you want devices to send Syslog messages to the NA server?

What is the fully qualified domain name of the Syslog server?

What OS is the Syslog server running?

What is the name and version of the Syslog server?

## Authentication

## Information

What type of authentication will be used for NA (Local, TACACS+, RADIUS, SecurID, TWIST, or LDAP)? Are you using HP Server Automation (SA)? What type of authentication will be used for devices (Local, TACACS+, RADIUS, or SecurID)?

- If you are using TACACS+ or RADIUS for authentication, what is the fully qualified domain name or IP address of the primary and secondary TACACS+ or RADIUS server? What is the shared secret for the NA host configured on the TACACS+ or RADIUS server? What type of authentication method is being used to encrypt the TACACS+ or RADIUS communication: PAP (the default), CHAP, or MSCHAP?
- If you are using LDAP for application authentication, what is the fully qualified domain name of the LDAP server? What is the LDAP port? What type of connection should be made to the LDAP Server (Regular or SSL)? What is the Domain User Account or User Principal Name of the user being used to make the connection to LDAP? What is the password for the user being used to make the connection to LDAP? What is the Search Base? What are the LDAP security groups that are allowed to access NA?
- If you are using HP Server Automation (SA) integrated authentication, what is the SA Twist Server fully qualified domain name? What is the HP SA Twist Username/Password? What is the OCC Server name?

## Device Connection

What type of connection do you allow to and from your devices:

- Telnet?
- SSH?
- SNMP?
- SNMPv3?
- SCP?
- FTP?
- Console?
- Bastion Host?
- Rlogin?
- TFTP?
- NAT?

## Email

What is the fully qualified domain name of your SMTP server?

## Information

What email address should NA use for an SMTP “From” address when sending email reports?

**Connectors** (Refer to the specific HP Network Automation Connector documentation for information on how to install and run HP Network Automation connectors.)

Are you using any NA Connectors, such as SMARTS InCharge, CA Unicenter NSM, Remedy AR system, HP Network Node Manager, CiscoWorks RME, or HP ServiceDesk?

## Sizing Information

How many nodes do you plan on managing with NA and over what period of time?

How long would you prefer to store old configuration files?

On average, how many lines are there in the configuration file.

The default database pruning options include:

- Configurations — saved for 365 days
- Diagnostics — Saved for 45 days
- Events — Saved for 45 days
- Tasks — Saved for 365 days
- Sessions — Saved for 45 days
- Log files — Saved for 30 days
- Task log files — Saved for 7 days
- Topology Data — Saved for 45 days
- Diagram files — Saved for 1 day
- All data — Saved for 365 days

## Workflow

Will workflow be enabled? If so:

- What group(s) need approval?
- What tasks need approval?
- Who can approve tasks?

## Satellite Gateways

### Information

Are you using Satellite Gateways? If so:

- What is the design goal for the Satellite Gateways (simplified network traffic, NAT'ed / overlapping IP addresses)?
- What OS will be used for each Satellite Gateway (Solaris or Linux)?

### Remote Proxy

Are you using a Remote Proxy? If so:

- What is the design goal for the Remote Proxy?
  - What OS will be used for the Remote Proxy(s)?
- 

## Supported Platforms

For information on supported platforms, refer to the *HP Network Automation 9.00 Support Matrix*. The following operation systems are no longer supported in NA 9.00:

- Windows Server 2000
- Solaris 9
- Red Hat AS3
- SuSE 9



## 64-bit Support

When installing NA on a supported 64-bit platform, NA uses the 64-bit Java Virtual Machine (JVM).

## Increasing Memory Allocation

To increase task throughput in NA, you can allocate more memory for the NA Management Engine process (the jboss server).

The memory allocated to NA is configured in the *\$NA/server/ext/wrapper/conf/jboss\_wrapper.conf* file. To change memory allocation, edit the following lines in this file:

```
wrapper.java.initmemory=1024  
wrapper.java.maxmemory=1024  
wrapper.java.additional.3=-Xmn340m
```

**Note:** The numbers are specified in megabytes.

For optimal performance, set the initial memory and maximum memory to the same value.

Java uses a generational garbage collector, which means that memory is divided into different areas. For the best performance, specify the size of the `wrapper.java.additional.3=-Xmn` line to about one-third of the maximum size.

**Note:** After modifying the *jboss\_wrapper.conf* file, restart NA from the command line (or Services applet on a Windows platform). If you restart NA from the Web UI, the changes to the *jboss\_wrapper.conf* file will be lost.

For additional information, contact HP support.

## Allocating Additional Solaris Swap Space

A large amount of swap space is required because of how the *fork()* system call works on Solaris. When you fork a 24 GB process, Solaris allocates 24 GB in the swap file. This guarantees that if the new process needs to be swapped out, it can be. If the 24 GB is not available in swap, the *fork()* system call fails.

In the case of NA, the 24 GB is not used. After the *fork()* system call, NA *exec()* a small image. As a result, NA does not force the system to use that much swap space. However, the system does need to have that much swap space allocated.

## Solaris CLI Installer

For NA 9.00, the Solaris CLI installer supports 64-bit. As a result:

- The Solaris CLI installer automatically installs 64-bit NA.
- The Solaris SPI will upgrade 32-bit NA to 64-bit NA.

## Supported Databases

For information on supported databases, refer to the *HP Network Automation 9.00 Support Matrix*. The following databases are no longer supported in NA 9.00:

- Oracle 9i and Oracle 9.2
- Microsoft SQL Server 2000
- MySQL 3

**Note:** Existing MySQL 3.x databases can be upgraded to MySQL 5.0.58 using the MySQL Upgrade Installer. Refer to [“Running the MySQL Upgrade Installer”](#) on page 26 for information.

## Additional NA Configurations

If you have configured a Multimaster Distributed System environment, refer to the *HP Network Automation 9.00 Multimaster Distributed Systems on Oracle User's Guide* or the *HP Network Automation 9.00 Multimaster Distributed System on Microsoft SQL Server User's Guide* for information on configuring a Distributed System environment.

For information on configuring a Horizontal Scalability system environment, refer to the *HP Network Automation 9.00 Horizontal Scalability User's Guide*.

If you have configured a Gateway and Satellite agent environment, refer to the *HP Network Automation 9.00 Satellite User's Guide* for information on configuring a Satellite environment.

**Note:** If you are running an NA/SA Satellite co-residency environment, you will need two CPUs, 4 GB RAM, and 128 GB disk space. You can only manage 1,500 servers and 5,000 network nodes.

## Virtual Environments

If you are running NA in a virtual environment, review the follow guidelines. Keep in mind that NA can be network intensive. As a result, if you have many virtual machines sharing a virtual switch and network interface card, you could experience unexpected behavior, including time-outs and failed tasks. In addition, each virtual environment is different and could function differently under loads with shared VM Guests.

## Guidelines

The guidelines for running NA in a virtual environment include:

- VMware guests can be run on a VMware ESX 3.5, VMware ESX 4.0, or VMware ESX 4.1 server (preferred). It is important that the Disk I/O be split. The ESX server must have two arrays, one for the ESX operating system and one for the virtual machines.
- Use of Vmotion is not recommended.
- If you plan to use virtual machines for both NA and your database, ensure they are running on different VMware Guests. Note that this only

works if you set a limit on managed devices and keep it low. It is recommended that you have the database on a different ESX host so there is no conflicting I/O on the array.

- If you plan to run VMware in a Distributed System or Horizontal Scalability environment, the maximum number of NA Cores should not exceed two.
- Some VMware Guests time drift. This can be an issue and should be corrected. Syncing to an external time source can solve this issue.

## System Requirements

Each NA VMware Guest system must be configured with a set reservation for CPU and memory. These reservations should, at a minimum, be double that of standalone server requirements. Ensure that the resource pool containing the NA VMware Guest system has adequate resources to consistently deliver the CPU and memory reservations to the NA VMware Guest system.

Refer to the *HP Network Automation 9.00 Support Matrix* available at [http://support.openview.hp.com/sc/support\\_matrices.jsp](http://support.openview.hp.com/sc/support_matrices.jsp) for standard system requirements.

## Performance Issues

If you are running NA in a virtual environment and there are performance issues, do the following:

- Increase hardware resources
- Ensure resources are dedicated through your ESX Administrator
- Decrease the number of VMware Guests running simultaneously
- Add a dedicated network interface card to the ESX server for NA to use exclusively

Significant performance degradation has been seen on ESX servers running multiple virtual machines where one or more virtual machine was under heavy

load. It is critical that the ESX server running NA in a virtual environment be properly resourced so performance degradation is not experienced.

**Note:** The number of managed devices does not have as significant of an impact on performance as the number of concurrent tasks. If performance issues are seen, reduce the number of concurrent tasks and ensure that NA is getting the appropriate resources.

## Troubleshooting

HP Support will endeavor to support NA in a VMWare environment, and HP does not require customers to recreate and troubleshoot every product issue in a non-virtual environment. However, HP reserves the right to request that customers diagnose certain issues in a native, certified operating system environment without the virtual image. HP will only make this request when there is reason to believe that the virtual environment is a contributing factor to the issue.

**Note:** Third-party products mentioned in this documentation are manufactured by vendors independent of HP. HP makes no warranty, implied or otherwise, regarding the performance or reliability of these products. We provide third-party contact information to help you find technical support. However, third-party contact information is subject to change without notice and, therefore, HP can in no way guarantee the accuracy of this contact information.

## HP Live Network Service

HP Live Network is a complementary content delivery service that is integrated into HP Network Automation and can deliver periodic network security and compliance content updates. The HP Live Network security and compliance service enables immediate assessment of network security and policy violations, as well as automated remediation options. HP Live Network includes valuable free content as well as subscription services.

**Note:** HP Live Network requires that the server hosting NA have access to the Internet.

## Installing the HP Live Network Service

To access the HP Live Network service, you need to install the HP Live Network Connector (LNC) via the LNC Installer.

If you launch the NA Installer from the NA distribution media, it will automatically copy the LNC Installer to the *\$NA\_HOME/installers* folder. The files include:

- Inc-setup.exe (Windows)
- Inc-setup-linux.zip
- Inc-setup-solaris.zip

For installation instructions, go to [https://h20034.www2.hp.com/HPLN\\_LNC\\_Users\\_Guide.pdf](https://h20034.www2.hp.com/HPLN_LNC_Users_Guide.pdf).

If for some reason the NA installer does not copy the LNC Installer to the *\$NA\_HOME/installers* folder, you can locate it in the *add-ons/livenetwork* folder on the distribution media or download it from <http://www.hp.com/go/livenetwork>.

**Note:** You need to register for a free HP Passport account so as to access the “livenetwork” site.

## Summary Reports

The Summary reports are generated in the Microsoft Excel (.xls) format. You can either run the Summary reports from a Windows client computer connected to your NA server or you can use another program to view the Summary reports if you are running NA on a Linux or Solaris platform.

# Chapter 2: Upgrading to NA 7.60

Use the following table to quickly locate information.

Topic	Refer to:
Getting Started	<a href="#">"Getting Started" on page 24</a>
Operating System and Database Upgrades	<a href="#">"Operating System and Database Upgrades" on page 26</a>
Running the NA 7.60 Service pack Installer	<a href="#">"Running the NA 7.60 Service Pack Installer" on page 30</a>
Upgrading Additional NA Components	<a href="#">"Upgrading Additional NA Components" on page 33</a>

## Getting Started

This section includes information on upgrading from NA 7.0.x and NA 7.2.x to NA 7.60. Once you have upgraded to NA 7.60, you can install NA 9.00. Refer to [“Chapter 3: Upgrading to or Initially Installing NA 9.00” on page 37](#) for information on upgrading to or installing NA 9.00.

**Note:** Do not run the NA Uninstaller before upgrading from NA 7.0.x or NA 7.2.x to NA 7.60.

The following steps provide an outline for single NA Core upgrade.

1. Stop all NA services. Refer to [“Chapter 5: Starting/Stopping NA Services” on page 65](#) for information.
2. To ensure that no settings or files are lost during the upgrade, backup the entire NA directory to a safe location. For example, if you installed NA in c:\NA, backup the entire directory to a safe location.
3. Be sure that you have backed up all of the data in the database. Refer to your database documentation for instructions on backing up the database or contact your Database Administrator.
4. Run the MySQL Upgrade Installer if NA is using a MySQL database. Refer to [“Running the MySQL Upgrade Installer” on page 26](#).
5. Run the NA 7.60 Service Pack Installer. Refer to [“Running the NA 7.60 Service Pack Installer” on page 30](#).

Keep in mind that NA services are not available during the upgrade process. In addition, once you run the NA 7.60 Service Pack Installer, you cannot rollback to the previous version of NA after upgrading to NA 7.60.



## Operating System Upgrades

When upgrading to NA 7.60, if you are going from a deprecated operating system, for example Windows 2000 or Solaris 9, to a supported NA 7.60 operating system, do the following:

1. Stop NA.
2. Backup the NA folder.
3. Upgrade the operating system.
4. Restart NA and verify that NA is working properly.
5. Follow the NA 7.60 upgrade steps.

**Note:** For all operating system upgrades, please refer to the vendor documentation and your system support personnel. HP is not responsible for issues that might arise during third-party product upgrade.

When upgrading to NA 7.60, if you are going from a deprecated version of the database, for example Oracle 9i, to a supported version of the database, do the following:

1. Stop NA.
2. Backup the NA database.

**Note:** When you enter a database name to identify the NA database, it must be in the identical case as the database name in the database application. For example, if you created your NA database as "Nadb," be sure to enter "Nadb" when backing up and restoring the database.

3. Upgrade the database. (For MySQL, refer to ["Running the MySQL Upgrade Installer" on page 26.](#))
4. Restart NA and verify that NA is working properly.
5. Follow the NA 7.60 upgrade steps.

**Note:** For all database upgrades, please refer to the documentation provided by the appropriate vendor and your DBA. If after upgrading to NA 7.60 you experience performance issues, such as the NA Home page taking a long time to load, it is recommended that your Oracle DBA perform a re-index of the tables in the NA database instance. This should be part of your regular Oracle maintenance tasks. HP is not responsible for issues that might arise during third-party product upgrades.

## Operating System and Database Upgrades

When performing both an operating system and database upgrade, do the following:

1. Stop NA.
2. Backup the NA folder.
3. Backup the NA database.

**Note:** When you enter a database name to identify the NA database, it must be in the identical case as the database name in the database application. For example, if you created your NA database as "Nadb," be sure to enter "Nadb" when backing up and restoring the database.

4. Upgrade the operating system.
5. Upgrade the database. (For MySQL, refer to ["Running the MySQL Upgrade Installer" on page 26.](#))
6. Restart NA and verify that NA is working properly.
7. Follow the NA 7.60 upgrade steps.

## Running the MySQL Upgrade Installer

If you are using MySQL as your NA database and upgrading from an NA release prior to NA 7.50, you must run the MySQL Upgrade Installer.

Before you perform the MySQL update, ensure that:

- The existing MySQL 3.23.55 database is working properly with NA, regardless of how it was initially installed, and that NA can connect to it.
- The NA version connecting to MySQL must be 7.0 or later.
- The existing MySQL 3.23.55 database is installed on one of the following OS platforms:
  - Windows 2003 Server
  - Red Hat Linux AS 3, Red Hat Linux AS 4, SuSE Linux 9
  - Solaris 10 (Solaris 9 is not supported. You must upgrade to Solaris 10 before upgrading MySQL.)

- NA services have been stopped.

**Note:** When running the MySQL Upgrade Installer, all the databases in the MySQL Data folder will be upgraded to MySQL 5.0.58, not just the NA databases.

## Windows Platform

To upgrade to MySQL 5.0.58 on a Windows platform:

1. Double click the *mysql-5.0.58-[nnnn]-[mmdyy]-windows.exe* installer file. [nnnn] is the build number and [mmdyy] is the date when the MySQL Update Installer was built.
2. Click Next after reading the introduction.
3. Select "Upgrade existing MySQL to version 5.0.58" and click Next.
4. Make sure both the MySQL Install folder and MySQL Data folder are correct and click the Next button. Note that the MySQL Install folder is the home folder where the existing MySQL 3.23.55 database is installed. The MySQL Upgrade Installer checks for the existence of the *bin\mysql.exe* file in this folder for validation. The MySQL Data folder is the folder where the existing MySQL 3.23.55 stores its database files. The MySQL Upgrade Installer checks for the existence of the *mysql\user.frm* file in this folder for validation.
5. Input the root password and port number of the existing MySQL 3.23.55 database and click Next. Note that the MySQL Upgrade Installer tries to locate the *my.ini* file in the Windows folder (usually located in C:\Windows or C:\Winnt). If the file is found, the MySQL Upgrade Installer parses it and extracts some MySQL variables. If the *my.ini* file cannot be located, the MySQL Upgrade Installer tries to connect to the existing MySQL 3.23.55 database using the account root of the given password. It then queries MySQL 3.23.55 for certain variables.
6. The MySQL Upgrade Installer opens a warning dialog box with the following message:

Previous MySQL installation (except MySQL data folder) is going to be removed. Make sure you have backed up the entire MySQL install folder and MySQL data folder before processing to the next step.

7. Click OK to continue the installation. Click Cancel to cancel the installation. If you click OK, the MySQL Upgrade Installer executes the following actions:
  - Stops the MySQL 3.23.55 engine.
  - Verifies that the given port is available.
  - Removes the MySQL Windows service if it exists.
  - Deletes all the files and folders (except MySQL data files in the MySQL Data folder) in the MySQL Install folder.
8. Click Install. The MySQL Upgrade Installer executes the following actions:
  - Installs the MySQL 5.0.58 files.
  - Places the *my.ini* file in the MySQL Install folder.
  - Configures the MySQL Windows service.
  - Starts MySQL 5.0.58 using the Windows service.
  - Verifies the root password provided earlier.
  - Runs the database upgrade scripts to upgrade all MySQL 3.23.55 databases in the MySQL Data folder. (Note that this could take up to several hours if you have a very large database.)
  - Restart MySQL.
9. Click Done to complete the MySQL 5.0.58 upgrade.

## Linux or Solaris Platform

To upgrade to MySQL 5.0.58 on a Linux or Solaris platform:

1. Login as root.
2. Copy *mysql-5.0.58-[nnnn]-[mmddy]-[linux|solaris].bin* from the CD/DVD to the local file system. Change its permission by running *chmod +x mysql-5.0.58-[nnnn]-[mmddy]-[linux|solaris].bin*. [nnnn] is the build number and [mmddy] is the date when the MySQL Upgrade Installer was built.
3. Run the MySQL Upgrade installer using the following command:  

```
./mysql-5.0.58-[nnnn]-[mmddy]-[linux|solaris].bin
```

4. Press Enter after reading the introduction.
5. Select "Upgrade existing MySQL to version 5.0.58" and press Enter.
6. Make sure that both the MySQL Install and MySQL Data folders are correct. Note that the MySQL Install folder is the home folder where existing MySQL 3.23.55 is installed. The MySQL Upgrade Installer checks the existence of *bin/mysql* file in this folder for validation. The MySQL Data folder is the folder where existing MySQL 3.23.55 stores its database files. The MySQL Upgrade Installer checks the existence of *mysql/user.frm* file in this folder for validation.
7. Input the root password and port number for the existing MySQL 3.23.55. Note that the MySQL Upgrade Installer tries to locate the */etc/my.cnf* file. If this file is found, the MySQL Upgrade Installer parses it and extracts some MySQL variables from it. If */etc/my.cnf* cannot be located, the MySQL Upgrade Installer tries to connect existing MySQL 3.23.55 using account root and the given password. It then queries MySQL 3.23.55 for certain variables.
8. The MySQL Upgrade Installer displays the following warning message:  

```
Previous MySQL installation (except MySQL data folder) is  
going to be removed. Make sure you have backed up the entire  
MySQL install folder and MySQL data folder before processing  
to the next step.
```
9. Select OK to continue the installation. Select Cancel to cancel the installation. If you clicked OK, the MySQL Upgrade Installer executes the following actions:
  - Stops the MySQL 3.23.55 engine. Note that if MySQL 3.23.55 cannot be stopped by the MySQL Upgrade Installer, a warning message is displayed for you to make sure MySQL 3.23.55 has been stopped. If the *ps -efl|grep mysql|wc -l* command returns 0, it means MySQL has been stopped. If MySQL is not stopped, manually enter the */etc/init.d/mysql stop* or *kill* command to stop it.
  - Verifies that given port is available.
  - Deletes the files and folders (except MySQL data files in MySQL Data folder) in the MySQL Install folder.

10. Press Enter after reading the Pre-Installation summary. The following actions are executed by the MySQL Upgrade Installer:
- Installs the MySQL 5.0.58 files.
  - Setup */etc/my.cnf*, */etc/init.d/mysql* and startup/shutdown in */etc/rc[n].d*.
  - Starts MySQL 5.0.58.
  - Verifies the root password provided earlier.
  - Runs the database upgrade scripts to upgrade all MySQL 3.23.55 databases in the MySQL Data folder. Note that this could take up to several hours if you have very large database.
  - Restarts MySQL.
11. Press Enter to complete MySQL 5.0.58 upgrade.

## Running the NA 7.60 Service Pack Installer

This section provides information on running the NA 7.60 Service Pack Installer. Before running the NA 7.60 Service Pack Installer, ensure that the database server is running.

**Note:** If the upgrade fails, save all log files to a location outside the NA directory structure before re-running the upgrade.

## Restoring Previous Customization

The current NA upgrade process does not restore the *<NA Install Dir>\jre\reporting.rcx* file. If you have customized the NA Summary reports template or specification, such as adding additional report tabs, manually update the customized settings from the backed up version of the file to the new installed version of the file.

All settings in the *site\_options.rcx* and *adjustable\_options.rcx* files are preserved and restored automatically. If you want to restore the *reporting.rcx* file, you must manually edit the new *reporting.rcx* file.

If you changed other *.rcx* files in the previous installation and want to keep those changes after upgrading, you should add those changes into the new *adjustable\_options.rcx* file. You cannot use the previous *.rcx* file to overwrite the new version. Doing so could cause the application to fail.

**Note:** All settings in the *[\$NA\_HOME]/server/ext/wrapper/conf/\*.conf* file and *[\$NA\_HOME]/server/ext/jboss/server/default/conf/log4j.xml* file are preserved and restored automatically.

## Windows Platform

For upgrading on a Windows platform, insert the NA 7.60 Service Pack Installer DVD into the DVD drive and do the following:

1. On the Windows taskbar, click Start, then click Run.
2. Enter: `[drive]:\windows_[nnnn]-[mmdyy]_spi_setup.exe`, where `[drive]` is the letter of your DVD drive, `[nnnn]` is the build number, and `[mmdyy]` is the build date.
3. Click OK.
4. Follow the instructions on the screen.

Refer to [“Upgrading Additional NA Components” on page 33](#) for information on upgrading other NA components, such as NA Satellites, NA Horizontal Scalability, the NA AAA Log Reader, and the NA Syslog Reader.

## Linux and Solaris Platforms

If you are installing the NA 7.60 Service Pack Installer on an NA Linux server, insert the DVD into the DVD drive and mount it. You must have root access to run the NA 7.60 Service Pack Installer.

1. `cd / [DVD_MOUNT_POINT]`, where `[DVD_MOUNT_POINT]` is the location of the DVD drive.
2. `cd linux`
3. `sh linux_[nnnn]-[mmddyy]_spi_setup.bin`, where `[nnnn]` is the build number and `[mmddyy]` is the build date.
4. Follow the instructions on the screen.

If you are installing the NA 7.60 Service Pack Installer on an NA Solaris server, insert the DVD into the DVD drive and mount it. You must have root access to run the Service Pack Installer.

1. `cd / [DVD_MOUNT_POINT]` where `[DVD_MOUNT_POINT]` is the location of the DVD drive.
2. `cd solaris`
3. `sh solaris_[nnnn]-[mmddyy]_spi_setup.bin`, where `[nnnn]` is the build number and `[mmddyy]` is the build date.
4. Follow the instructions on the screen.



## Upgrading Additional NA Components

The following optional components must be upgraded when upgrading NA:

- NA Multimaster Distributed System — When upgrading from NA 7.0.x or NA 7.2.x to NA 7.60, there are database schema changes that require updating your Multimaster Distributed System environment. Refer the *HP Network Automation 7.60 Multimaster Distributed System on Oracle User's Guide* or the *HP Network Automation 7.60 Multimaster Distributed System on SQL Server User's Guide* for upgrading detailed information.
- NA Horizontal Scalability — If you are using NA Horizontal Scalability, refer to the *HP Network Automation 7.60 Horizontal Scalability User's Guide* for detailed instructions on installing and configuring the Horizontal Scalability software.
- NA Satellites — If you are using NA Satellites, after NA 7.60 is installed, you must run the "Deploy Remote Agent" task to re-install the upgraded Satellite agent on all of the remote Gateways. Refer to the "Upgrading the Satellite" section in the *HP Network Automation 7.60 Satellite User's Guide* for detailed information.

## NA AAA Log Reader

If you are using the AAA Log Reader on your AAA server to provide real-time change detection, you will need to update the AAA Log Reader. To do this:

1. Backup the AAA Log Reader directory on your AAA server.
2. Copy `truecontrol-client.jar` located in the AAA folder on the Install CD to the AAA Log Reader directory. Overwrite the existing file.
3. Change the following four options in the `agent.rcx` file for correct error logging to appear in the `aaa_wrapper.log`. Change:

```
[option name="log/AAALogReader"]System.out[option]
```

```
[option name="log/AAALogReader/level"]0[option>
```

```
[option name="log/connect"]System.out[option]
```

```
[option name="log/connect/level"]75[option]
```

To:

```
[option name="log/External/AAALogReader"]System.out[option]
```

```
[option name="log/External/AAALogReader/level"]0[option]
```

```
[option name="log/System/Authenticate"]System.out[option]
```

```
[option name="log/System/Authenticate/level"]75[option]
```

4. Although not required, it is recommended that you install a new version of the JRE on the AAA Server, version 1.6.0. The various JRE installations can be found on the DVD at: `/add-ons/jre/`. (**Note:** This step is not necessary if the JRE is already installed.)

## NA Syslog Reader

NA uses Syslog messages to detect device changes in real-time. Some environments require the use of a Syslog Reader to forward messages from the Syslog server to NA. Typically, the Syslog Reader agent is only needed when a central Solaris Syslog server is in use, as Solaris is not RFC-compliant for Syslog.

**Note:** HP does not support directly assisting with the configuration of 3rd party Syslog servers (such as SyslogNG).

If you are using the Syslog Reader, it needs to be upgraded. When upgrading the NA 7.60 Syslog Reader:

1. Go to `/usr/local/NA/syslogreader/probe.rcx`.
2. In the `probe.rcx` file, make a note of the following lines:  

```
[option name="connect/AppServerURL"]SERVERNAME:1099[/option]  
[option name="SyslogReader/LogFile/FileName"]SOMEPATH/FILE[/option]
```
3. Stop the Syslog Reader.
4. Run `/etc/init.d/truecontrol.syslogreader stop`.
5. Remove the `/usr/local/NA` directory.
6. Follow the install instructions in the `ReadMe.txt` file. Be sure to include the correct values in the `probe.rcx` file from Step 2.



# Chapter 3: Upgrading to or Initially Installing NA 9.00

Use the following table to quickly locate information.

Topic	Refer to:
Getting Started	<a href="#">"Getting Started" on page 38</a>
Upgrading to NA 9.00	<a href="#">"Upgrading to NA 9.00" on page 39</a>
Upgrading Additional NA Components	<a href="#">"Upgrading Additional NA Components" on page 46</a>
Installing NA 9.00	<a href="#">"Installing NA 9.00" on page 49</a>

## Getting Started

This chapter provides information on:

- Upgrading to NA 9.00 from NA 7.60 using the NA 9.00 Service Pack Installer
- Performing a new NA 9.00 install using the NA 9.00 Install Wizard or CLI Installer

Keep in mind that NA services are not available during the upgrade process. In addition, once you run the NA 9.00 Service Pack Installer, you cannot rollback to the previous version of NA after upgrading to NA 9.00.

## Upgrade and Installation Caveats

Please be aware of the following caveats when installing or upgrading NA 9.00:

- The NA 9.00 Installer does not perform any sort of version checking. As a result, you could complete installations or upgrades on unsupported platforms.
- If you run a 64-bit NA full install or a Service Pack install on a 32-bit platform, the NA Installer will start and then quit without any error message.
- The Windows version of the NA Installer includes a black CLI window that runs in the background. Do not close this window or the install will end without prompting you. In addition, when performing NA installs over the network, for example running the *hpna\_win.exe* Installer from a remote share, you will see the black CLI window for several minutes.

## Upgrading to NA 9.00

The following steps provide an outline for single NA Core upgrade.

1. Stop all NA services. Refer to [“Chapter 5: Starting/Stopping NA Services” on page 65](#) for information.
2. To ensure that no settings or files are lost during the upgrade, backup the entire NA directory to a safe location. For example, if you installed NA in c:\NA, backup the entire directory to a safe location. Refer to [“Backing Up NA Files” on page 42](#) for information.
3. Be sure that you have backed up all of the data in the database. Refer to your database documentation for instructions on backing up the database or contact your Database Administrator.
4. Move any existing \*.*backup* files from the *<NA install>/server/lib/scripts/Database/Truecontrol* directory to a location outside the NA directory structure.
5. Run the NA 9.00 Service Pack Installer. Refer to [“Running the NA 9.00 Service Pack Installer” on page 44](#).

**Note:** If the upgrade fails, save all log files to a location outside the NA directory structure before re-running the upgrade.

6. Install the latest NA Driver Pack. Refer to [“Installing the latest NA Driver Pack” on page 46](#).

## Operating System Upgrades

When upgrading to NA 9.00, if you are going from a deprecated operating system, for example Windows 2000 or Solaris 9, to a supported NA 9.00 operating system, do the following:

1. Stop NA.
2. Backup the NA folder. Refer to [“Backing Up NA Files” on page 42](#) for information.
3. Upgrade the operating system.
4. Restart NA and verify that NA is working properly.
5. Follow the NA 9.00 upgrade steps.

**Note:** For all operating system upgrades, please refer to the vendor documentation and your system support personnel. HP is not responsible for issues that might arise during third-party product upgrade

## Database Upgrades

When upgrading to NA 9.00, if you are going from a deprecated version of the database, for example Oracle 9i, to a supported version of the database, do the following:

1. Stop NA.
2. Backup the NA database.

**Note:** When you enter a database name to identify the NA database, it must be in the identical case as the database name in the database application. For example, if you created your NA database as "Nadb," be sure to enter "Nadb" when backing up and restoring the database.

3. Restart NA and verify that NA is working properly.
4. Follow the NA 9.00 upgrade steps.



**Note:** For all database upgrades, please refer to the documentation provided by the appropriate vendor and your DBA. If after upgrading to NA 9.00 you experience performance issues, such as the NA Home page taking a long time to load, it is recommended that your Oracle DBA perform a re-index of the tables in the NA database instance. This should be part of your regular Oracle maintenance tasks. HP is not responsible for issues that might arise during third-party product upgrades.

## Operating System and Database Upgrades

When performing both an operating system and database upgrade, do the following:

1. Stop NA.
2. Backup the NA folder. (Refer to [“Backing Up NA Files” on page 42](#) for information.)
3. Backup the NA database.

**Note:** When you enter a database name to identify the NA database, it must be in the identical case as the database name in the database application. For example, if you created your NA database as "Nadb," be sure to enter "Nadb" when backing up and restoring the database.

4. Upgrade the operating system.
5. Restart NA and verify that NA is working properly.
6. Follow the NA 9.00 upgrade steps.

## Backing Up NA Files

In an enterprise environment, system administrators are usually required to periodically backup essential software applications. It is recommended that you use a commercial backup/restore utility to backup and restore the entire hard disk of the server that hosts NA. This minimizes risks of missed, corrupted, or misplaced files.

Before running the NA upgrade, create a full copy of your NA folder. During the NA upgrade, the NA Setup program automatically backs up critical NA files

After upgrading to NA 9.00, the installer automatically restores the following files:

- Device software images from the backup directory are copied to `[$NA_HOME]/server/images`.
- Summary reports from the backup directory are copied to `[$NA_HOME]/addins`.
- NA LiveNetwork content files are copied to `[$NA_HOME]/content`.
- The `site_options.rcx` and `adjustable_options.rcx` file from the backup directory are copied to `[$NA_HOME]/jre`, if you selected the "use the previous administrative settings" option during installation.
- The SecurID token file is restored.
- The Gateway encryption key is restored.
- The SSL public key certificate is restored.
- The `license.dat` file is restored if you do not have a new license file.

The following files are backed up. However, they are not restored during the NA upgrade:

- All *.rcx* files in the `[$NA_HOME]/jre` folder.
  - The *site\_options.rcx* and *adjustable\_options.rcx* files will be restored automatically if you select the "use the previous administrative settings" option during installation. All changes in other *.rcx* files will not be preserved.
  - If you want to restore the *reporting.rcx* file, you must manually edit the new *reporting.rcx* file.
  - If you changed other *.rcx* files in the previous installation and want to keep those changes after upgrading, you should add those changes into the *new adjustable\_options.rcx* file. You cannot use the previous *.rcx* file to overwrite the new version. Doing so could cause the application to fail.
- `[$NA_HOME]/server/ext/jboss/server/default/conf/log4j.xml` file. To restore previous settings, you must manually edit this file after upgrading. You cannot just use the previous file to overwrite the new version. Doing so could cause the application to fail.
- Wrapper configuration files in `[$NA_HOME]/server/ext/wrapper/conf`. To restore previous settings in *.conf* files, you must manually edit the corresponding file after upgrading. You cannot use the previous file to overwrite the new version. Doing so could cause the application to fail.

## Running the NA 9.00 Service Pack Installer

This section provides information on running the NA 9.00 Service Pack Installer. Before running the NA 9.00 Service Pack Installer, ensure that the database server is running.

### Restoring Previous Customization

The current NA upgrade process does not restore the *<NA Install Dir>\jre\reporting.rcx* file. If you have customized the NA Summary reports template or specification, such as adding additional report tabs, manually update the customized settings from the backed up version of the file to the new installed version of the file.

All settings in the *site\_options.rcx* and *adjustable\_options.rcx* files are preserved and restored automatically. If you want to restore the *reporting.rcx* file, you must manually edit the new *reporting.rcx* file.

If you changed other *.rcx* files in the previous installation and want to keep those changes after upgrading, you should add those changes into the new *adjustable\_options.rcx* file. You cannot use the previous *.rcx* file to overwrite the new version. Doing so could cause the application to fail.

**Note:** All settings in the *[\$NA\_HOME]/server/ext/wrapper/conf/\*.conf* file and *[\$NA\_HOME]/server/ext/jboss/server/default/conf/log4j.xml* file are preserved and restored automatically.

## Windows Platform

For upgrading on a Windows platform, insert the NA 9.00 Service Pack Installer DVD into the DVD drive and do the following:

1. On the Windows taskbar, click Start, then click Run.
2. Enter: `[drive]:\windows_[nnnn]-[mmddy]_spi_setup.exe`, where `[drive]` is the letter of your DVD drive, `[nnnn]` is the build number, and `[mmddy]` is the build date.
3. Click OK.
4. Follow the instructions on the screen.

Refer to ["Upgrading Additional NA Components" on page 46](#) for information on upgrading other NA components, such as NA Satellites, NA Horizontal Scalability, the NA AAA Log Reader, and the NA Syslog Reader.

## Linux and Solaris Platforms

If you are installing the NA 9.00 Service Pack Installer on an NA Linux server, insert the DVD into the DVD drive and mount it. You must have root access to run the NA 9.00 Service Pack Installer.

1. `cd / [DVD_MOUNT_POINT]`, where `[DVD_MOUNT_POINT]` is the location of the DVD drive.
2. `cd linux`
3. `sh linux_[nnnn]-[mmddy]_spi_setup_64.bin`, where `[nnnn]` is the build number and `[mmddy]` is the build date.
4. Follow the instructions on the screen.

If you are installing the NA 9.00 Service Pack Installer on an NA Solaris server, insert the DVD into the DVD drive and mount it. You must have root access to run the Service Pack Installer.

1. `cd / [DVD_MOUNT_POINT]` where `[DVD_MOUNT_POINT]` is the location of the DVD drive.
2. `cd solaris`
3. `sh solaris_[nnnn]-[mmddy]_spi_setup_64.bin`, where `[nnnn]` is the build number and `[mmddy]` is the build date.
4. Follow the instructions on the screen.

## Installing the latest NA Driver Pack

You must install the latest NA Driver Pack after you upgrade to or install NA 9.00, otherwise you could experience a regression in functionality. Go to <https://h20106.www2.hp.com/servlets/ProjectDocumentList?folderID=0&expandFolder=0&folderID=0> and download the latest NA Driver Pack. After the upgrade or install, install the latest NA Driver Pack.

## Upgrading Additional NA Components

The following optional components must be upgraded when upgrading NA:

- NA Multimaster Distributed System — When upgrading from NA 7.60 to NA 9.00, you must first upgrade to NA 7.50. There are database schema changes that require updating your Multimaster Distributed System environment. Refer the *HP Network Automation 9.00 Multimaster Distributed System on Oracle User's Guide* or the *HP Network Automation 9.00 Multimaster Distributed System on SQL Server User's Guide* for upgrading detailed information.
- NA Horizontal Scalability — If you are using NA Horizontal Scalability, refer to the *HP Network Automation 9.00 Horizontal Scalability User's Guide* for detailed instructions on installing and configuring the Horizontal Scalability software.
- NA Satellites — If you are using NA Satellites, after NA 9.00 is installed, you must run the "Deploy Remote Agent" task to re-install the upgraded Satellite agent on all of the remote Gateways. Refer to the "Upgrading the Satellite" section in the *HP Network Automation 9.00 Satellite User's Guide* for detailed information.

## NA AAA Log Reader

If you are using the AAA Log Reader on your AAA server to provide real-time change detection, you will need to update the AAA Log Reader. To do this:

1. Backup the AAA Log Reader directory on your AAA server.
2. Copy `truecontrol-client.jar` located in the AAA folder on the Install CD to the AAA Log Reader directory. Overwrite the existing file.
3. Change the following four options in the `agent.rcx` file for correct error logging to appear in the `aaa_wrapper.log`. Change:

```
[option name="log/AAALogReader"]System.out[option]
```

```
[option name="log/AAALogReader/level"]0[option>
```

```
[option name="log/connect"]System.out[option]
```

```
[option name="log/connect/level"]75[option]
```

To:

```
[option name="log/External/AAALogReader"]System.out[option]
```

```
[option name="log/External/AAALogReader/level"]0[option]
```

```
[option name="log/System/Authenticate"]System.out[option]
```

```
[option name="log/System/Authenticate/level"]75[option]
```

4. Although not required, it is recommended that you install a new version of the JRE on the AAA Server, version 1.6.0. The various JRE installations can be found on the DVD at: `/add-ons/jre/`. (**Note:** This step is not necessary if the JRE is already installed.)

## NA Syslog Reader

NA uses Syslog messages to detect device changes in real-time. Some environments require the use of a Syslog Reader to forward messages from the Syslog server to NA. Typically, the Syslog Reader agent is only needed when a central Solaris Syslog server is in use, as Solaris is not RFC-compliant for Syslog.

**Note:** HP does not support directly assisting with the configuration of 3rd party Syslog servers (such as SyslogNG).

If you are using the Syslog Reader, it needs to be upgraded. When upgrading the NA 9.00 Syslog Reader:

1. Go to `/usr/local/NA/syslogreader/probe.rcx`.
2. In the `probe.rcx` file, make a note of the following lines:  

```
[option name="connect/AppServerURL"]SERVERNAME:1099[/option]  
[option name="SyslogReader/LogFile/FileName"]SOMEPATH/FILE[/option]
```
3. Stop the Syslog Reader.
4. Run `/etc/init.d/truecontrol.syslogreader stop`.
5. Remove the `/usr/local/NA` directory.
6. Follow the install instructions in the *ReadMe.txt* file. Be sure to include the correct values in the *probe.rcx* file from Step 2.



## Installing NA 9.00

This section provides information on installing NA 9.00. The full NA 9.00 installation supports only 64-bit platforms. The following steps provide an outline for single NA Core installation:

- [Task 1: Prepare the Database](#)
- [Task 2: Install Nmap](#)
- [Task 3: Obtain and Deploy an NA License](#)
- [Task 4: Run the NA Installer](#)
- [Task 5: Install the Latest NA Driver Pack](#)

### Task 1: Prepare the Database

For information on database options, read the section appropriate to your database type:

- [“MySQL Database Options” on page 49](#)
- [“Oracle Database Options” on page 50](#)
- [“Microsoft SQL Server Database Options” on page 50](#)

### MySQL Database Options

Make note of the following MySQL Database options during installation:

1. If you want NA to install MySQL Enterprise Server 5.0.58, when prompted for the folder in which to install MySQL, do not select the NA Install folder or any sub-folder therein.
2. When prompted whether or not to create a new database or use an existing one, select the “Create New Database” option. Do not return to the previous step after the database has been created.

**Note:** If you want to use an existing NA database created by a previous NA installation, select the “using existing database” option. The database will be upgraded to the current version, if applicable.

## Oracle Database Options

**Note:** To enable future defragmentation of the NA tablespace, create the tablespace with automatic segment space management (ASSM).

Make note of the following Oracle Database options during installation:

1. When prompted for the Database Admin Login information, the user you enter must have the following privileges:
  - CREATE SEQUENCE
  - CREATE SESSION
  - CREATE TABLE
  - CREATE PROCEDURE
  - SELECT ANY DICTIONARY
2. When prompted to configure the database, select the “Clean database for use by NA” option. Do not return to the previous step after the database has been created.

**Note:** If you want to use an existing NA database created by a previous NA installation, select the “Use Existing Database” option, The database will be upgraded to the current version, if applicable.

## Microsoft SQL Server Database Options

Make note of the following Microsoft SQL Server Database options during installation:

1. When prompted for the Database Admin login, if you do not select the “Use Windows Authentication” option, make sure you have set all privileges at the global level.
2. When prompted whether or not to create a new database or use an existing one, select the “Create New Database” option.

**Note:** If you want to use an existing NA database created by a previous NA installation, select the “Use Existing Database” option, The database will be upgraded to the current version, if applicable.

## Task 2: Install Nmap

Install Nmap. Refer to “Installing Nmap on Solaris” on page 51, “Installing Nmap on Linux” on page 52, or “Installing Nmap on Windows” on page 52 for information.

### Installing Nmap on Solaris

Nmap enables you to scan networks to determine which hosts are up and the services they offer. Nmap has several installation prerequisites. Make sure you have the following installed before installing Nmap. These packages are available on the NA Install DVD or at <http://sunfreeware.com>.

- glib
- gtk
- openssl-0.9.7g
- pcre
- libgcc-3.3 or gcc-3.3.2 (libgcc-3.3 is preferred)

To install Nmap on Solaris, follow these steps:

1. `cd [$NA_HOME]/server/ext/nmap`
2. Unzip and add the packages using the following commands:  
`gunzip <filename>`  
`pkgadd -d <filename>`

For example:

```
cd [$NA_HOME]/server/ext/nmap
gunzip nmap-3.81-sol10-sparc-local.gz
pkgadd -d nmap-3.81-sol10-sparc-local
```

**Note:** The Nmap package that comes with NA 9.00 might not be compliant with all Solaris versions. Be sure to download the correct Nmap install packages for your Solaris versions.

3. Create a link to the nmap executable in the `$NA_HOME/server/ext/nmap` directory:

```
cd [$NA_HOME]/server/ext/nmap
ln -s /usr/local/bin/nmap nmap
```

## Installing Nmap on Linux

Nmap enables you to scan networks to determine which hosts are up and the services they offer. To install Nmap on Linux:

1. `cd [$NA_HOME]/server/ext/nmap`
2. Install the RPM package using the following command:  
`rpm -i <rpm file>`

For example:

```
cd [$NA_HOME]/server/ext/nmap
rpm -i nmap-3.81-1.i386.rpm
```

3. Create a link to the nmap executable in the `$NA_HOME/server/ext/nmap` directory:

```
cd [$NA_HOME]/server/ext/nmap
ln -s /usr/bin/nmap nmap
```

## Installing Nmap on Windows

The Nmap execution file that comes with NA 9.00 might not be compliant with all Windows versions. Be sure to download the correct Nmap install packages for your Windows versions.

## Task 3: Obtain and Deploy an NA License

Complete both of the following procedures:

- ["Obtaining an NA 9.00 License" on page 52](#)
- ["Deploying NA License Information" on page 53](#)

### Obtaining an NA 9.00 License

When installing NA 9.00, your current NA license will not work. NA 9.00 licenses are available on the Software Support Online site.

To obtain an NA 9.00 license, do the following:

1. Go to <http://support.openview.hp.com/support.jsp>.
2. Click **Sign-in with HP Passport** or the **Login** button, enter your credentials, and click the **Sign-in** button.
3. Click the **Downloads** tab.
4. Click the **Software Updates** box.
5. Click the **My Updates** link. The HP Passport Sign-in page opens.
6. Either select your Service Agreement ID (SAID) from the pull-down menu or enter your SAID, agree to the terms and conditions, and click **Submit**.
7. Expand the **Network Management Center** node.
8. Click the **T8975FAE** Network Automation, version 9 medium.
9. Click the **Get Software Updates** button.
10. Click the **Get Licensing** tab.
11. Click the **Get License** link. You will be prompted for information as to where to download the NA license.

## Deploying NA License Information

If you upgraded to NA 9.00 before downloading an NA 9.00 license, do the following:

1. Follow the instructions for obtaining an NA 9.00 license. Refer to **"Obtaining an NA 9.00 License" on page 52**.
2. Be sure that your NA 9.00 license file, *license.dat*, is located in the NA root directory.
3. Restart NA.

If you did a fresh install of NA 9.00 before downloading an NA 9.00 license, do the following:

1. Follow the instructions for obtaining an NA 9.00 license. Refer to ["Obtaining an NA 9.00 License" on page 52](#).
2. Be sure that your NA 9.00 license file, *license.dat*, is located in the NA root directory.

**Note:** You have the option of providing a path to the license file during installation.

If you do not have easy access to the NA server so as to copy the *license.dat* file, but can login to NA, do the following to update your NA license information:

1. Login to NA.
2. Open the *license.dat* file.
3. On the main menu under Help, click **About HP Network Automation**. The About Network Automation page opens.
4. Click the **View License Information** link. The License Information page opens.
5. Copy the new license text into the page and click the **Update License** button. The *license.dat* file is automatically updated.

## Task 4: Run the NA Installer

If you are installing NA 9.00 on a Windows platform, run the NA 9.00 Install Wizard. If you are installing NA 9.00 on a Linux or Solaris platform, run the NA 9.00 CLI Installer.

**Note:** Be sure you have ActivePerl 5.8.x (for Windows) or Perl 5.8.x (for Solaris and Linux) installed before installing NA 9.00.

**Note:** If the installation fails, save all log files to a location outside the NA directory structure before re-running the installation.

Read the section appropriate to your operating system type:

- [“Windows Platform” on page 55](#)
- [“Linux Platform” on page 55](#)
- [“Solaris Platform” on page 56](#)

## Windows Platform

With Administrator privileges, do the following to install NA:

1. On the Windows taskbar, click Start, and then click Run.
2. Enter: `<drive>:\windows_[nnnn]-[mmddyy]_setup.exe`, where `<drive>` is the letter of your CD-ROM drive and `[nnnn]-[mmddyy]` is the build number.
3. Click OK.

Follow the instructions on the screen.

**Note:** Setup does not work with PC Anywhere. If you attempt to run Setup through PC Anywhere, you cannot view the windows to step through the installation. This also affects uninstalling NA.

## Linux Platform

If you are installing NA on a Linux server, enter the following commands to mount a CD drive. It is not mounted automatically. You must login as root.

1. `#> mount /mnt/cdrom`
2. `#> cd /mnt/cdrom`
3. `#> cd linux`
4. `#> ./linux_[nnnn]-[mmddyy]_setup_64.bin`

Follow the instructions on the screen.

**Note:** The GUI installer is no longer supported on Linux.

## Solaris Platform

For NA 9.00, the Solaris CLI installer supports 64-bit. As a result:

- The Solaris CLI installer automatically installs 64-bit NA.
- The Solaris SPI will upgrade 32-bit NA to 64-bit NA.
- When upgrading to 64-bit NA, all of the wrapper configuration files (files such as *jboss\_wrapper.conf* and *syslog\_wrapper.conf*) will be overwritten. Any user-specified settings will be reset. For example, if you had set the *Jboss\_wrapper.conf* to start NA with 1GB Java Heap memory, the setting will be overwritten to the NA default.

To install NA 9.00 on Solaris, first download the latest Solaris patches from the Sun Web site: <https://www.sun.com>

Before installing NA on a Solaris 10 platform, you must reconfigure the Syslog server on Solaris 10 to not listen for remote Syslog messages on port 514.

1. Edit the */etc/default/syslogd* file and set `LOG_FROM_REMOTE=NO`.
2. Restart the Syslog server. Enter: `svcadm refresh svc:/system/system-log:default`

**Note:** NA can run on Solaris 10 01/06 and Solaris 10 06/06. To maximize the performance of Solaris 10's Dynamic Resource Pools and Fair Share Scheduler (FSS) features, it is recommended that you run Solaris 10 on servers such as Sun Fire T1000 or T2000.

Enter the following commands to install NA manually. Be sure to change to the drive on which you want to install NA. At the shell prompt, enter:

1. `su root` [when prompted, enter the password]
2. `cd /cdrom/`
3. `sh solaris_[nnnn]-[mmddy]_setup_64.bin`

Follow the instructions on the screen.

**Note:** The GUI installer is no longer supported on Solaris. On Solaris, the NA installer moves the existing */etc/syslog.conf* file to */etc/syslog.conf.rm* and then restarts the Syslog process using its own configuration.



## Task 5: Install the Latest NA Driver Pack

You must install the latest NA Driver Pack after you install NA 9.00, otherwise you could experience a regression in functionality. Go to <https://h20106.www2.hp.com/servlets/ProjectDocumentList?folderID=0&expandFolder=0&folderID=0> and download the latest NA Driver Pack. After the upgrade or install, install the latest NA Driver Pack.



# Chapter 4: Uninstalling NA and MySQL

Use the following table to quickly locate information.

Topic	Refer to:
Overview	<a href="#">“Overview” on page 59</a>
Uninstalling from Windows	<a href="#">“Uninstalling NA from Windows” on page 60</a>
Uninstalling from Linux and Solaris	<a href="#">“Uninstalling NA from Linux or Solaris” on page 61</a>
Manually Uninstalling NA	<a href="#">“Manually Uninstalling NA (Windows)” on page 62</a>
Uninstalling MySQL 5.0.58 (MySQL Installer)	<a href="#">“Uninstalling MySQL 5.0.58 (MySQL Installer)” on page 63</a>
Uninstalling MySQL 5.0.58 (NA Installer)	<a href="#">“Uninstalling MySQL 5.0.58 (NA Installer)” on page 63</a>
Uninstalling MySQL 3.23.55	<a href="#">“Uninstalling MySQL 3.23.55” on page 64</a>

## Overview

Uninstalling NA requires several steps. The most significant steps are uninstalling NA itself and removing related components from either Windows, Solaris, or Linux. If you chose to install a MySQL database with NA, you may want to uninstall that database at the same time, however, you permanently lose your historical data if you delete the database.

**Note:** MySQL must be uninstalled separately.

Keep in mind when uninstalling NA, the uninstall does not drop the database. If you manually drop the database, you must ensure that those files are removed before trying to re-install NA.

**Note:** If the uninstall fails, save all log files to a location outside the NA directory structure before re-running the uninstall process.

## Uninstalling NA from Windows

The following steps assume you installed NA using the default directories and names. If you installed NA in a different directory or used different names, adjust accordingly.

To uninstall NA from Windows, do the following:

1. Click Start g Programs g HP Network Automation g Uninstall HP Network Automation.
2. Click Uninstall.
3. When the uninstall program is done, click Finish.
4. A message appears saying that you must reboot. The folder `c:\NA` (the installation folder) is removed when you reboot the computer.
5. You can delete the following:

`c:\windows\Temp\Rendition`

**Note:** If you upgraded to a newer version of NA on a Windows platform, the NA Uninstaller does not remove the FTP service. As a result, after uninstalling NA, enter the `sc delete TrueControlFTP` command from the command line prompt to delete the FTP service.

## Uninstalling NA from Linux or Solaris

To uninstall NA from Linux or Solaris, do the following:

As root:

1. Navigate to the InstallDirectory/UninstallerData directory (for example: `/opt/NA/UninstallerData`).
2. Enter: `#!/Uninstall_HP_Network_Automation`
3. There are files left in other locations to preserve your settings, logs, and scripts in case you reinstall NA. If you want to completely purge NA from your system, manually delete all files (for example:  
`# rm -rf /opt/NA`).
4. You can delete the following:

`/var/Rendition`

## Manually Uninstalling NA (Windows)

If the NA uninstaller makes no progress for over 10 minutes stop the NA uninstaller process and do the following:

1. Run the following commands to stop all NA services:

```
{%NA_HOME%}\server\ext\wrapper\bin\UninstallAAAWrapper-NT.bat  
{%NA_HOME%}\server\ext\wrapper\bin\UninstallJBossWrapper-NT.bat  
{%NA_HOME%}\server\ext\wrapper\bin\UninstallSWIMWrapper-NT.bat  
{%NA_HOME%}\server\ext\wrapper\bin\UninstallSyslogWrapper-NT.bat  
{%NA_HOME%}\server\ext\wrapper\bin\UninstallTFTPWrapper-NT.bat
```

2. Delete the NA folder.
3. Delete the following Windows registry keys if they exist:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Rendition Networks\TrueControl  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TrueControlJBoss  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TrueControlAAA  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TrueControlJBossSWIM  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TrueControlJBossSyslog  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TrueControlJBossTFTP
```

4. Manually delete the `%WINDIR%\temp\Rendition` folder. (Note: `%WINDIR%` is usually located in `C:\WINDOWS` or `C:\WINNT`. However, it might reside on a different drive.)

## Uninstalling MySQL 5.0.58 (MySQL Installer)

This section includes information on uninstalling MySQL 5.0.58 if MySQL 5.0.58 was installed by the MySQL Installer.

On a Windows platform, to uninstall the MySQL Upgrade Installer, double-click `[$MYSQL_HOME]\Uninstall_MySQL\Uninstall MySQL.exe` and follow the instructions in the MySQL Uninstaller. Note that `[$MYSQL_HOME]` is the location where MySQL is installed.

**Note:** The MySQL data folder will not be removed.

On a Linux or Solaris platform, to uninstall the MySQL Upgrade Installer, run `[$MYSQL_HOME]/Uninstall_MySQL/Uninstall_MySQL` and follow the instructions in the MySQL Uninstaller. Note that `[$MYSQL_HOME]` is the location where MySQL is installed.

**Note:** The MySQL data folder will not be removed.

## Uninstalling MySQL 5.0.58 (NA Installer)

This section includes information on uninstalling MySQL 5.0.58 if MySQL 5.0.58 was installed by the NA Installer.

To uninstall MySQL 5.0.58 on a Windows platform:

1. Double click `[$MYSQL_HOME]\bin\remove-service.bat`.
2. Backup the MySQL data folder if necessary.
3. Manually delete `[$MYSQL_HOME]`. Where `[$MYSQL_HOME]` is where MySQL is installed.

To uninstall MySQL 5.0.58 on a Linux or Solaris platform:

1. Run `/etc/init.d/mysql stop`
2. Backup the MySQL data folder if necessary.
3. Run `rm -rf /etc/init.d/mysql /etc/my.cnf [$MYSQL_HOME]`, where `[$MYSQL_HOME]` is where MySQL is installed (`/opt/mysql` is the default).

## Uninstalling MySQL 3.23.55

**Warning:** *Uninstalling the MySQL3.23.55 database permanently deletes your historical data. There is no undo.*

On a Windows platform:

1. Click Start g Settings g Control Panel g Administrative Tools g Services. Right-click MySQL and select Stop.
2. Click Start g Run, then enter `cmd`.
3. Enter `c:\mysql\bin\mysqld-max-nt.exe --remove`. This assumes you installed MySQL to the folder `c:\mysql`.
4. In the Services window, verify that the MySQL Service is gone. If it is still listed as disabled, close all programs and restart your computer, then check the Services window again.
5. In the Windows Control Panel, double-click Add/Remove Programs. Select MySQL Servers and Clients, then click Remove.
6. Click Start g Run and then enter `cmd` to launch a command window, then enter `cd c:\`, then enter `del c:\mysql`.

On a Linux or Solaris platform:

1. As root, run `/etc/init.d/mysql stop`
2. Backup MySQL data folder if necessary.
3. Run `rm -rf /etc/init.d/mysql /etc/my.cnf [ $MYSQL_HOME ]`, where `[ $MYSQL_HOME ]` is where MySQL is installed.



# Chapter 5: Starting/Stopping NA Services

## Windows Platform

To start/stop NA services, on a Windows platform, do the following:

1. Click Start --> Programs --> Administrative Tools --> Services.
2. Start/stop the following NA services:
  - TrueControl AAA Agent
  - TrueControl Management Engine
  - TrueControl SWIM Server
  - TrueControl Syslog Server
  - TrueControl FTP Server
  - TrueControl TFTP Server

**Note:** Use Windows Services to start/stop MySQL.

## Linux and Solaris Platform

To start/stop NA services on Linux or Solaris platform, login as root and enter:  
`/etc/init.d/truecontrol <command>`

Options for this command include:

- start
- stop
- restart
- status

**Note:** Use `/etc/init.d/mysql` to start/stop MySQL.

## System Status Page

If you do not know the name of the existing NA database, before shutting down NA do the following:

1. On the menu bar under Admin, click System Status. The System Status page opens.
2. In the Monitor Name column, locate DatabaseMonitor.
3. Click the View Details option in the Actions column. The database information is displayed.

# Appendix A: IPv6 Readiness

HP Network Automation (NA) is a robust network element management and automation tool. NA communicates with network elements via numerous protocols and authentication methods to gather information. NA then parses the information, normalizing it in a searchable and presentable format.

NA supports IPv6, both as transport and as parsed searchable and presentable bits of IPv6 specific information. NA's adoption of IPv6 is focused on providing:

- Transparent access to network elements via IPv4 and/or IPv6
- Information on network element IPv6 configurations
- IPv6 support across NA features

## Installation

NA installs and automatically detects network provisioning on the server. The available protocol determines what protocol NA uses for communicating to elements and NA listening servers. This includes:

- IPv4 only
- IPv6 only
- Dual stack environments (whether native or using a transition mechanism)

If NA is installed on a server that is to be updated to support IPv6, the following procedure is recommended:

1. Shutdown NA.
2. Add IPv6 support to the server.
3. Restart NA.
4. Check the Admin options for various servers to ensure correct IPv6 address discovery.

## Supported Platforms

NA IPv6 functionality has been verified on the following platforms:

- Windows Server 2003 32-bit and 64-bit
- Linux RH AS4 32-bit
- Linux RH AS5 64-bit
- Solaris 10

NA supports IPv6 connections to DBMS. This includes MS-SQL 2005.

## Network Services

NA has several network services that will appropriately listen on IPv4-only, IPv6-only, and dual stack environments. These include:

- Web Server (TCP 80 and 443) — Clients using IPv6-enabled OS and browser can access NA via IPv6.
- TFTP Server (UDP 69) — Network elements can upload/download information via TFTP IPv6.
- TELNET Server (TCP 23) — Network elements can upload/download information via TELNET IPv6. Clients accessing the NA CLI can do it via TELNET IPv6.
- SSH/SCP Server (TCP 22) — Network elements can upload/download information via SSH/SCP IPv6. Clients accessing the NA CLI can do it via SSH IPv6.
- SYSLOG Server (UDP 514) — Network elements reporting change can do it via SYSLOG IPv6.

NA functions that instruct network elements to access these services will correctly determine which protocol to use based on a number of factors.

## Clients

NA uses numerous protocols for intra-communication and communicating with network elements. These include:

- HTTP (TCP 80) — Access network elements
- HTTP (TCP 443) — Access network elements
- FTP (TCP 21) — Access network elements
- SNMP (UDP 161) — Access network elements
- Telnet (TCP 23) — Access network elements
- SSH/SCP (TCP 22) — Access network elements
- SYSLOG (UDP 514) — Send logging message
- SMTP (TCP 25) — Send email

## IPv6 Presentation

The NA user interface supports IPv6 notation. This includes correct understanding, parsing, input, and display of IPv6 addresses. NA provides unique searching features for searching for IPv6 addresses within the system.

## Development Environment

NA relies heavily on Java JDK 1.6 for network support of IPv6. For more information on Java's support and interpretation of the IPv6 standards, refer to: <http://java.sun.com>.

## NA Features Supporting IPv6

The following NA features support IPv6:

- Detect Network Device
- Discover Driver
- Device Reservation
- Take Snapshot
- Configure Syslog
- Deploy Passwords
- Reboot Device
- Run Command Script
- Run Diagnostics
- Synchronize Startup and Running
- Update Device Software
- Import
- Deduplication
- Check Policy Compliance
- Resolve FQDN
- Searching
- Reporting
- Real time change management
- Work Flow
- CLI and API

## Drivers

NA architecture is such that a driver layer exists between the NA Core and the managed network elements. This layer abstracts information from network elements, interprets it, and then forwards the information to NA. NA has IPv6 driver dependencies. As a result, not all drivers support all features of IPv6. Primary adoption includes the Cisco family of network elements.

Currently, the following NA components do not support IPv6:

- Overlapping IPs — Satellite Gateways do not support IPv6.
- Dynamic IPv6 addresses — NA does not gather or track information on device elements or dynamically assigned IPv6 addresses (for example, link local and multicast).
- IPv6 ACLs — The ACL specific feature does not parse/process IPv6 ACLs, though functionality to search, add, delete, and edit IPv6 ACLs exists.
- NMAP — Using NMAP with the NA Detect Network Device feature do not work.
- Multimaster Distributed System and Horizontal Scalability — Dual stack is supported, however with the replication/RMI using IPv4-only.
- Topology Diagramming — Topology diagramming does not support IPv6.
- SA/NA integration — HP Server Automaton does not support IPv6.
- OO/NA integration — HP Operations Orchestration does not support IPv6.
- NNMi/NA integration- HP Network Node Manager with dual stack is supported, but not with IPv6-only.
- BSAE/NA integration — Business Service Automaton Essentials does not support IPv6.
- DDS integration — The Driver Delivery System does not support IPv6.





# Appendix B: Troubleshooting

This appendix provides troubleshooting information on:

- Restoring databases
- Ports
- Configuring the NA Syslog Server
- NA Architecture
- User Authentication Crypto Key exception
- MySQL Upgrade Installer
- Advanced Encryption Standard (AES) Encryption
- Using Gateways

## Restoring Databases

To restore SQL Server databases:

1. Make a backup of the database you are about to restore.
2. Launch Enterprise Manager.
3. Connect to the SQL Server database server and navigate to your database.
4. Right click and select All Tasks --> Restore Database.
5. Click the Restore: From Device button.
6. Click Select Devices.
7. Click Add.
8. Open the file browser under File name and select the filename you want to restore.
9. Click OK three times.
10. Click the Options tab.
11. Select Force restore over existing database.

12. Click OK. The database should be restored.

If you receive an error message, such as "Database is in use," you need to either close the connection to that database (stop your JBoss server), or go to the Options tab and change the names of the physical files listed to a different name. If you are not using the "sa" login to connect to the database, you may need to change the database login.

To do this, launch Query Analyzer from Enterprise Manager. In the database you just restored, enter the following command:

```
SQL command "sp_change_users_login 'auto_fix' 'username'
```

Where: `username` is the username that your JBoss is using to communicate to the SQL server.

To restore MySQL databases, there are two methods.

To restore using the copied files restores all MySQL databases that were on the server at the time of the backup, not just the NA database. This method should only be used if NA is the only application using the database server.

1. Make a backup of the MySQL.
2. Stop the MySQL service (click My Computer --> Control Panel --> Administrative Tools --> Services).
3. Copy all of the files that were backed up from the `mysql\data` directory originally back into the `mysql\data` directory.
4. Restart the MySQL service.

To restore MySQL databases using the .sql backup file:

1. Make a backup of the MySQL database.
2. Edit the .sql file. Add the following line to the top of the file:  
`SET FOREIGN_KEY_CHECKS=0;`

**Note:** If you are restoring to a different database name, the foreign key constraints inside the dump file reference '<Database\_Name>.RN\_DEVICE' ('DeviceID'), including the database name. If you restore this to a different database name, in effect you are referencing the database <Database\_Name> for your FOREIGN\_KEY checks. This is a bug in mysqldump and how it interacts with the InnoDB table types. The solution is to remove the "<Database\_Name>."

3. Navigate to the `mysql\bin` directory and enter the following command to get to the `mysql` command interface:

```
mysql -h<hostname> -u<username> -p<password>
```

4. Enter the following commands in the `mysql` command interface. (Note that `mysql` needs forward slashes '/' in path names.)

```
drop database <DatabaseName>;  
create database <DatabaseName>;  
use <DatabaseName>;  
source <BackupFileName>.sql;  
grant all privileges on <DatabaseName>.* TO <username>  
identified by '<password>';
```

Where: `username` is the username that NA uses to connect to the database and `password` is the user's password.

```
grant all privileges on <DatabaseName>.* TO  
<username>@localhost identified by '<password>';
```

Where: `username` is the username that NA uses to connect to the database and `password` is the user's password.

For information on restoring Oracle databases, please see your Oracle DBA for information.

## Port in Use

NA communicates with devices using a combination of protocols and ports. If any one of the ports is in use by another application or service, you must stop that application or service to ensure a successful NA upgrade.

## Protocols, Databases, and Ports

NA communicates with devices using a combination of the following protocols, databases, and ports. If you use a given protocol, NA requires access to the corresponding port. Specifically, if NA communicates with devices protected by firewalls, these ports must be open.

Protocol/Database/Port	From/To
<b>NA server (running the Mgmt Engine, Syslog, TFTP) and network devices</b>	
Telnet (port 23)	From the NA server to network devices.
SSH (port 22)	From the NA server to network devices.
TFTP (port 69/udp)	From network devices to the NA server.
Syslog (port 514/udp)	From network devices to the NA server. You can change the NA Syslog port. Refer to <a href="#">“Configuring the NA Syslog Server” on page 79</a> for instruction.
SNMP (port 161/udp)	From the NA server to network devices.
Oracle (port 1521)	From the NA server to an Oracle database. In a Distributed System configuration, the Oracle processes connect to each other on port 1521.
TCP (Port 1099)	From NA Core to NA Core in a Distributed System configuration.
UDP (Port 4443)	From NA Core to NA Core in a Distributed System configuration.
SQL Server (port 1433)	From an NA server to a SQL Server database. In a Distributed System configuration, the SQL Server databases communicate with each other on port 1433.
MySQL (port 3306)	From an NA server to a MySQL database.

Protocol/Database/Port	From/To
<b>NA server and the NMS</b>	
SNMP-trap (port 162/udp)	From the NA server to the NMS.
<b>NA server and the AAA Log Reader</b>	
JNDI (port 1099)	From the AAA Log Reader to the NA server. You can change this by editing the NA configuration files. Please contact Customer Support for assistance.
RMI (port 1098)	From the AAA Log Reader to the NA server. You can change this by editing the NA configuration files. Please contact Customer Support for assistance.
RMI (object port 4444)	From the AAA Log Reader to the NA server. You can change this by editing the NA configuration files. Please contact Customer Support for assistance.
RMI (object port 8083)	<p>NA also uses RMI between NA clients and the NA Management Engine and between the NA Management Engines in separate NA Cores. NA clients can include:</p> <ul style="list-style-type: none"> <li>• NA Syslog Server</li> <li>• NA Connectors</li> <li>• AAA Log Reader</li> <li>• Syslog Reader</li> <li>• Customer-written API scripts (Refer to the <i>NA 9.00 API Reference Guide</i> for information.)</li> </ul>
<b>NA server and the Software Image Management server</b>	
HTTPS (port 6099)	From the NA server to the Software Image Management server. Please contact Customer Support for assistance.
<b>Gateway</b>	
TunnelPort (2001)	From the Satellite Gateway to the Core Gateway. The Core Gateway listens for tunnel connections.
ProxyPort (3002)	From the NA Core to the Core Gateway and from the Satellite agent to Satellite Gateway.
IdentPort (4040)	From the NA Core to the Core Gateway.

Protocol/Database/Port	From/To
AdminPort (9090)	From the Satellite Gateway to the Core Gateway. Keep in mind that the Satellite Gateway uses all of the ports that the NA Core uses for managing devices (from the Satellite Gateway to the device: 22, 23, 514, 80, and 443).
RpcPort (8443)	From the Satellite Gateway to the management agent (Tomcat), Syslog, TFTP, and so on).
<b>NA server and the NA client</b>	
HTTPS (port 443)	From the NA client to the NA server. You can change this by editing the NA configuration files. Please contact Customer Support for assistance.
TACACS+ (port 49)	From the NA client to the NA server.
Telnet (port 23 - Windows or 8023 - Solaris/Linux)	From the NA client to the NA server. This can be changed from the Administrative Settings option. Refer to Chapter 2, "Configuring Administrative Settings," in the <i>HP Network Automation 9.00 User's Guide</i> for information on assigning ports.
SSH (port 22 - Windows or 8022 - Solaris/Linux)	From the NA client to the NA server. This can be changed from the Administrative Settings option. Refer to Chapter 2, "Configuring Administrative Settings," in the <i>HP Network Automation 9.00 User's Guide</i> for information on assigning ports.

---

Other ports include:

- FTP — Port 21
- SCP — Port 22
- Rlogin — Port 513
- RADIUS — 1812
- LDAP — 3268
- Twist — 1032

## Configuring the NA Syslog Server

The following configuration settings are available for the NA Syslog Server:

- The interface to listen for Syslog messages. The default is to listen on all interfaces.
- The UDP port to listen for Syslog messages. The default is 514.
- A hostname to forward Syslog messages. Syslog forwarding is off by default.
- The UDP port to forward Syslog messages to. The default is 514.

To configure the above settings, edit the *\$NA/jre/adjustable\_options.rcx* file and add the following lines anywhere between the `<option>` and `</option>` tags:

```
<option name="syslog/listener_address">192.168.1.12</option>
<option name="syslog/listener_port">514</option>
```

To enable Syslog forwarding, add the following:

```
<array name="syslog/handlers">
  <value>com.hp.nas.syslog.NASSyslogHandler</value>
  <value>com.hp.nas.syslog.NASSyslogForwarder</value>
</array>

<option name="syslog/forward_host">10.1.2.3</option>
<option name="syslog/forward_port">514</option>
```

**Note:** If you remove the `NASSyslogHandler` from the array of Syslog handlers, NA will only forward Syslog messages. NA will not initiate snapshots of devices when Syslog messages are received.

## NA Architecture

The following NA architecture diagram illustrates the various NA Core components and how they are logically connected. In addition, the diagram includes external products and components with which NA is integrated, including the integration between NA and infrastructure services, such as database connectivity and Syslog, to external integration with other HP and non-HP products.

All connections in the diagram are identified by the service name, protocol, port number, and direction (inbound and outbound) with respect to the NA Management Engine.

The diagram includes the following background colors:

- Light blue background — Designates NA Core elements.
- Light grey background — Designates external entities that integrate with NA.
- Dark blue background — Designates other HP products that integrate with NA.

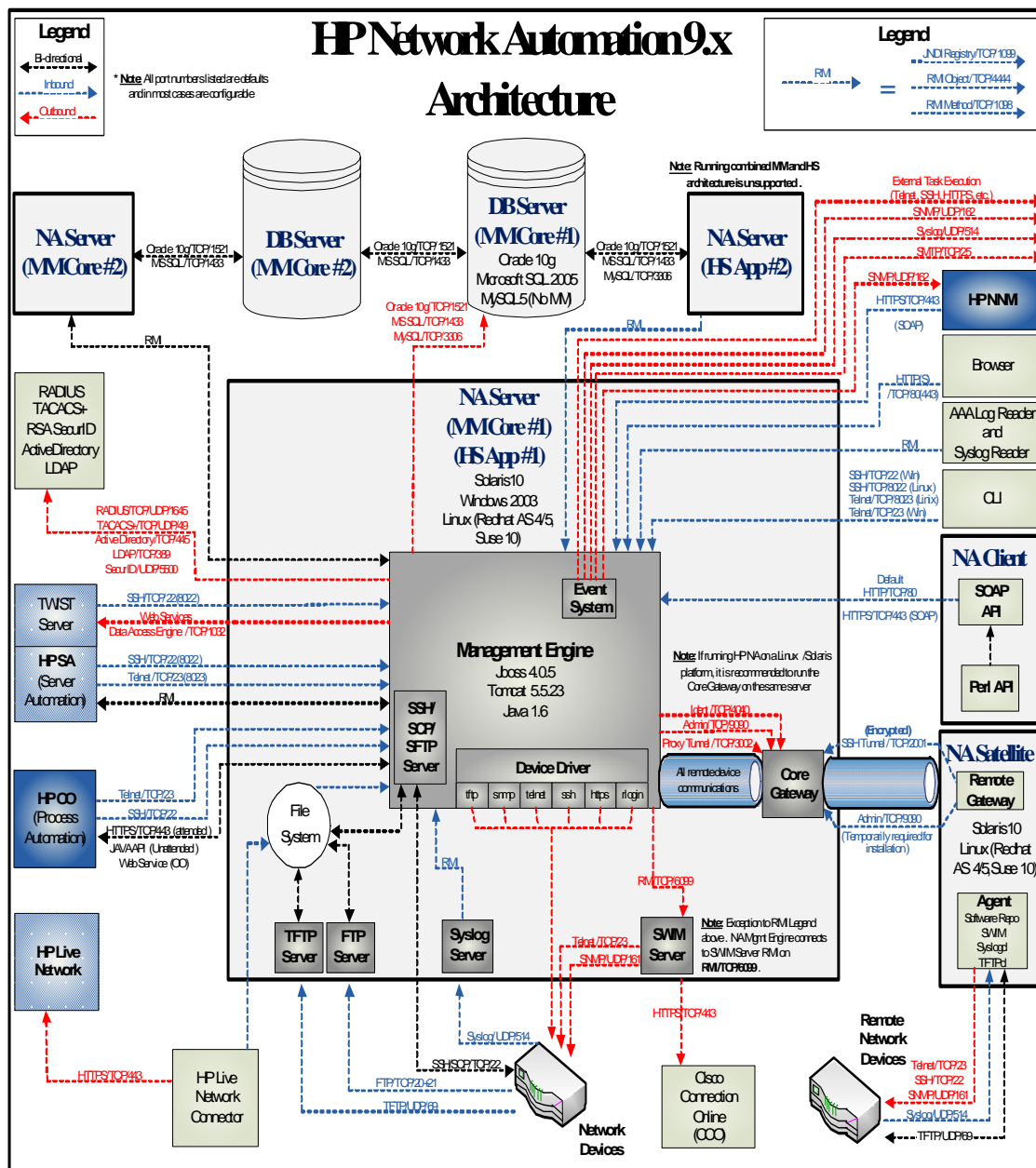
An NA Core is comprised of both an NA server and a Database server. The center of the diagram shows the NA server, identified as both the Multimaster Core (MM) #1 and Horizontal Scalability (HS) App #1. Just above the NA server is the Database server, identified as Multimaster (MM) Core #1.

NA Cores can be meshed together to provide data replication, high availability, and disaster recovery. In the upper left of the diagram, there is a second NA server and Database server, both identified as MM Core #2, along with the required connections for the two NA Cores so as to be configured as a mesh.

Included in the NA server is the NA Management Engine, the Core Gateway, the Syslog server, the TFTP server, and the SWIM server processes. The SSH/SCP server and the Event System shown inside the NA Management Engine are embedded as a part of the NA Management Engine process. The inbound/outbound connections for each process is illustrated.

Adjoining the NA Core along the outside of the diagram are the external entities with which the NA Core server integrates.





## User Authentication Crypto Key Exception

It is possible that after upgrading to NA 7.60, you will not be able to access any of the menu items under Administrative Settings. This is due to a corrupted encryption option in the *site\_options.rcx* file.

Workaround:

1. Go to the `[$NA_HOME]/jre` directory.
2. Backup the current *site\_options.rcx* file.
3. Open the *site\_options.rcx* file and locate all encrypted text options by searching for "EncryptedText".
4. Remove the value for all encrypted text options if it is not empty. In the following example, you would delete the information between `</comment>` and `</option>`.

Before:

```
<option name="twist/password"><title>Twist Password</title>
<section>Opware Server Automation System Authentication</
section><size>30</size><type>EncryptedText</type><comment>Web
Services Data Access Engine Password for finding connected
servers.<comment>encrypted:sQAHLgjGjdGIbvNB18NEoQ==</option>
```

After:

```
<option name="twist/password"><title>Twist Password</title>
<section>OpwareServer Automation System Authentication</
section><size>30</size><type>EncryptedText</type><comment Web
Services Data Access Engine Password forfinding connected
servers.</comment></option>
```

5. Save the file.
6. Login to NA.
7. On the menu bar under Admin, select Administrative Settings and click User Authentication.

8. Scroll down to the "TACACS+ / RADIUS Authentication" section.
9. For the TACACS+ or RADIUS Secret option, enter the shared secret for the NA host configured on the TACACS+ or RADIUS server.
10. Scroll down to the "HP Server Automation Authentication" section.
11. For the Twist Password option, enter the SA password to use when locating connected servers.
12. Click the Save button.
13. Click the Device Access tab.
14. Scroll down to the "Bastion Host Settings" section.
15. For the Default Bastion Host Password option, enter the password of the Bastion Host to use for Telnet and/or SSH access.
16. Click the Save button.

## NA 7.60 Upgrade

If the NA 7.60 upgrade failed, check the following files for detailed error messages:

- [NA\_HOME] HP\_Network\_Automation\_InstallLog.log
- All files in [NA\_HOME]/server/log

If the NA 7.60 upgrade is successful, but NA 7.60 does not run, check the following:

- [NA\_HOME] HP\_Network\_Automation\_InstallLog.log file — If this file is truncated, this indicates that NA was not allocated enough disk space. Please contact your System Administrator to resolve disk space or other hardware issues.
- [NA\_HOME]/jre folder — If JRE is installed successfully, the folder should contain approximately 600 files. An installation failure will result in less than 100 files. This could occur if Windows Explorer was not closed or other applications were running during the NA upgrade. Be sure to close Windows Explorer and all other applications before running the NA 7.60 Service Pack Installer.

Running a multi-million record update can take a long time and you might think the upgrade has hung. This may not be the case. Before you cancel the upgrade installer, make sure to check the log files. The file is located in [NA\_HOME]/server/Log/install\_SP\_UpgradeDatabase.log.

**Note:** In the case of system failures, logging is the primary means of identifying what is going wrong and the means of troubleshooting the issue. Be sure to send all pertinent logs to customer Support, along with any error messages, even if the troubleshooting information is removed.

## MySQL Upgrade Installer

When troubleshooting the MySQL Upgrade Installer, keep in mind the Log files are in the sub-folder log in the MySQL Install folder.

In some very rare cases, *my.ini (/etc/my.cnf)* cannot be located and the MySQL variables cannot be queried successfully from MySQL engine. You may be asked to confirm the previous MySQL variables. Please refer to your MySQL 5.0 Reference Manual for detailed description of these variables.

- `bind-address` — IP address to bind to.
- `innodb_data_file_path` — Paths to individual data files and their sizes. The full directory path to each data file is acquired by concatenating `innodb_data_home_dir` to the paths specified here. The file-sizes are specified in megabytes, hence the 'M' after the size specification above. InnoDB also understands the abbreviation 'G', 1G meaning 1024M. Starting from 3.23.44 you can set the file-size bigger than 4 GB on those operating systems which support big files. On some operating systems, files must be < 2 GB. The sum of the sizes of the files must be at least 10 MB.
- `innodb_data_home_dir` — The common part of the directory path for all InnoDB data files. If you do not mention this option in `my.cnf` the default is the `datadir` of MySQL. You can specify this also as an empty string, in which case you can use absolute file paths in `innodb_data_file_path`.
- `innodb_log_file_size` — Size of each log file in a log group in megabytes. Sensible values range from 1M to 1/nth of the size of the buffer pool specified below, where n is the number of log files in the group. The bigger the value, the less checkpoint flush activity is needed in the buffer pool, saving disk I/O. But bigger log files also mean that recovery will be slower in case of a crash. The combined size of log files must be < 4 GB on 32-bit computers.
- `max_binlog_size` — If a write to the binary (replication) log exceeds the given value, rotate the logs. You cannot set it to less than 1024 bytes, or more than 1 GB. The default is 1 GB.

## Advanced Encryption Standard (AES) Encryption

If you have installed NA 6.x with Advanced Encryption Standard (AES) encryption enabled and upgrade to NA 7.x, all AES encrypted data may not be propagated or used after restarting the NA server. To solve this issue:

1. Stop the NA Management Engine.
2. Change the following lines in the *HPNA/jre/appserver.rcx* file:

From:

```
<option name="CRYPTO/ALGORITHM">AES</option>  
<option name="CRYPTO/ALGORITHM/KeySize">256</option>
```

To:

```
<option name="CRYPTO/ALGORITHM">AES</option>  
<option name="CRYPTO/ALGORITHM/KeySize">128</option>
```

3. Login into the database.
4. Change the Crypto Key, enter:  

```
update RN_CRYPTO_KEY set ModeType = '4';
```
5. Restart the NA Management Engine.

## Using Gateways

When upgrading to NA 7.60 where Gateways are used, after the upgrade you must run the "Deploy Remote Agent" task to re-install the upgraded Satellite agent on all of the remote Gateways. Refer to the *HP Network Automation 9.00 Satellite User's Guide* for information on configuring the Satellite functionality.

# Index

## Symbols

- .rcx files
  - agent 34, 47
  - probe 35, 48
  - reporting 11, 31, 44
  - site\_options 31, 44

## Numerics

- 64-bit support
  - Solaris 18, 56
  - Wrapper files 17

## A

- AAA Log Reader 34, 47

## B

- Backing up NA files 42
- Backup
  - SQL Server 66

## C

- CLI Installer 54
- Configuring
  - NA Satellites 33, 46
  - Syslog Server 79

## D

- Database upgrades 25, 40
- Drivers 46

## H

- HP Live Network
  - Installing 21
  - Overview 21

## I

- Install Wizard 54

## Installing

- Caveats 38
- Drivers 46
- HP Live Network 22
- IPv6 67
- NA 7.60 30
- NA 9.00 37
- Nmap 51, 52
- On Solaris 56

## IPv6

- Clients 69
- Drivers 71
- Installing 67
- Network Services 68
- Overview 67
- Presentation 69
- Supported NA features 70
- Supported platforms 68

## L

- LNc Installer 22

## M

- MySQL Upgrade Installer 26

## N

- NA 7.0.x users 10
- NA 7.2.x users 10
- NA 7.5.x users 11
- NA 7.60 Service Pack Installer 30
- NA 7.60 users 11
- NA 9.00 Service Pack Installer 44
- NA architecture
  - Connections 80
  - Management Engine 80
  - Overview 80
  - Product integrations 80
- NA features 70
- NA license
  - Deploying 53
  - Updating 54
- NA Syslog Server 79
- Network services 68

**Nmap**

- Installing on Linux 52
- Installing on Solaris 51
- Installing on Windows 52

**O**

Operating system upgrades 25, 40

**Oracle**

- Database options 50

**P****Ports**

- AdminPort 77
- HTTPS 78
- IdentPort 77
- JNDI 77
- ProxyPort 77
- RMI 78
- SNMP 76
- Telnet 76
- TunnelPort 77

Pre-install checklist 12

**Protocols & Ports**

- Firewalls 76
- SNMP 76
- Syslog 76
- Telnet 76
- TFTP 76

**R**

Restoring customized files 30, 44

RMI ports 77

**S****Setup**

- Linux 55
- Solaris 56

Solaris 10 Syslog messages 56

SSH 76

Starting NA services 65

Stopping NA services 65

Summary reports 22

Supported databases 18

Syslog Reader 35, 48

System Status page 66

**T**

Telnet ports 76

TFTP 76

Third-party products 21

Transaction queue 35, 48

**Troubleshooting**

MySQL Upgrade Installer 85

NA 7.60 84

**U****Uninstall**

MySQL Max 64

NA 60

**Upgrading**

NA 7.x to NA 7.60 24

To NA 9.00 38

**V****Virtual environments**

Guidelines 19

Performance issues 20

System requirements 20

Troubleshooting 21

VM Guests 19

VMWare 20

VM Guests 19

**VMware**

Guidelines 19

Running VM Guests 19

**W**

Wrapper config files 43



# We appreciate your feedback!

If an email client is configured on this system, by default an email window opens when you click *here*.

If no email client is available, copy the information below to a new message in a web mail client, and then send this message to **ovdoc-nsm@hp.com**.

**Product name and version:** NA 9.00

**Document title:** *NA Upgrade and Installation Guide, December 2011*

**Feedback:**