IBM® System Storage®

IBM Network Advisor Installation and Migration Guide

Supporting IBM Network Advisor version 12.1

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About This Document

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How this document is organized

This document is organized to help you find the information that you want as quickly and easily as possible. This document supports IBM Network Advisor 12.1.0 and later.

The document contains the following components:

- Chapter 1, "Installation," provides system and pre-installation requirements as well as step-by-step installation instructions.
- Chapter 2, "IBM Network Advisor Configuration," provides step-by-step instructions to configure a fresh IBM Network Advisor installation.
- Chapter 3, "Data Migration," provides pre-migration requirements as well as step-by-step instructions for migrating data from a previous release of IBM Network Advisor.
- Chapter 4, "Uninstallation," provides step-by-step instructions for performing a partial or full uninstall of IBM Network Advisor.
- Appendix A, "References," provides the following information for quick lookup.
  - IBM Network Advisor packages
  - Edition feature support
  - Management server and client ports
  - Scalability limits

Supported hardware and software

In those instances in which procedures or parts of procedures documented here apply to some devices but not to others, this guide identifies exactly which devices are supported and which are not.

Although many different software and hardware configurations are tested and supported by IBM Network Advisor 12.1.X, documenting all possible configurations and scenarios is beyond the scope of this document.

Fabric OS software support

The following firmware platforms are supported by this release of IBM Network Advisor 12.1.X:

- Fabric OS 5.0 or later in a pure Fabric OS fabric
- Fabric OS 6.0 or later in a mixed fabric

NOTE
For platform specific Fabric OS requirements, refer to the **Firmware level required** column in Table 1.

NOTE
Discovery of a Secure Fabric OS fabric in strict mode is not supported.

Fabric OS hardware support

Table 1 provides a list of the hardware platforms supported by this release of IBM Network Advisor 12.1.X as well as any platform specific Fabric OS requirements.

TABLE 1 Supported Hardware

IBM Name	Terminology used in documentation	Firmware level required
SAN16B-2	16-port, 4 Gbps FC Switch	Fabric OS 5.0.0 to Fabric OS 6.2.0
SAN24B-4	24-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
SAN32B-2	32-port, 4 Gbps FC Switch	Fabric OS 4.4.0 or later
SAN64B-2	64-port, 4 Gbps FC Switch	Fabric OS v5.2.0 or later
SAN32B-3	32-port, 4 Gbps FC Interop Switch	Fabric OS v5.2.1 or later
SAN40B-4	40-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
SAN80B-4	80-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
SAN24B-5	24-port, 16 Gbps Edge switch	Fabric OS v7.0.1 or later
SAN48B-5	48-port, 16 Gbps switch	Fabric OS v7.0.0 or later
SAN96B-5	96-port, 16 Gbps switch	Fabric OS v7.1.0 or later
IBM Flex System FC5022 16Gb SAN Scalable Switches (ScSM)	48-port, 16 Gbps embedded switch	Fabric OS v7.2.0 or later
SAN18B-R	4 Gbps Router, Extension Switch	Fabric OS v5.1.0 or later
SAN04B–R	4 Gbps Extension Switch	Fabric OS v5.1.0 or later

TABLE 1 Supported Hardware

IBM Name	Terminology used in documentation	Firmware level required
FR4-18i Extension Blade	4 Gbps Router, Extension Blade	Fabric OS v5.1.0 or later
FR8-24 Extension Blade	8 Gbps Router, Extension Blade	Fabric OS 6.4.0 or later
SAN06B–R	8 Gbps Extension Switch	Fabric OS v6.3.0 or later
IBM Converged Switch B32	8 Gbps 8-FC-port, 10 GbE 24-CEE port Switch	Fabric OS v6.1.2_CEE
SAN256B	Director Chassis	Fabric OS v5.0.0 to Fabric OS 7.0.0
SAN256B with FC4-16, FC4-32, and FC4-48 Blades	Director Chassis with 4 Gbps 16-FC port, 4 Gbps 32-FC port, and 4 Gbps 48-FC port Blades	Fabric OS v5.2.0 or later (FC4-48)
SAN256B with FR4-18i Blade	Director Chassis with 4 Gbps router, Extension Blade	Fabric OS v5.1.0 or later (FR4-18i)
SAN256B with FC4-16IP Blade	Director Chassis with 4 Gbps 8-FC port and 8 GbE iSCSI Blade	Fabric OS v5.2.0 or later (FC$-16IP)
SAN256B with FC10-6 Blade	Director Chassis with 10 Gbps 6-port ISL Blade	Fabric OS v5.3.0 or later (FC10-6)
SAN768B[1, 2]	8-slot Backbone Chassis	Fabric OS v6.0.0 or later
SAN768B[1, 2] with FC8-16, FC8-32, and FC8-48 Blades	8-slot Backbone Chassis with 8 Gbps 16-FC port, 8 Gbps 32-FC port, and 8 Gbps 48-FC port Blades	Fabric OS v6.0.0 or later
SAN768B[1, 2] with FC8-64 Blade	8-slot Backbone Chassis with 8 Gbps 64-port Blade	Fabric OS v6.4.0 or later
SAN768B[1, 2] with FR4-18i Blade	8-slot Backbone Chassis with 4 Gbps Router, Extension Blade	Fabric OS v6.0.0 or later
SAN768B[1, 2] with FC10-6 Blade	8-slot Backbone Chassis with FC 10 - 6 ISL Blade	Fabric OS v6.2.0
SAN768B[1, 2] with FX8-24 Extension Blade	8-slot Backbone Chassis with 8 Gbps Extension Blade	Fabric OS v6.3.1_CEE
SAN768B[1, 2] with FCoE10-24 Blade	8-slot Backbone Chassis with 8 Gbps 24-port FCoE Blade	Fabric OS v6.3.1_CEE
SAN384B[1]	4-slot Backbone Chassis	Fabric OS v6.0.0 or later
SAN384B[1] with FC8-16, FC8-32, and FC8-48 Blades	4-slot Backbone Chassis with 8 Gbps 16-FC port, 8 Gbps 32-FC port, and 8 Gbps 48-FC port Blades	Fabric OS v6.2.0 or later
SAN384B[1] with FC8-64 Blade	4-slot Backbone Chassis with 8 Gbps 64-port Blade	Fabric OS v6.4.0 or later
SAN384B[1] with FR4-18i Blade	4-slot Backbone Chassis with 4 Gbps Router, Extension Blade	Fabric OS v6.2.0 or later
SAN384B[1] with FC10-6 Blade	4-slot Backbone Chassis with FC 10 - 6 ISL Blade	Fabric OS v6.2.0 or later
SAN384B[1] with FX8-24 Extension Blade	4-slot Backbone Chassis with 8 Gbps 12-FC port, 10 GbE ports, 2-10 GbE ports Extension Blade	Fabric OS v6.3.1_CEE
SAN384B[1] with FCoE 10-24 Blades	4-slot Backbone Chassis with 8 Gbps 24-port FCoE Blade	Fabric OS v6.3.0 or later
SAN384B-2[1]	16 Gbps 4-slot Backbone Chassis	Fabric OS v7.0.0 or later
SAN768B-2[1]	16 Gbps 8-slot Backbone Chassis	Fabric OS v7.0.0 or later
SAN32B-E4 Encryption Switch	8 Gbps Encryption Switch	Fabric OS v6.1.1_enc or later

TABLE 1 Supported Hardware

IBM Name	Terminology used in documentation	Firmware level required
FS8-18 Encryption Blade	Encryption Blade	Fabric OS v6.1.1_enc or later
FC8-16 Blade	FC 8 GB 16-port Blade	Fabric OS v6.2.0 or later
FC8-32 Blade	FC 8 GB 32-port Blade	Fabric OS v6.2.0 or later
FC8-32E Blade[3]	FC 8 GB 32-port Blade	Fabric OS v7.0.1 or later
FC8-48 Blade	FC 8 GB 48-port Blade	Fabric OS v6.2.0 or later
FC8-48E Blade	FC 8 GB 48-port Blade	Fabric OS v7.0.1 or later
FC8-64 Blade	FC 8 GB 64-port Blade	Fabric OS v6.4.0 or later
FC10-6 Blade	FC 10 - 6 ISL Blade	Fabric OS v6.2.0 or later
FC16-32 Blade	16 Gbps 32-port blade	Fabric OS v7.0.0 or later
FC16-48 Blade	16 Gbps 48-port blade	Fabric OS v7.0.0 or later
FCoE10-24 Blade	10 Gig FCoE Port Router Blade	Fabric OS v6.3.0 or later
FX8-24 Extension Blade [1, 2]	8 Gbps Extension Blade	Fabric OS v6.3.1_CEE

1. Professional can discover, but not manage this device. Use the device's Element Manager, which can be launched from the Connectivity Map, to manage the device. This device cannot be used as a Seed switch.

2. Professional Plus Trial and Licensed version can discover, but not manage this device. Use the device's Element Manager, which can be launched from the Connectivity Map, to manage the device. This device cannot be used as a Seed switch.

3. Only supported on the SAN384B-2 and SAN768B-2 chassis.

What's new in this document

- Information that was added:
  - Added new pre-migration requirements (refer to "Pre-migration requirements" on page 36).
- Information that was changed:
  - Updated server and client operating system details (refer to "Server and Client operating system requirements" on page 2)
  - Updated memory requirements (refer to "Memory requirements" on page 4)
  - Updated the browser and Java-Plug-ins requirements (refer to "Browser requirements" on page 6)
  - Updated pre-installation requirements (refer to "Pre-installation requirements" on page 8)
  - Updated the installation procedure (refer to "Installing the application" on page 9)
  - Updated the headless installation procedure (refer to "Headless installation" on page 11)
  - Updated the configuration procedure (refer to "Configuring IBM Network Advisor" on page 13)
  - Updated the data source procedure (refer to "Adding the Data source on Linux systems" on page 25)
  - Updated the migration paths (refer to "Supported migration paths" on page 34)
  - Updated the pre-migration requirements (refer to "Pre-migration requirements" on page 36)

- Information that was deleted:
  - None.

For further information about new features and documentation updates for this release, refer to the release notes.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used are as follows:

bold text	Identifies command names Identifies the names of user-manipulated GUI elements Identifies keywords and operands Identifies text to enter at the GUI or CLI
italic text	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
`code` text	Identifies CLI output Identifies command syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, switchShow. In actual examples, command lettercase is often all lowercase. Otherwise, this manual specifically notes those cases in which a command is case sensitive.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates potential damage to hardware or data.

Key terms

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at:

http://www.snia.org/education/dictionary

Additional information

This section lists additional IBM-specific documentation that you might find helpful.

For more information about IBM SAN products, see the following Web site:
www.ibm.com/servers/storage/support/san

For support information for this product and other SAN products, see the following Web site:
www.ibm.com/supportportal/

Visit *www.ibm.com/contact/* for the contact information for your country or region. You can also contact IBM within the United States at 1-800-IBMSERV (1-800-426-7378). For support outside the United States, you can find the service number at: *www.ibm.com/planetwide/*.

Getting technical help

Contact IBM support for hardware, firmware, and software support, including product repairs and part ordering. To expedite your call, have the following information available:

1. IBM Network Advisor Serial Number
2. General Information
   - Switch model
   - Switch operating system version
   - Error numbers and messages received
   - **supportSave** command output
   - Detailed description of the problem, including the switch or fabric behavior immediately following the problem, and specific questions
   - Description of any troubleshooting steps already performed and the results
   - Serial console and Telnet session logs
   - syslog message logs
3. Switch Serial Number

   The switch serial number and corresponding bar code are provided on the serial number label, as illustrated below.:

   

   The serial number label is located as follows:

   - SAN16B-2 — On the nonport side of the chassis
   - SAN24B-4, SAN24B-5, SAN32B-2, SAN64B-2, SAN40B-4, SAN80B-4, SAN96B-5, SAN18B-R, SAN04B–R, SAN06B-R, and IBM Converged Switch B32 — On the switch ID pull-out tab located inside the chassis on the port side on the left
   - SAN32B-3 — On the switch ID pull-out tab located on the bottom of the port side of the switch

- SAN48B-5 — On the pull-out tab on the front of the switch
- SAN256B — Inside the chassis next to the power supply bays
- SAN768B — On the bottom right on the port side of the chassis
- SAN384B — On the bottom right on the port side of the chassis, directly above the cable management comb

4. World Wide Name (WWN)

   You can obtain the WWN from the same place as the serial number, except for the SAN768B. For the SAN768B, access the numbers on the WWN cards by removing the WWN bezel at the top of the nonport side of the chassis.

   If the switch is operable, you can also use the **wwn** command to display the switch WWN.

How to send your comments

Your feedback is important in helping us provide the most accurate and high-quality information. If you have comments or suggestions for improving this document, send us your comments by e-mail to starpubs@us.ibm.com.

Be sure to include the following:

- Exact publication title (paste into the e-mail subject line)
- Publication form number (for example, GC26-1234-02)
- Page, table, or illustration numbers
- A detailed description of any information that should be changed

Chapter

1

Installation

In this chapter

System requirements

Use the following sections to determine if you have met the requirements for this application.

Server and Client operating system requirements

Table 2 summarizes the required Operating Systems (OS) for servers and the packages supported by each OS version.

NOTE
Professional Plus and Enterprise editions are not supported on 32-bit operating systems.

TABLE 2 Server operating system requirements

Operating system	Version	Guest OS version	Supported packages
Windows®	- 2008 Server (x86 32-bit) - 7 Enterprise (x86 32-bit)		SAN with SMI Agent SMI Agent only
	- 2008 R2 Data Center Edition (x86 64-bit) - 2008 R2 Standard Edition (x86 64-bit) - 2008 R2 Enterprise Edition (x86 64-bit) - 2012 R2 Data Center Edition (x86 64-bit) - 2012 R2 Standard Edition (x86 64-bit) - 7 Enterprise (x86 64-bit) - 8 Enterprise (x86 64-bit)		SAN with SMI Agent SMI Agent only
Linux®	- RedHat Enterprise 6.1 Advanced (x86 32-bit) - RedHat Enterprise 6.2 Advanced (x86 32-bit) - RedHat Enterprise 6.3 Advanced (x86 32-bit) - SuSE Enterprise Server 11 (x86 32-bit) - Oracle Enterprise 6.1 (x86 32-bit) - Oracle Enterprise 6.2 (x86 32-bit) - Oracle Enterprise 6.3 (x86 32-bit)		SAN with SMI Agent SMI Agent only
	- RedHat Enterprise 6.1 Advanced (x86 64-bit) - RedHat Enterprise 6.2 Advanced (x86 64-bit) - RedHat Enterprise 6.3 Advanced (x86 64-bit) - Oracle Enterprise 6.1 (x86 64-bit) - Oracle Enterprise 6.2 (x86 64-bit) - Oracle Enterprise 6.3 (x86 64-bit)		SAN with SMI Agent SMI Agent only
Guest VMs	- VMware® ESX Server i 5.1[1] - Microsoft Hyper-V (Hyper-V Server 2008 R2 SP1) - KVM RH 6.3	Supports all server OS versions available for Windows and Linux.	Supports all packages available for Windows and Linux.

1. It is recommended that you run all IBM Network Advisor virtual CPUs on a single physical CPU.

Table 3 summarizes the required OS for clients.

TABLE 3 Client operating system requirements

Operating system	Version	Guest OS version
Windows®	- 2008 Server (x86 32-bit) - 7 Enterprise (x86 32-bit)	
	- 2008 R2 Data Center Edition (x86 64-bit) - 2008 R2 Standard Edition (x86 64-bit) - 2008 R2 Enterprise Edition (x86 64-bit) - 2012 R2 Data Center Edition (x86 64-bit) - 2012 R2 Standard Edition (x86 64-bit) - 7 Enterprise (x86 64-bit) - 8 Enterprise (x86 64-bit)	
Linux®	- RedHat Enterprise 6.1 Advanced (x86 32-bit) - RedHat Enterprise 6.2 Advanced (x86 32-bit) - RedHat Enterprise 6.3 Advanced (x86 32-bit) - SuSE Enterprise Server 11 (x86 32-bit) - Oracle Enterprise 6.1 (x86 32-bit) - Oracle Enterprise 6.2 (x86 32-bit) - Oracle Enterprise 6.3 (x86 32-bit)	
	- RedHat Enterprise 6.1 Advanced (x86 64-bit) - RedHat Enterprise 6.2 Advanced (x86 64-bit) - RedHat Enterprise 6.3 Advanced (x86 64-bit) - Oracle Enterprise 6.1 (x86 64-bit) - Oracle Enterprise 6.2 (x86 64-bit) - Oracle Enterprise 6.3 (x86 64-bit)	
Guest VMs	- VMware® ESX Server i 5.1 - Microsoft Hyper-V (Hyper-V Server 2008 R2 SP1) - KVM RH 6.3	Supports all client OS versions available for Windows and Linux.

Host requirements

Table 4 summarizes the minimum host requirements for running IBM Network Advisor SAN with SMI Agent on Windows and Linux systems.

TABLE 4 SAN with SMI Agent host requirements

	Professional	Professional Plus	Enterprise		
			Small	Medium	Large LAN
Server plus one local client	Intel Core2 duo 2 GHz or equivalent	Intel Core2 duo 2 GHz or equivalent	Intel Core2 duo 2 GHz or equivalent	Intel Dual CPU Core2 duo 2.4 GHz or equivalent	Intel Dual CPU Core2 duo 2.4 GHz or equivalent
Remote client only	N/A	Intel Core2 duo 2 GHz or equivalent	Intel Core2 duo 2 GHz or equivalent	Intel Core2 duo 2 GHz or equivalent	Intel Core2 duo 2 GHz or equivalent

Table 5 summarizes the minimum host requirements for running SMI Agent only on Windows and Linux systems.

TABLE 5 SMI Agent only host requirements

	Enterprise		
	Small	Medium	Large
Server plus one local client	Intel Core2 duo 2GHz or equivalent	Intel Dual CPU Core2 duo 2.4 GHz or equivalent	Intel Dual CPU Core2 duo 2.4 GHz or equivalent
Remote client only	Intel Core2 duo 2GHz or equivalent	Intel Core2 duo 2GHz or equivalent	Intel Core2 duo 2GHz or equivalent

Memory requirements

Table 6 summarizes the minimum system memory requirements for running IBM Network Advisor SAN with SMI Agent on Windows and Linux systems.

TABLE 6 SAN with SMI Agent memory requirements

Server/Client	Professional Plus	Enterprise Small	Medium	Large
Server plus 1 local client	16 GB (64-bit)	16 GB (64-bit)	16 GB (64-bit)	16 GB (64-bit)
Remote client only	4 GB	4 GB	4 GB	4 GB

Table 7 summarizes the minimum system memory requirements for running SMI Agent only on Windows and Linux systems.

TABLE 7 SMI Agent only memory requirements

Server/Client	Enterprise Small	Medium	Large
Server plus 1 local client	4 GB	4 GB	4 GB
Remote client only	4 GB	4 GB	4 GB

Operating system cache requirements

It is recommended that you use the System managed size (the OS allocates the required cache); however, if you choose to use a custom size, make sure you use the following memory settings for your operating system.

TABLE 8 Virtual memory requirements for Windows systems

Installed physical memory (RAM) size	Windows Server 2003 SP2 and Windows XP Pro SP3		Windows Server 2008 and Windows 7 Professional	
	Minimum paging file size	Maximum paging file size	Minimum paging file size	Maximum paging file size
2 GB	2 GB	6 GB	1 GB	4 GB
3 GB	3 GB	9 GB	1 GB	4 GB
4 GB	4 GB	12 GB	1 GB	4 GB
Greater than 4 GB	N/A	N/A	1 GB	4 GB

TABLE 9 Linux swap space requirements

Installed physical memory (RAM) size	Recommended swap size
2 GB	4 GB
3 GB	4 GB
4 GB	4 GB
Greater than 4 GB and less than 8 GB	Equal to the amount of RAM
Greater than or equal to 8 GB and less than 64 GB	.5 times the amount of RAM

Disk space requirements

NOTE
It is recommended that you add an additional 100 GB of disk space if you use sFlow.

NOTE
It is recommended that you add an additional 40 GB of disk space for the default temporary directory.

Table 10 summarizes the minimum disk space requirements for running IBM Network Advisor SAN with SMI Agent on Windows and Linux systems.

TABLE 10 SAN with SMI Agent disk space requirements

Server/Client	Professional	Professional Plus	Enterprise Small	Medium	Large
Server plus 1 local client	10 GB	10 GB	20 GB	40 GB	60 GB
Remote client only	N/A	1 GB	1 GB	1 GB	1 GB

NOTE
It is recommended that you add an additional 100 GB of disk space if you use sFlow.

Table 11 summarizes the minimum disk space requirements for running SMI Agent only on Windows and Linux systems.

TABLE 11 SMI Agent only disk space requirements

Server/Client	Enterprise Small	Medium	Large
Server plus 1 local client	20 GB	40 GB	60 GB
Remote client only	1 GB	1 GB	1 GB

NOTE
If you enable periodic supportSave or configure the IBM Network Advisor server as the Upload Failure Data Capture location for monitored switches, then additional disk space will be required. Each switch supportSave file is approximately 5 MB and each Upload Failure Data Capture file is approximately 500 KB. To determine the disk space requirements, multiply the frequency of scheduled supportSave files by 5 MB and the expected Upload Failure Data Capture files by 500 KB before the planned periodic purge activity.

Browser requirements

The launch of IBM Network Advisor and the launch of Element Manager (Web Tools) from the application are supported from the following browsers with a Java plug-in:

- Browsers
  - Windows Internet Explorer® 9 or 10 on Windows
  - Firefox® 19 on Windows or Linux
  - Google Chrome™
- Java Plug-ins
  - Oracle® JRE 1.7.0 update 25 for IBM Network Advisor
  - Oracle JRE 1.7.0 update 25 for Web Tools

  For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

Client and server system requirements

NOTE
IBM Network Advisor is not supported in a Network Address Translation (NAT) environment where the server and client are on different sides of the NAT Server.

IBM Network Advisor has the following client and server system requirements:

- In the Professional edition, a single server supports a single client, which must be a local client only.
- In Professional Plus and Enterprise editions, a single server supports a maximum of 25 clients, which can be local or remote on 32-bit and 64-bit servers.
- In Professional Plus and Enterprise editions, a single server supports a maximum of 25 clients, which can be local or remote on 64-bit servers. To support more than 8 clients, you must make the following changes to your configuration:
  - Increase the server memory size. You can configure the server memory size from the **Options** dialog box, **Memory Allocations** pane. For instructions, refer to the *IBM Network Advisor User Manual* or online help.
  - Increase the PostgreSQL database shared buffers memory allocation to 1024 MB by editing the *Install_Home*\data\databases\postgresql.conf file.

Downloading the software

Your initial order ships on a DVD; however, you can download the software to upgrade from IBM Trial. You can download the software and documentation from the IBM Support Portal (www.ibm.com/supportportal/).

1. Go to the IBM Support Portal.

   www.ibm.com/supportportal/

2. Select **Downloads**.
3. In the **Quick find** field, enter "IBM Network Advisor" and press **Enter**.
4. Select **View IBM Network Advisor downloads**.

   A page displays indicating that you are leaving the IBM web site.

5. Click **Continue** to go to the **Brocade Downloads for IBM End Users** web page.
6. Select the highest version number for the latest GA code.

   For example, click **Brocade Network Advisor 12.1.x**, then click **Brocade Network Advisor 12.1.0 (IBM) Brocade GA**.

   To download the documentation, click **Brocade Network Advisor 12.1.0 Manuals** and then select the manual you want to download.

7. Select one of the following links to download the software:

   - IBM Network Advisor 12.1.0 GA for Windows
   - IBM Network Advisor 12.1.0 GA for Linux

   You can also access the release notes and md5 Checksum from this location.

8. Read the **Export Compliance**, select the certification check box, and click **Submit**.
9. Read the **Brocade End User License Agreement** and click **I Accept**.
10. Click **Save** on the **File Download** dialog box.
11. Browse to the location where you want to save the software and click **Save**.

Pre-installation requirements

Before you install IBM Network Advisor, make sure you meet the following requirements.

- Make sure all system requirements have been met prior to installation. For specific system requirements, refer to "System requirements" on page 1.

  If you are running Professional Plus or Enterprise edition on a 32-bit machine, you must migrate to a 64-bit machine within your current release, then you can migrate to IBM Network Advisor 12.1.

- IBM To avoid errors, close all instances of the application before beginning the installation or uninstallation procedures.

  For UNIX system, if you still receive error messages after closing the application, enter the following commands:

  #ps -ef | grep -i "" to list the process IDs

  #kill -9 "*Process_ID***"** where *Process_ID* is any IBM Network Advisor process

Additional pre-installation requirements for UNIX systems

- Make sure that an X Server is available for display and is configured to permit X Client applications to display from the host on which they are installing the IBM Network Advisor server (typically, this simply requires that the systems console be present and running with a logged-in user on the X Server-based desktop session, such as KDE, GNOME, and so on).

  If this is a headless unit with no console, refer to "Additional pre-installation requirements for UNIX systems (headless installation)" on page 11.

- Make sure that the DISPLAY environment variable is correctly defined in the shell with a valid value (for example, to display to the local console, **export DISPLAY=:0.0**, or to display to a remote system that has an X Server running, **export DISPLAY=***Remote_IP_address***:0.0**).

  You may also need to consider a firewall that might block the display to the X Server, which listens by default on TCP port 6000 on the remote host.

  To display to a remote system, you need to permit the remote display of the X Server by running the **xhost +IP** command, where IP is the IP address of the IBM Network Advisor server host from the X-based desktop of the remote system.

- Make sure you test the DISPLAY definition by running the **xterm** command, from the same shell from which you run install.bin. A new X terminal window to the destination X Server display should open.

- For Linux OS with the SELinux security policy enabled, make sure you complete the following steps.

  1. Disable the SELinux security policy using the `setenforce 0` command.
  2. Install the application (refer to "Installing the application" on page 9).
  3. Enable the SELinux security policy using the `setenforce 1` command.

Installing the application

Before you install the application, make sure your system meets the minimum pre-installation requirements (refer to "Pre-installation requirements" on page 8). If you are migrating data, refer to "Data Migration" on page 33.

NOTE
IBM Network Advisor is not supported on 32-bit Windows systems. For more information, refer to "Pre-migration requirements" on page 36.

NOTE
On Windows systems, you must be an Administrator with Read and Write privileges to install IBM Network Advisor.

NOTE
On UNIX systems, you must be the root user to install IBM Network Advisor.

To install the new application version, complete the following steps.

1. Choose one of the following options:
   - For Windows systems, open this file: *Download_Location**Application_Name*\windows\install.exe.
   - For UNIX systems, complete the following steps.
     a. On the Management application server, go to the following directory: *Download_Location/Application_Name/UNIX_Platform*/bin
     b. Type the following at the command line:
     ```
     ulimit -n 2000
     ```
     c. Type the following at the command line:
     ```
     ./install.bin
     ```
     OR
     ```
     sh install.bin
     ```

     NOTE
     On Linux systems, if you double-click the install.bin file, select **Run**. Do not select **Run in Terminal**.
2. Click **Next** on the **Introduction** screen.
3. Read the agreement on the **License Agreement** screen, select **I accept the terms of the License Agreement**, and click **Next**.
4. Select the usual location for your system application files (for example, D:\Program Files*Application_Name* or opt/*Application_Name*) on the **Select Install Folder** screen and click **Next**.

   NOTE
   Do not install to the root directory C:\ (Windows) or / (UNIX).
5. Review the displayed installation summary on the **Pre-Installation Summary** screen and click **Install**.

6. Make sure the **Launch Configuration** check box is selected (default) on the **Installation Complete** screen, and click **Done**.

   If the localhost is not mapped to the loopback address, an error message displays. You must map the loopback address to the localhost (refer to "Mapping the loopback address to the localhost" on page 10) before you configure the application.

   If the localhost is mapped to the loopback address, the configuration wizard displays. To configure the application, refer to one of the following sections:

   - If this is a fresh installation, refer to "IBM Network Advisor Configuration" on page 13.
   - If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 33.

Mapping the loopback address to the localhost

To map the loopback address to the localhost, complete the following steps.

1. Open the hosts file.

   For Windows, the hosts file is located in the WINDOWS\system32\drivers\etc directory.

   For Linux, the hosts file is located in the /etc directory

2. Add the following entries:

```
# For IPV4 machine
127.0.0.1      localhost

# For IPV6 enabled machine
127.0.0.1       localhost
::1             localhost
```

3. Save and close the file.

   To configure the application, refer to one of the following sections:

   - If this is a fresh installation, refer to "IBM Network Advisor Configuration" on page 13.
   - If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 33.

Headless installation

Headless installation, also known as *silent mode installation*, is fully supported on all platforms. Once initiated, the headless installation requires minimal user interaction and runs based on the default values provided.

Before you install IBM Network Advisor, make sure you meet the following requirements.

Make sure all system requirements have been met prior to installation. For specific system requirements, refer to "System requirements" on page 1.

Additional pre-installation requirements for UNIX systems (headless installation)

An X Server display is required, even when performing a headless installation, to run the initial configuration. Before you install IBM Network Advisor, complete the following:

- Make sure that an X Server is available for display and is configured to permit X Client applications to display from the host on which they are installing the IBM Network Advisor server (typically, this simply requires that the system console be present and running with a logged-in user on the X Server-based desktop session, such as KDE, GNOME, and so on).

  The DISPLAY can be any host X Server (for example, DISPLAY can be set to display the configuration to another UNIX system that has an X-based desktop).

- Make sure that the DISPLAY environment variable is correctly defined in the shell with a valid value (for example, to display to the local console, **export DISPLAY=:0.0**, or to display to a remote system that has an X Server running, **export DISPLAY=***Remote_IP_Address***:0.0**).

  To display to a remote system, you need to permit the remote display of the X Server by running the **xhost +IP** command, where IP is the IP address of the IBM Network Advisor server host, on a local terminal window of the X-based desktop of the remote system.

  You may also need to consider a firewall that might block the display to the X Server, which listens by default on TCP port 6000 on the remote host.

- Make sure you test the DISPLAY definition by running the **xterm** command from the same shell from which you run install.bin. A new X terminal window to the destination X Server display should open.

Performing a headless installation on Windows and UNIX systems

To perform a headless installation through the CLI, download the software (refer to "Downloading the software" on page 7).

- For Windows systems, open a Command Prompt and execute this command:
  `install.exe -i silent -DUSER_INSTALL_DIR="C:\Program Files\Network Advisor12.1.X" -DHEADLESS_CONFIG_MODE="false"`
- For UNIX systems, open a UNIX shell and execute this command: `sh install.bin -i silent -DUSER_INSTALL_DIR="/opt/Network_Advisor12_1_X" -DHEADLESS_CONFIG_MODE="false"`

  The application installs in silent mode using default settings.

  To configure the application, refer to one of the following sections:

  - If this is a fresh installation, refer to "IBM Network Advisor Configuration" on page 13.
  - If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 33.

Troubleshooting the Linux headless installation

If you have completed all of the pre-Installation requirements and you are still unable to install the application, run the following commands on the host.

1. Go to *Install_Home/* (the directory containing install.bin).
2. Execute `strace -f -F -v -s 1024 -o NetworkAdvisorinstall.txt ./install.bin`.
3. Execute `rpm -qa >> system.txt`.
4. Execute `ps -elf >> system.txt`.
5. Execute `md5sum install.bin >> system.txt`.
6. Execute `df -k >> system.txt`.
7. Execute `sh -c "xterm -e echo nothing >> system.txt 2>&1"`.
8. Execute `env >> system.txt`.
9. Execute `sh -c "DISPLAY=:0.0 xterm -e echo nothing >> system.txt 2>&1"`.
10. Execute `zip support1.zip NetworkAdvisorinstall.txt system.txt`.

    Send the support1.zip file output from the above (containing install.txt and system.txt) to Technical Support. This file will help Technical Support isolate the issue.

Chapter

IBM Network Advisor Configuration 2

In this chapter

Configuring IBM Network Advisor

If you have not installed the application, refer to "Installation" on page 1. If you are migrating data, refer to "Data Migration" on page 33.

To configure IBM Network Advisor, complete the following steps.

1. Click **Next** on the **Welcome** screen.
2. Click **No, don't any copy data and settings** (default) on the **Copy Data and Settings (Migration)** screen and click **Next**.

NOTE
You cannot migrate data to IBM Network Advisor 12.1.X after you complete configuration.

To migrate data from a previous management application version, refer to "Data Migration" on page 33.

3. Select one of the following options on the **Package** screen and click **Next**.
   - **SAN with SMI Agent**
   - **SMI Agent Only** (Go to step 8.)

NOTE
SMI Agent is not supported in a Professional edition configuration.

NOTE
If you choose to install only the SMI Agent, the configuration defaults to the SAN Enterprise package. When you open the IBM Network Advisor client, a **License** dialog displays, where you must enter a SAN Enterprise license key to use the client. If you enter a SAN Professional Plus license key, you must downgrade your license and restart all services for the changes to take affect. For instructions, refer to the user manual or online help.

4. Select one of the following options on the **Installation Type** screen and click **Next**.

NOTE
The SAN768B and SAN768B-2 Backbone chassis require Enterprise edition.

- **IBM Network Advisor - Licensed version** (default)

  Continue with step 5. Requires you to enter a license key during configuration to enable features and configuration.

- **IBM Network Advisor - 75 days Trial**

  Go to step 6. Enables you to manage SAN networks from a single interface for 75 days.

  ATTENTION
  If you choose to install Trial, once the trial period ends (75 days), you must upgrade to Licensed software.

5. (Licensed software only) Click **Next**.
6. Complete the following steps on the **FTP/SCP/SFTP Server** screen.
   a. Choose one of the following options:
      - Select **Built-in FTP/SCP/SFTP Server** (default) to configure an internal FTP/SCP/SFTP server and select one of the following options:
        - Select **Built-in FTP Server** to configure an internal FTP server
          This is the default option. The internal FTP server uses a default account and port 21. You can configure your own account from the **Options** dialog box. For instructions, refer to the *IBM Network Advisor User Manual* or online help.
        - Select **Built-in SCP/SFTP Server** to configure an internal SCP/SFTP server
          The internal SCP/SFTP server uses a default account and port 22. You can configure your own account from the **Options** dialog box. For instructions, refer to the *IBM Network Advisor User Manual* or online help.
      - Select **External FTP/SCP/SFTP Server** to configure an external FTP server.
        You can configure the external FTP server settings from the **Options** dialog box. For instructions, refer to the *IBM Network Advisor User Manual* or online help.

   b. Click **Next**.

   If port 21 or 22 is busy, a message displays. Click **OK** to close the message and continue. Once the Management application is configured make sure port 21 or 22 is free and restart the Server to start the FTP/SCP/SFTP service.

NOTE
If you use an FTP/SCP/SFTP Server which is not configured on the same machine as the Management application, the Firmware Repository feature will not be available.

7. Configure the database password on the **Database Administrator Password (dcmadmin)** screen by completing the following steps.

   a. Choose one of the following options:

      - To use the default password, select **Default password**.
        This is the default option. The default is **passw0rd**.
      - To configure a new password, select **New password** and enter a new password in the **Password** and **Confirm Password** fields.
        The password must be between 8 and 15 alphanumeric characters. Special characters except single quote (‘) are allowed.

   b. Click **Next**.

   You can configure the external FTP server settings from the **Options** dialog box. For instructions, refer to the *IBM Network Advisor User Manual* or online help.

8. Complete the following steps on the **Server IP Configuration** screen.

NOTE
If the Management server or client has multiple Network Interface Cards and if any of these interfaces are not plugged in, you must disable them; otherwise, the following features do not work properly:

Server impact

- Configuration wizard (does not display all IP addresses)
- Trap and Syslog auto registration
- Report content (Ipconfiguration element does not display all server IP addresses)
- Trace dump through FTP

Client impact

- Options dialog box (does not display all IP addresses)
- Firmware import and download dialog box
- Firmware import for Fabric OS products
- FTP button in Technical Support Repository dialog box
- Technical supportSave of Fabric OS and Host products through FTP

   a. Select an address from the **Server IP Configuration** list.

NOTE
For Professional software, the **Server IP Configuration** address is set to “localhost” by default. You cannot change this address.

NOTE
For SMI Agent, if the **Server IP Configuration** list contains a duplicate IP address or is empty, an error message displays and the configuration wizard closes.

b. Select an address from the **Switch - Server IP Configuration Preferred Address** list.

NOTE
If the "hostname" contains invalid characters, the host name does not display in the list. Valid characters include alphanumeric and dash (-) characters. The IP address is selected by default. If the an IPv6 address is selected, server start up will fail.

If Domain Name System (DNS) is not configured for your network, do not select the "hostname" option from either the **Server IP Configuration** or **Switch - Server IP Configuration Preferred Address** list. Selecting the "hostname" option prevents clients and devices from communicating with the server.

If you select a specific IP address from the **Server IP Configuration** screen and the selected IP address changes, you will not be able to connect to the server. To change the IP address after configuration, refer to "Configuring an explicit server IP address" on page 31.

c. Click **Next**.

9. Complete the following steps on the **Server Configuration** screen (Figure 1).

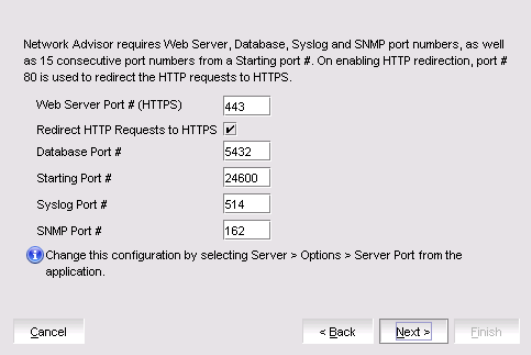

FIGURE 1 Server Configuration screen

a. Enter a port number in the **Web Server Port # (HTTPS)** field (default is 443).

b. Enable HTTP redirection to HTTPS by selecting the **Redirect HTTP Requests to HTTPS** check box.

When you enable HTTP redirection, the server uses port 80 to redirect HTTP requests to HTTPS. You can configure the server port settings from the **Options** dialog box (**Server Port** pane). For instructions, refer to the *IBM Network Advisor User Manual* or online help.

c. Enter a port number in the **Database Port #** field (default is 5432).

NOTE
Do not use a port number below 1024.

d. Enter a port number in the **Starting Port Number** field (default is 24600).

NOTE
For Professional software, the server requires 15 consecutive free ports beginning with the starting port number.

NOTE
For Trial and Licensed software, the server requires 18 consecutive free ports beginning with the starting port number.

e. Enter a port number in the **Syslog Port Number** field (default is 514).

NOTE
If the default syslog port number is already in use, you will not receive any syslog messages from the device. To find and stop the process currently running on the default Syslog port number, refer to "Syslog troubleshooting" on page 22.

f. Enter a port number in the **SNMP Port Number** field (default is 162).

g. Click **Next**.

If you enter a syslog port number already in use, a message displays. Click **No** on the message to remain on the **Server Configuration** screen and edit the syslog port number. Click **Yes** to close the message.

If you enter a port number already in use, a Warning displays next to the associated port number field. Edit that port number and click **Next**.

10. (SAN with SMI Agent) Complete the following steps on the **SMI Agent Configuration** screen.

a. Enable the SMI Agent by selecting the **Enable SMI Agent** check box.

b. Enable the SLP by selecting the **Enable SLP** check box, if necessary.

Only enabled after you select the **Enable SMI Agent** check box.

c. Enable the SSL by selecting the **Enable SSL** check box, if necessary.

Only enabled after you select the **Enable SMI Agent** check box.

d. Enter the SMI Agent port number in the **SMI Agent Port #** field (default is 5989 if **SSL Enabled** is selected; otherwise, the default is 5988).

e. Click **Next**.

11. (SAN Enterprise or SMI Agent) Select one of the following options on the **SAN Network Size** screen and click **Next**:

NOTE
Port count is equal to the total number of switch ports across all fabrics.

- **Small (managing up to 2000 switch ports, 1-20 domains)**
- **Medium (managing up to 5000 switch ports, 21-60 domains)**
- **Large (managing up to 9000 switch ports, 61-120 domains)**

NOTE
For full performance and dashboard functionality, the **Large** option of the SAN Enterprise edition only supports 5000 switch ports on a 32-bit system.

12. Verify your configuration information on the **Server Configuration Summary** screen and click **Next**.
13. Complete the following steps on the **Start Server** screen.
    a. (Trial and Licensed only) Select the **Start SMI Agent** check box, if necessary.

       Only enabled if you enabled SMI Agent on the **SMI Agent Configuration** screen.

    b. (Trial and Licensed only) Select the **Start SLP** check box, if necessary.

       Only enabled if you enabled SLP on the **SMI Agent Configuration** screen.

    c. Select the **Start Client** check box, if necessary.

       Only displays if you selected SAN with SMI Agent on the **Package** screen.

    d. Click **Finish**.

       After all of the services are started, the **Log In** dialog box displays.

       To make changes to the configuration, you can re-launch the configuration wizard (refer to "Configuring an explicit server IP address" on page 31).
14. Enter your user name and password.

    The defaults are **Administrator** and **password**, respectively.

NOTE
Do not enter *Domain\User_Name* in the **User ID** field for LDAP server authentication.

15. Click **Login**.
16. Click **OK** on the **IBM Network Advisor Login Banner**.

Accessing the IBM Network Advisor interfaces

Use the following procedures to access IBM Network Advisor from the server and client as well as to access the Server Management Console and the SMI Agent Configuration Tool.

Logging into a server

You must log into a server to monitor your network.

NOTE
You must have an established user account on the server to log in.

1. Double-click the desktop icon or open the application from the **Start** menu.

   The **Log In** dialog box displays.

2. Log into another server by entering the IP address to the other server in the **Network Address** field.

   NOTE
   The server must be the exact same version, edition, starting port number, and network size as the client.

3. Remove a server from the **Network Address** list by selecting the IP address and clicking **Delete**.
4. Enter your user name and password.

   The defaults are **Administrator** and **password**, respectively.

   NOTE
   Do not enter *Domain\User_Name* in the **User ID** field for LDAP server authentication.

5. Select or clear the **Save password** check box to choose whether you want the application to remember your password the next time you log in.
6. Click **Login**.
7. Click **OK** on the **Login Banner** dialog box.

   The IBM Network Advisor application displays.

Launching a remote client

The remote client requires Oracle JRE 1.7.0_25. For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

NOTE
For higher performance, use a 64-bit JRE.

1. Open a web browser and enter the IP address of the IBM Network Advisor server in the **Address** bar.

   If the web server port number does not use the default (443 if is SSL Enabled; otherwise, the default is 80), you must enter the web server port number in addition to the IP address. For example, *IP_Address*:*Port_Number*.

   The IBM Network Advisor web start screen displays.

2. Click the IBM Network Advisor web start link.

   The **Log In** dialog box displays.

3. Log into another server by entering the IP address to the other server in the **Network Address** field.

   NOTE
   The server must be the exact same version, edition, starting port number, and network size as the client.

4. Remove a server from the **Network Address** list by selected the IP address and clicking **Delete**.

5. Enter your user name and password.

   The defaults are **Administrator** and **password**, respectively.

   NOTE
   Do not enter *Domain**User_Name* in the **User ID** field for LDAP server authentication.

6. Select or clear the **Save password** check box to choose whether you want the application to remember your password the next time you log in.

7. Click **Login**.

8. Click **OK** on the **Login Banner** dialog box.

   The IBM Network Advisor application displays.

Launching the SMC on Windows

Open the **Server Management Console** from the **Start** menu on the IBM Network Advisor server.

You can also drag the SMC icon onto your desktop as a short cut.

Launching the SMC on Linux

NOTE
The Server Management Console is a graphical user interface and should be launched from the XConsole on Linux systems.

Double-click the SMC icon on your desktop.

OR

1. On the IBM Network Advisor server, go to the following directory:

   Install_Directory/bin

2. Type the following at the command line:

```
./smc
OR
sh smc
```

Launching the SMIA Configuration Tool

1. Launch the **Server Management Console** from the **Start** menu.
2. Click **Configure SMI Agent**.

   The **SMIA Configuration Tool Log In** dialog box displays.

3. Enter your user name and password.

   The defaults are **Administrator** and **password**, respectively.

4. Click **Login**.

Launching the SMIA Configuration Tool remote client

The remote client requires Oracle JRE 1.7.0_25. For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

1. Open a web browser and enter the IP address of the IBM Network Advisor server in the **Address** bar.

   If the web server port number does not use the default (5989 if is SSL Enabled; otherwise, the default is 5988), you must enter the web server port number in addition to the IP address. For example, *IP_Address*:*Port_Number*.

   The IBM Network Advisor web start screen displays.

2. Click the SMIA Configuration Tool web start link.

   The **SMIA Configuration Tool Log In** dialog box displays.

3. Enter your user name and password.

   The defaults are **Administrator** and **password**, respectively.

4. Select or clear the **Save password** check box to choose whether you want the application to remember your password the next time you log in.

5. Click **Login**.

   The **SMIA Configuration Tool** displays.

Syslog troubleshooting

If the default syslog port number is already in use, you will not receive any syslog messages from the device. Use one of the following procedures (depending on your operating system), to determine which process is running on the syslog port and to stop the process.

Finding the process

1. Open a command window.
2. Choose one of the following options:
   - On Linux systems, type netstat –nap | grep 514 and press **Enter**.

     The process running on port 514 displays.

     Example output: UDP 0 0 ::ffff:127:0:0:1:514 :::* 27397.
   - On Windows systems, type netstat –anb | find /i “514” and press **Enter**.

     The process running on port 514 displays.

     Example output: UDP 127:0:0:1:514 *:* 3328.

Stopping the process

Choose one of the following options:

- On Linux systems, type kill -9 “*ProcessID*”, where *ProcessID* is the ID of the process you want to stop, and press **Enter**.

  For example, kill -9 “27397”.
- On Windows systems, type `taskkill /F /PID "`*ProcessID*`"`, where *ProcessID* is the ID of the process you want to stop, and press **Enter**.

  For example, taskkill /F /PID "3328".

  OR

  1. Select Ctrl + Shift + Esc to open Windows Task Manager.
  2. Click the **Processes** tab.
  3. Click the **PID** column header to sort the processes by PID.
  4. Select the process you want to stop and click **End Process**.

Installing the ODBC driver

You must have the Open Database Connectivity (ODBC) driver to allow remote clients to export data and generate reports. The ODBC driver enables you to configure the data source name (DSN) for the IBM Network Advisor database.

Installing the ODBC driver on Windows systems

You must have the Open Database Connectivity (ODBC) driver to allow remote clients to export data and generate reports. The ODBC driver enables you to configure the data source name (DSN) for the IBM Network Advisor database.

To install the ODBC driver, complete the following steps.

1. Double-click edb_psqlodbc.exe located on the DVD (*DVD_Drive*/IBM Network Advisor/odbc/Windows).
2. Install the file to the usual location for your system's application files (for example, C:\Program Files\IBM Network Advisor ODBC Driver) on the **Select Install Folder** screen and click **Next**.

   NOTE
   If you select an invalid location, the ODBC driver is installed in a different location than where the ODBC executable drivers are located.

3. On the **Ready to Install** screen click **Next**.
4. Click **Finish** to complete the installation.

Adding the Data source on Windows systems

To add the data source, complete the following steps.

1. Choose one of the following options:
   - (32-bit OS) Select **Start > Settings > Control Panel > Administrative Tools > Data Sources (ODBC)**.
   - (64-bit OS) (Windows only) Select **Start > Run**, type `%windir%\SysWOW64\odbcad32.exe` and press **Enter**.

   The **ODBC Data Source Administrator** dialog box displays.
2. Click the **System DSN** tab.
3. Click **Add**.

   The **Create a New Data Source** dialog box displays.
4. Select **PostgreSQL Unicode**.
5. Click **Finish**.

   The **PostgreSQL Unicode ODBC Driver (psqlODBC) Setup** dialog box displays.
6. Enter a name for the data source in the **Datasource** field.
7. Enter the description of the IBM Network Advisor database in the **Description** field.
8. Enter the name of the IBM Network Advisor database in the **Database** field.

9. Select **enable** or **disable** from the **SSL Mode** list to specify whether or not to use SSL when connecting to the database.
10. Enter the IP address or host name of the IBM Network Advisor server in the **Server** field.
11. Enter the database server port number in the **Port Number** field.
12. Enter the database user name in the **User Name** field.
13. Enter the password in the **Password** field.
14. Click **Test** to test the connection.

NOTE
You can also use the Windows ODBC Driver Manager to add the DSN for the LINUX database server.

15. Click **OK** on the **Connection Test** dialog box.
16. Click **Save**.
17. Click **OK** on the **ODBC Data Source Administrator** dialog box.

Installing the ODBC driver on Linux systems

You must have the Open Database Connectivity (ODBC) driver to allow remote clients to export data and generate reports. The ODBC driver enables you to configure the data source name (DSN) for the IBM Network Advisor database.

To install the ODBC driver, complete the following steps.

1. Execute the following command in the terminal:

```
> su
>chmod 777 edb_psqlodbc.bin
> ./edb_psqlodbc.bin
```

   For 32-bit Linux systems, the installer file is located in DVD/BROCADE/IBM Network Advisor/odbc/Linux/ edb_psqlodbc.bin.

   For 64-bit Linux systems, the installer file is located in DVD/BROCADE/IBM Network Advisor/odbc/Linux_64/ edb_psqlodbc.bin.

2. On the **Setup psqlODBC** screen click **Next**.
3. Install the file to the usual location for your system's application files (for example, /opt/PostgreSQL/psqlODBC) on the **Installation Directory** screen and click **Next**.

NOTE
If you select an invalid location, the ODBC driver is installed in a different location than where the ODBC executable drivers are located.

4. On the **Ready to Install** screen click **Next**.
5. On the **Completing the psqlODBC Setup Wizard** screen click **Finish** to complete the installation.

Adding the Data source on Linux systems

Before you edit the INI files, install IBM Network Advisor (refer to "Installation" on page 1) and make sure the PostgreSQL database is up and running.

NOTE
For RedHat and Oracle Enterprise systems, the odbc.ini and odbcinst.ini files are located in /etc. For SUSE systems, the odbc.ini and odbcinst.ini files are located in /etc/unixODBC.

1. Open the odbc.ini file in an editor and enter the data source information as follows:

```
[TestDB]
Description = PostgreSQL 9.2
Driver = /opt/PostgreSQL/psqlODBC/lib/psqlodbcw.so
Database = dcmdb
Servername = 172.26.1.54
UserName = dcmadmin
Password = passw0rd
Port = 5432
```

2. Save and close the odbc.ini file.
3. Open the odbcinst.ini file in a text editor and make sure that the driver path information is correct.

   After you install the PostgreSQL ODBC driver, the odbcinst.ini should automatically update the driver path. If the driver path is not updated, add the following:

```
[psqlODBC]
Description=PostgreSQL ODBC driver
Driver=/opt/PostgreSQL/psqlODBC/lib/psqlodbcw.so
```

4. Save and close the odbcinst.ini file.

Testing the connection on Linux systems

To test the connection, complete the following steps.

1. Download and install Open Office.
2. Select **File > New > Database**.

   The **Database Wizard** displays.
3. On the **Select database** screen, complete the following steps.
   a. Select the **Connect to an existing database** option.
   b. Select **ODBC** from the list.
   c. Click **Next**.
4. On the **Set up ODBC connection** screen, complete the following steps.
   a. Click **Browse**.

      The data source saved in the odbc.ini file is populated in the **Datasource** dialog box.
   b. Select the data source and click **OK** on the **Datasource** dialog box.
   c. Click **Next**.

5. On the **Set up user authentication** screen, complete the following steps.
   a. Enter the database user name in the **User name** field.
   b. Select the **Password required** check box.
   c. Click **Test Connection** to test the connection.

      The **Authentication Password** dialog box displays.
   d. Enter the database password in the **Password** field and click **OK**.
   e. Click **OK** on the **Connection Test** dialog box.

      For 32-bit Linux systems, if an error message (file not found while testing the connection) displays, copy the lib files from the <postgresSQL path>/lib/* directory to the /usr/lib/ directory.

      For 64-bit Linux systems, if an error message (cannot open library) displays, complete the following steps:

      1. Execute the following command:
         ```
         export
         LD_LIBRARY_PATH=/opt/PostgreSQL/8.4/lib/:/usr/lib64/:/opt/PostgreSQL/p
         sqlODBC/lib/:$LD_LIBRARY_PATH
         ```
      2. Navigate to the Postgres ODBC library (default location is opt/PostgreSQL/psqlODBC/lib/).
      3. Create a list of missing libraries by executing the following command:
         `ldd psqlodbcw.so`
         Missing files display as: `libodbc.so.1=> not found`
      4. Find shared libraries with the same name as the missing library by executing the following command:
         `find –name libodbc.so*`
      5. Create a soft link for libodbc.so.1 pointing to libodbc.so.2.0.0 by executing the following command:
         `ln  -s  libodbc.so.1 libodbc.so.2.0.0`
   f. Click **Next**.
6. On the **Save and proceed** screen, click **Finish**.

Smart Card driver installation

Windows operating systems do not require smart card drivers to be installed separately; the driver is bundled with the operating system. However, you must install a smart card driver for the Linux operating systems. You must install both the special USB Chip/Smart Card Interface Device (USB CCID) and the PC/SC IFD driver. You can download the source code and compile it from one of the following websites:

- USB CCID (ccid-1.3.7.tar.bz2)
  Open Source URL: *http://pcsclite.alioth.debian.org/ccid.html*.
- Muscle PC/SC IFD Driver (pcsc-lite-1.4.101.tar.gz)
  Open Source URL: *https://alioth.debian.org/frs/?group id=30105*.

The Encryption Manager Client within IBM Network Advisor provides the binary code on both platforms for installation. You must uncompress or untar the file depending on the platform. The procedures for the local client and the remote client configurations follow. The thirdparty/pscs-lite-1.4.101-linux-x86.tar.gz file can be found on the IBM Network Advisor DVD.

Installing the Smart Card driver on the local client

1. Verify that the /opt directory exists.

   If the /opt directory does not exist, create an /opt directory. If you want to install the driver in a different directory, create that directory. Otherwise, skip this step.

   ```
   > su
   > mkdir /opt
   ```

2. Copy the appropriate pscs file for your platform (Linux) from the DVD and rename the file as pcsc-lite-1.4.101-linux-x86.tar.gz file.

3. Log in as the superuser to untar the pcsc-lite-1.4.101-linux-x86.tar.gz file.

   ```
   > su
   > cd /opt
   > gunzip pcsc-lite-1.4.101-linux-x86.tar.gz
   > tar -xvf pcsc-lite-1.4.101-linux-x86.tar
   ```

   After the pcsc_lite_1.4.101.tar file is extracted, the necessary binary, library, and smart card drivers are stored in the /opt/pcsc directory.

4. If you installed a pcsc directory into a location other than /opt, modify the pcscctl script to change “/opt” to the directory you specified in step 1.

   ```
   > cd <new_dir>
   > vi pcscctl
   ```

   Search for “/opt” and change it to the name of the new directory.

5. Create a soft link into the system directory. This is to support the automatic restart of the pcscd daemon upon system restart.

   If you installed the pcsc directory into the /opt directory, just create the soft link. Otherwise, use the name of the new directory in place of /opt.

   ```
   S.u.s.e> ln –s /opt/pcsc/pcscctl /etc/init.d/pcscd
   S.u.s.e> chkconfig --add pcscd
   ```

   or

   ```
   redhat> ln –s /opt/pcsc/pcscctl /etc/init.d/pcscd
   redhat> chkconfig --add pcscd
   ```

   NOTE
   Before you enter **chkconfig –add pcscd**, you can enter **chkconfig –list | grep pcscd** to verify that the pcscd file is already on the list. If it already exists, you do not need to enter **chkconfig –add pcscd**. After you reboot the system, you should expect the following links under /etc/rc2.d, /etc/rc3.d, /etc/rc3.d, /etc/rc4.d, and /etc/rc5.d.

   ```
   lrwxrwxrwx 1 root root 15 Jul 28 01:50  S94pcscd -> ../init.d/pcscd
   ```

   NOTE
   For some Linux vendors, the Smart Card driver may come with the operating system. In this case, extra system configuration may be needed. For more information, refer to "Detecting and correcting a default Linux Smart Card driver" on page 29.

6. Start the pcscd daemon or stop the pcscd daemon.

   To start pcscd, type:

   ```
   > /opt/pcsc/pcscctl start
   ```

   To stop pcscd, type:

   ```
   > /opt/pcsc/pcscctl stop
   ```

Installing the Smart Card driver on the remote client

1. Complete steps 1 through 4 in "Installing the Smart Card driver on the local client" on page 27.
2. Run the following commands to support remote clients (Web Start).

```
> cd /usr/lib
> ln –s /opt/pcsc/lib/libpcsclite.so .
```

NOTE
If a soft link exists on libpcsclite.so, make sure that the final file is linked to /opt/pcsc/lib/libpcsclite.so.xxx. It is recommended that you back up the original.

Example

```
> ls –l  libpcsc*
    lrwxrwxrwx 1 root root    20 Aug  4 16:16 libpcsclite.so ->
    libpcsclite.so.1.0.0
    lrwxrwxrwx 1 root root    20 Jun  4 12:30 libpcsclite.so.1 ->
    libpcsclite.so.1.0.0
    lrwxrwxrwx 1 root root    34 Aug  5 14:36 libpcsclite.so.1.0.0

> mv libpcsclite.so.1.0.0 libpcsclite.so.1.0.0.org
> ln -s /opt/pcsc/lib/libpcsclite.so.1.0.0   libpcsclite.so.1.0.0

> ls –l  libpcsc*
    lrwxrwxrwx 1 root root    20 Aug  4 16:16 libpcsclite.so ->
    libpcsclite.so.1.0.0
    lrwxrwxrwx 1 root root    20 Jun  4 12:30 libpcsclite.so.1 ->
    libpcsclite.so.1.0.0
    lrwxrwxrwx 1 root root    34 Aug  5 14:36 libpcsclite.so.1.0.0 ->
    /opt/pcsc/lib/libpcsclite.so.1.0.0
    -rwxr-xr-x 1 root root 35428 Aug  4 16:17 libpcsclite.so.1.0.0.org
```

Detecting and correcting a default Linux Smart Card driver

This section applies to the Linux system only. Some Linux systems may provide a default Smart Card driver and have their own setup to activate it. In this case, you must use the driver provided with IBM Network Advisor. Otherwise, there could be an incompatibility issue between the driver and the native library that could cause a driver detection failure. Complete the following steps to discover whether a default driver already exists and how to reconfigure the driver environment.

1. Detect a different Smart Card driver by running the following commands:

```
> cd /
> find . –name pcscd –print
```

   If the results contain "pcscd", and it is not located under /opt/pcsc or /etc/init.d/pcscd, a different driver exists on the system.

2. Make sure the pcscd file on the /etc/init.d directory is linked to /opt/pcsc/pcscctl by running the following commands:

```
> cd /etc/init.d
> ls –l pcscd
    lrwxrwxrwx 1 root root 17 Jul 28 01:29 pcscd -> /opt/pcsc/pcscctl
```

3. If there is an existing pcscd script in this directory, you can move and rename this file before you overwrite it.

```
> mv  /etc/init.d/pcscd   /etc/init.d/pcscd.org
```

4. Create a soft link using the following command.

```
> ln –s /opt/pcsc/pcscctl /etc/init.d/pcscd
```

The existing pcscd.org script in this directory implies that a different driver version exists. You can compare the existing one with the one under /opt/pcsc/pcscd/sbin. If the size is different and the existing pcscd script contains the following information, you must clean up the driver configuration. The example below shows a different pscsd.org script and how to do the configuration cleanup. The configuration level is 2345, the start priority is 25, and the stop priority is 88.

```
> more /etc/init.d/pcscd

   #!/bin/sh
   #
   # pcscd        Starts the pcscd Daemon
   #
   # chkconfig:   2345   25  88
```

5. Remove the existing pcscd start priority file by deleting the file as S*NN*pcscd, where *NN* is the start priority. For example, from the preceding step, the file name is S25pcscd.

```
> find  /etc/.   –name “S25pcscd” –exec rm {} \; –print
> sync;sync;sync
> reboot
```

After the reboot, the new configuration from the /opt/pcsc/pcscctl file should be under the /etc/rc2.d, /etc/rc3.d, /etc/rc4.d, and /etc/rc5.d directories.

```
lrwxrwxrwx 1 root root 15 Jul 28 01:50 S94pcscd -> ../init.d/pcscd
```

6. For the remote client, ensure that the Smart Card native library is linked to the one under /opt/pcsc/lib.

```
> cd /
> find . –name libpcsclite.so* –print
```

If the library libpcsclite.so* exists in multiple locations, you must ensure that there is only one library under /lib or /usr/lib, and that it is linked to the library on /opt/pcsc/lib correctly. For example, to find a copy of the library on /lib, use the following commands.

```
> cd /lib
> ls –al libpcsclite.so
```

If a copy of the library exists, either remove it or save it as a backup.

To find a copy of the library on /usr/lib, use the following commands.

```
> cd /usr/lib
> ls –al libpcsclite.so
```

Use this copy for the soft link.

```
> ln –s  /opt/pcsc/lib/libpcsclite.so  /usr/lib/.
```

Configuring an explicit server IP address

If you selected a specific IP address from the **Server IP Configuration** screen during installation and the selected IP address changes, you will not be able to connect to the server. To connect to the new IP address, you must manually update the IP address information.

To change the IP address, complete the following steps.

1. Choose one of the following options:
   - On Windows systems, select **Start > Programs > IBM Network Advisor 12.1.0 > IBM Network Advisor Configuration**.
   - On UNIX systems, execute sh *Install_Home*/bin/configwizard in terminal.
2. Click **Next** on the **Welcome** screen.
3. Click **Yes** on the confirmation message.
4. Click **Next** on the **FTP Server** screen.
5. Complete the following steps on the **Server IP Configuration** screen.
   a. Select an address from the **Server IP Configuration** list.
   b. Select an address from the **Switch - Server IP Configuration Preferred Address** list.

      NOTE
      The host name does not display in the list if it contains invalid characters. Valid characters include alphanumeric and dash (-) characters. The IP address is selected by default. If the an IPv6 address is selected, server startup will fail.

      If DNS is not configured for your network, do not select the “hostname” option from either the **Server IP Configuration** or **Switch - Server IP Configuration Preferred Address** list. Selecting the “hostname” option prevents clients and devices from communicating with the server.

   c. Click **Next**.
6. Click **Next** on the **Server Configuration** screen.
7. (SAN with SMI Agent) Click **Next** on the **SMI Agent Configuration** screen.
8. Verify your Server Name on the **Server Configuration Summary** screen and click **Next**.
9. Click **Finish** on the **Start Server** screen.
10. Click **Yes** on the restart server confirmation message.
11. Enter your user name and password and click **Login**.

    The defaults are **Administrator** and **password**, respectively.

    NOTE
    Do not enter *Domain**User_Name* in the **User ID** field for LDAP server authentication.

12. Click **OK** on the Login Banner.

Configuring remote client access to the database

1. Open the pg_hba.conf file (in the Install_Home\data\databases\ directory).
2. To allow all IPv4 remote connections for all users, search for the following text and uncomment the second line:

```
# IPv4 remote connections (Uncomment below line to allow all IPv4 remote
users):
#host    all             all             0.0.0.0/0               md5
```

3. To allow all IPv6 remote connections for all users, search for the following text and uncomment the second line:

```
# IPv6 remote connections (Uncomment below line to allow all IPv6 remote
users):
#host    all             all             ::0/0                   md5
```

4. To allow access to a specific IPv4 address, search for the following text and uncomment the second line:

```
# Uncomment below line and provide IPV4 address to allow specific IPv4 remote
user
#host    all             all             <IPV4 address>/32       md5
```

5. To allow access to a specific IPv6 address, search for the following text and uncomment the second line:

```
# Uncomment below line and provide IPV6 address to allow specific IPv6 remote
user
#host    all             all             <IPV6 address>/128      md5
```

6. Save and close the file.

Chapter

Data Migration 3

In this chapter

Upgrading the license

NOTE
You cannot upgrade using the license key from Professional edition.

The quickest and simplest method of moving from one package to another is to enter the new license information on the **IBM Network Advisor License** dialog box. The following tables list the available upgrade paths:

TABLE 12 SAN upgrade paths

Current software release	To software release
SAN Professional	SAN Professional Plus Trial or Licensed version SAN Enterprise Trial or Licensed version
SAN Professional Plus Trial	SAN Enterprise Trial or Licensed version
SAN Professional Plus Licensed version	SAN Enterprise Licensed version
SAN Enterprise Trial	SAN Enterprise Licensed version

1. Select **Help > License**.

   The **IBM Network Advisor License** dialog box displays.
2. Browse to the license file (.xml) and click **Update**.
3. Click **OK** on the **IBM Network Advisor License** dialog box.
4. Click **OK** on the message.

   The Client closes after updating the license successfully. Restart the Server from the Server Management Console for the changes to take effect.
5. Open the application (double-click the desktop icon or open from the **Start** menu).

   The **Log In** dialog box displays.

6. Enter your user name and password.

   The defaults are **Administrator** and **password**, respectively. If you migrated from a previous release, your user name and password do not change.

   NOTE
   Do not enter *Domain\User_Name* in the **User ID** field for LDAP server authentication.

7. Select or clear the **Save password** check box to choose whether you want the application to remember your password the next time you log in.
8. Click **Login**.
9. Click **OK** on the **IBM Network Advisor Login Banner**.

Supported migration paths

NOTE
Enterprise and Professional Plus editions are not supported on 32-bit servers. To migrate Enterprise and Professional Plus editions to a 64-bit server, refer to "Pre-migration requirements when migrating from one server to another" on page 37.

Direct migration is not supported on pre-11.1.Xreleases. Table 13 shows the migration paths from DCFM and IBM Network Advisor 11.1.X or earlier releases.

NOTE
IBM Network Advisor 11.1.X includes 11.1.0, 11.1.1, 11.1.2, 11.1.3, 11.1.4, and 11.1.5.

TABLE 13 Pre-11.1.X release migration path matrix

	IBM Network Advisor 12.0.X	IBM Network Advisor 12.1.X
DCFM 10.4.X	DCFM 10.4.X > IBM Network Advisor 11.1.X > IBM Network Advisor 12.0.X >	DCFM 10.4.X > IBM Network Advisor 11.1.X > IBM Network Advisor 12.0.X > IBM Network Advisor 12.1.X
IBM Network Advisor 11.0.X	Direct migration	IBM Network Advisor 11.1.X > IBM Network Advisor 12.0.X > IBM Network Advisor 12.1.X
IBM Network Advisor 11.1.X	Direct migration	IBM Network Advisor 12.0.X > IBM Network Advisor 12.1.X

Table 14 shows the direct migration paths from the IBM Network Advisor 12.0.0 or later Professional, Trial, and Licensed versions. For the step-by-step migration procedure, refer to "Migrating data" on page 41.

NOTE
IBM Network Advisor 12.0.X includes 12.0.0, 12.0.1, 12.0.2, and 12.0.3.

TABLE 14 IBM Network Advisor version migration paths

Current version	Professional version	Trial version		Licensed Version	
		Professional Plus	Enterprise	Professional Plus	Enterprise
IBM Network Advisor 12.0.X Professional	Yes[1]	Yes[1]	Yes[1]	Yes[1]	Yes[1]
IBM Network Advisor 12.0.X Professional Plus trial	No	Yes[1]	Yes[1]	Yes[1]	Yes[1]
IBM Network Advisor 12.0.X Professional Plus Licensed	No	No	No	Yes[1]	Yes[1]
IBM Network Advisor 12.0.X Enterprise trial	No	No	Yes[1]	No	Yes[1]
IBM Network Advisor 12.0.X Enterprise Licensed	No	No	No	No	Yes[1]
IBM Network Advisor 12.1.0 Professional	Yes[2]	Yes[2]	Yes[2]	Yes[2]	Yes[2]
IBM Network Advisor 12.1.0 Professional Plus trial	No	Yes[2]	Yes[2]	Yes[2]	Yes[2]
IBM Network Advisor 12.1.0 Professional Plus Licensed	No	No	No	Yes[2]	Yes[2]
IBM Network Advisor 12.1.0 Enterprise trial	No	No	Yes	No	Yes[2]
IBM Network Advisor 12.1.0 Enterprise Licensed	No	No	No	No	Yes[2]

1. Migration from pre-12.0.0 releases does not support partial data migration and network path migration.

2. Local path migration is only supported when you partially uninstall the current version. Network path migration (whether the current version is fully installed or partially uninstalled) is always supported.

Table 15 shows the migration paths from SMI Agent only. For the step-by-step migration procedures, refer to "Migrating data" on page 41.

TABLE 15 SMI Agent only migration paths

Current version	Professional version	Trial version		Licensed Version		SMI Agent only
		Professional Plus	Enterprise	Professional Plus	Enterprise	
IBM Network Advisor 11.1.X SMI Agent only	No	No	No	No	No	Yes
IBM Network Advisor 11.X.0 SMI Agent only	No	No	No	No	No	Yes

DCFM migration paths

NOTE
Before you migrate from DCFM to IBM Network Advisor 11.0.X, 11.1.0, 11.1.1, or 11.1.2, you must reset your DCFM password back to the default (password).

You cannot migrate directly from DCFM 10.0.X, DCFM 10.1.X or DCFM 10.3.X to IBM Network Advisor 12.1.0. You must first migrate to DCFM 10.4.X, then migrate to IBM Network Advisor 11.1.X, then migrate to IBM Network Advisor 12.0.X, then migrate to IBM Network Advisor 12.1.0.

To migrate from DCFM 10.0.X, DCFM 10.1.X or DCFM 10.3.X to DCFM 10.4.X, contact your customer representative. To migrate from DCFM 10.4.X to IBM Network Advisor 11.1.X, refer to the *IBM Network Advisor Migration Guide* for IBM Network Advisor 11.1.X.

EFCM and Fabric Manager migration paths

You cannot migrate directly from EFCM or Fabric Manager to IBM Network Advisor 12.1.0. To migrate from EFCM or Fabric Manager, you must first migrate to DCFM 10.3.X, then migrate to IBM Network Advisor 11.1.X, then migrate to IBM Network Advisor 12.0.X, then migrate to IBM Network Advisor 12.1.0. For more information about migrating from EFCM or Fabric Manager to DCFM 10.3.X, contact your customer representative.

Pre-migration requirements

Before you install IBM Network Advisor, make sure you meet the following pre-migration requirements.

- Make sure all system requirements have been met prior to installation. For specific system requirements, refer to "System requirements" on page 1.
- Check for and install the latest Java patches for your operating system. IBM Network Advisor requires Oracle JRE 1.7.0_25. For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.
- Make sure that you fully back up your current Management application data on your management server.
- Make sure you close all instances of the application before migrating.
- Make sure to install IBM Network Advisor on the same system as your current Management application.
- If you are migrating within the same release or you are migrating from Professional to Licensed software, make sure to partially uninstall (refer to "Uninstallation" on page 47) the application.
- Partial data migration is not supported from pre-12.0.0 releases. If you are migrating data from a partially uninstalled source, complete the following steps:

    1. Re-install your current IBM Network Advisor version on the same machine and migrate the partially uninstalled data.

        If your current release is pre-11.1.X, you must migrate to Network Advisor 11.1.0 or later. Refer to Table 13 on page 34 for the release migration path.

    2. Install Network Advisor 12.1 (refer to "Installation" on page 1) on the same machine and migrate your data (refer to "Migrating data" on page 41).

Pre-migration requirements when migrating from one server to another

- If you are migrating from a pre-12.0.0 release on a 32-bit Windows server to Network Advisor 12.1.0 on a 64-bit Windows server, complete the following steps.

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on the 32-bit server (refer to Table 13 on page 34 for the release migration path), then install Network Advisor 11.1.X on the 64-bit server and migrate data using the network path, then migrate to Network Advisor 12.1 on the 64-bit server.

1. Open the Server Management Console from the **Start** menu on the 32-bit server.
2. Click **Stop** to stop all services.
3. Using Windows Explorer, browse to the 32-bit Network Advisor directory.
4. Right-click the 32-bit Network Advisor directory and select **Sharing and Security**.
5. Select the **Share this Folder** option on the **Network Advisor Properties** dialog box and click **OK**.

   The folder icon changes to the shared folder icon.
6. From the 64-bit server, verify that the 32-bit server shared drive is accessible.
7. Install Network Advisor 11.1.X on the 64-bit server (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

   NOTE
   During migration you will need to browse to the shared directory of the 32-bit server on the **Copy Data and Settings from previous releases** screen.
8. Install Network Advisor 12.1.0 on the 64-bit Windows server (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- If you are migrating from a pre-12.0.0 release on a 32-bit Linux server to Network Advisor 12.1.0 on a 64-bit Linux server, complete the following steps.

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on the 32-bit server (refer to Table 13 on page 34 for the release migration path).

1. Install Network Advisor 11.1.X on your current 32-bit machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
2. Install Network Advisor 12.0.0 on your current 32-bit machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
3. Back up the Network Advisor 12.0.0 server data on your current 32-bit machine. For instructions, refer to "*Configuring backup*" in the *IBM Network Advisor User Manual* or online help.
4. Install Network Advisor 12.0.0 on your new 64-bit machine (refer to "Data Migration" on page 33).
5. Restore the server back up from your original 32-bit machine. For instructions, refer to "*Restoring data*" in the *IBM Network Advisor User Manual* or online help.

6. Install Network Advisor 12.1.0 on the 64-bit Linux server (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- If you are migrating from a pre-12.0.0 release on one server to another server, complete the following steps. Migrating using this procedure requires that the server versions are the same (32-bit to 32-bit OR 64–bit to 64-bit).

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on the current server (refer to Table 13 on page 34 for the release migration path).

1. Install Network Advisor 11.1.X on your new machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41) using the network path.
2. Install Network Advisor 12.0.0 on your new machine (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).
3. Install Network Advisor 12.1.0 on your new machine (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- If you are migrating from a Network Advisor 12.0.X release on a 32-bit server to Network Advisor 12.1.0 on a 64-bit server, complete the following steps.

1. Back up the Network Advisor 12.0.X server data on your current 32-bit machine. For instructions, refer to "*Configuring backup*" in the *IBM Network Advisor User Manual* or online help.
2. Install Network Advisor 12.0.X on your new 64-bit machine (refer to "Installation" on page 1).
3. Restore the server back up from your original 32-bit machine. For instructions, refer to "*Restoring data*" in the *IBM Network Advisor User Manual* or online help.
4. Install Network Advisor 12.1.0 on the 64-bit Windows server (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- If you are migrating from Windows server that is no longer supported to a supported Windows server, complete the following steps. For a list of supported operating system servers, refer to Table 2 on page 2.

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on your current server (refer to Table 13 on page 34 for the release migration path).

1. Install Network Advisor 12.0.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
2. Install Network Advisor 12.1.0 on your new machine (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- If you are migrating from Linux server that is no longer supported to a supported Linux server, complete the following steps. For a list of supported operating system servers, refer to Table 2 on page 2.

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on your current server (refer to Table 13 on page 34 for the release migration path).

1. Install Network Advisor 12.0.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
2. Install Network Advisor 12.1.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
3. Back up the server data on your current machine. For instructions, refer to "*Configuring backup*" in the *IBM Network Advisor User Manual* or online help.
4. Install Network Advisor 12.0.X on the supported server (refer to "Data Migration" on page 33).
5. Restore the server back up from your original server. For instructions, refer to "*Restoring data*" in the *IBM Network Advisor User Manual* or online help.
6. Install Network Advisor 12.1.0 on your new machine (refer to "Data Migration" on page 33) and migrate your data ("Migrating data" on page 41).

- Cross OS migration is not supported; however, you can restore a Windows OS backup to a Linux OS and vice versa. If you are migrating from one OS to another, complete the following steps:

NOTE
If you are migrating from a pre-11.1.X release, you must first migrate to Network Advisor 11.1.X on your current server (refer to Table 13 on page 34 for the release migration path).

1. Install Network Advisor 12.0.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 41).
2. Install Network Advisor 12.1 (refer to "Installation" on page 1) on the current machine and migrate your data (refer to "Migrating data" on page 41).
3. Back up the server data on your current machine. For instructions, refer to "*Configuring backup*" in the *IBM Network Advisor User Manual* or online help.
4. Install Network Advisor 12.1 (refer to "Installation" on page 1) on the new machine.
5. Restore the server back up from your original machine. For instructions, refer to "*Restoring data*" in the *IBM Network Advisor User Manual* or online help.

Additional pre-migration requirements on UNIX systems

- Make sure that the current application services are running.
  1. Go to *Install_Home*/bin.
  2. Execute ./smc or sh smc.
  3. Click the **Services** tab.

     The tab lists the DCFM services.
  4. Click **Start**, if necessary.
- Make sure that an X Server is available for display and is configured to permit X Client applications to display from the host on which they are installing the Network Advisor Server (typically, this simply requires that the systems console be present and running with a logged in user on the X Server-based desktop session, such as KDE, GNOME, and so on).
- Make sure that the DISPLAY environment variable is correctly defined in the shell with a valid value (for example, to display to the local console, **export DISPLAY=:0.0**, or to display to a remote system that has an X Server running, **export DISPLAY=***Remote_IP_Address***:0.0**).

  You may also need to consider a firewall that might block the display to the X Server which listens by default on TCP port 6000 on the remote host.

  To display to a remote system you need to permit the remote display of the X Server by running command **xhost +IP**, where IP is the IP address of the Network Advisor server host from the X-based desktop of the remote system.
- Make sure you test the DISPLAY definition by running the command **xterm** from the same shell from which you run `install.bin`. A new X terminal window to the destination X Server display should open.

Additional trial requirements

- Two versions of the Management application (DCFM or Network Advisor) cannot reside on the same host unless there are two guest operating system's on the same host.
- Data collected during the Trial cannot be migrated back to the Professional software.
- Once the Enterprise trial period expires, you must upgrade to Licensed software.

Migrating data

The quickest and simplest method of moving from one package to another is to enter the new license information on the **Network Advisor License** dialog box. To upgrade from a previous release, refer to "Upgrading the license" on page 33. If you have not installed the application, refer to "Installation" on page 1.

NOTE
Trial to Professional software migration is not supported.

NOTE
Licensed software to Trial software migration is not supported.

NOTE
Enterprise software to Professional Plus software migration is not supported.

To migrate data from a previous version, complete the following steps.

1. Click **Next** on the **Welcome** screen.
2. Choose one of the following options:
   - If data is detected on your system, the **Copy Data and Settings from previous releases** screen displays. To migrate data from the previous version installed (automatically detected), select **Yes, from the following location**. Continue with step 3.
   - If data is not detected, the **Copy Data and Settings from previous releases** screen displays. Complete the following steps:
     a. Select **Yes, from this machine or on network** and click **Browse** to browse to the installation directory.
     b. Click **Next** on the **Copy Data and Settings from previous releases** screen. Continue with step 3.

     NOTE
     If you are migrating from a 32-bit server, you will need to browse to the shared directory of the 32-bit server on the **Copy Data and Settings from previous releases** screen.

     NOTE
     If you are migrating to the same install location (as the previous version), you will need to browse to the renamed directory on the **Copy Data and Settings from previous releases** screen.
3. To migrate historical performance data, select the **SAN** check box, if necessary.
4. Click **Start** on the **Data Migration** screen.

   Data migration may take several minutes. When data migration is complete, the previous version is partially uninstalled.

5. Click **Next** on the **Data Migration** screen.

   If you have products associated with the Brocade North America or Brocade International Call Home centers, a message displays. To map these Call Home centers to the Brocade E-mail Call Home center after migration, click **Yes**. To not map these Call Home centers, click **No**.

   NOTE
   Make sure you configure the Brocade E-mail Call Home center (refer to the *Brocade Network Advisor User Manual* or online help.

   If you are migrating from Professional or Trial software, continue with step 6.

   If you are migrating from Licensed software, go to step 7.

6. Select one of the following options on the **Installation Type** screen and click **Next**.

   NOTE
   The SAN768B and SAN768B-2 Backbone chassis require Enterprise edition.

   - **IBM Network Advisor - Licensed version**

     Continue with step 7. Requires you to enter a license key during configuration to enable features and configuration.

   - **IBM Network Advisor - 75 days Trial**

     Go to step 8. Enables you to manage SAN networks from a single interface for 75 days.

     ATTENTION
     If you choose to install Trial, once the trial period ends (75 days), you must upgrade to Licensed software.

7. Click **Next** on the **Server License** screen:

8. Complete the following steps on the **FTP/SCP/SFTP Server** screen.

   The default selection reflects the previous edition configuration.

   a. Choose one of the following options:

      - Select **Built-in FTP/SCP/SFTP Server** to configure an internal FTP/SCP/SFTP server and select one of the following options:
        - Select **Built-in FTP Server** to configure an internal FTP server
          The internal FTP server uses a default account and port 21. You can configure your own account from the **Options** dialog box. For instructions, refer to the *Network Advisor User Manual* or online help.
        - Select **Built-in SCP/SFTP Server** to configure an internal SCP/SFTP server
          The internal SCP/SFTP server uses a default account and port 22. You can configure your own account from the **Options** dialog box. For instructions, refer to the *Network Advisor User Manual* or online help.
      - Select **External FTP/SCP/SFTP Server** to configure an external FTP server.
        You can configure the external FTP server settings from the **Options** dialog box. For instructions, refer to the *Network Advisor User Manual* or online help.

b. Click **Next**.

If port 21 or 22 is busy, a message displays. Click **OK** to close the message and continue. Once the Management application is configured make sure port 21 or 22 is free and restart the Server to start the FTP/SCP/SFTP service.

NOTE
If you use an FTP/SCP/SFTP Server which is not configured on the same machine as the Management application, the Firmware Repository feature will not be available.

You can configure the external FTP server settings from the **Options** dialog box. For instructions, refer to the *Network Advisor User Manual* or online help.

9. Complete the following steps on the **Server IP Configuration** screen.

NOTE
If the Management server or client has multiple Network Interface Cards and if any of these interfaces are not plugged in, you must disable them; otherwise, the following features do not work properly:

Server impact

- Configuration wizard (does not display all IP addresses)
- Trap and Syslog auto registration
- Report content (Ipconfiguration element does not display all server IP addresses)
- Trace dump through FTP

Client impact

- Options dialog box (does not display all IP addresses)
- Firmware import and download dialog box
- Firmware import for Fabric OS products
- FTP button in Technical Support Repository dialog box
- Technical supportSave of Fabric OS and Host products through FTP

a. Select an address from the **Server IP Configuration** list.

NOTE
For Professional software, the **Server IP Configuration** address is set to “localhost” by default. You cannot change this address.

NOTE
For SMI Agent, if the **Server IP Configuration** list contains a duplicate IP address or is empty, an error message displays and the configuration wizard closes.

b. Select an address from the **Switch - Server IP Configuration Preferred Address** list.

NOTE
If the “hostname” contains invalid characters, the host name does not display in the list. Valid characters include alphanumeric and dash (-) characters. The IP address is selected by default. If the an IPv6 address is selected, server start up will fail.

If DNS is not configured for your network, do not select the ‘hostname’ option from either the **Server IP Configuration** or **Switch - Server IP Configuration Preferred Address** list. Selecting the ‘hostname’ option prevents clients and devices from communicating with the Server.

If you select a specific IP address from the **Server IP Configuration** screen and the selected IP address changes, you will not be able to connect to the server. To change the IP address, refer to “Configuring an explicit server IP address” on page 31.

c. Click **Next**.

10. Complete the following steps on the **Server Configuration** screen.

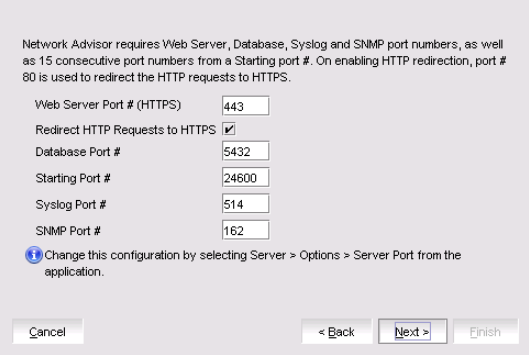

FIGURE 2 **Server Configuration screen**

a. Enter a port number in the **Web Server Port # (HTTPS)** field (default is 443).

b. Enable HTTP redirection to HTTPS by selecting the **Redirect HTTP Requests to HTTPS** check box.

When you enable HTTP redirection, the server uses port 80 to redirect HTTP requests to HTTPS. You can configure the server port settings from the **Options** dialog box (**Server Port** pane). For instructions, refer to the *Network Advisor User Manual* or online help.

c. Enter a port number in the **Database Port #** field (default is 5432).

NOTE
Do not use a port number below 1024.

d. Enter a port number in the **Starting Port #** field (default is 24600).

NOTE
For Professional software, the server requires 15 consecutive free ports beginning with the starting port number.

NOTE
For Trial and Licensed software, the server requires 18 consecutive free ports beginning with the starting port number.

e. Enter a port number in the **Syslog Port #** field (default is 514).

NOTE
If the default syslog port number is already in use, you will not receive any syslog messages from the device. To find and stop the process currently running on the default Syslog port number, refer to "Syslog troubleshooting" on page 22.

f. Enter a port number in the **SNMP Port #** field (default is 162).

g. Click **Next**.

If you enter a syslog port number already in use, a message displays. Click **No** on the message to remain on the **Server Configuration** screen and edit the syslog port number. Click **Yes** to close the message and continue with step 11.

If you enter a port number already in use, a warning displays next to the associated port number field. Edit that port number and click **Next**.

11. (SAN with SMI Agent) Complete the following steps on the **SMI Agent Configuration** screen.

a. Enable the SMI Agent by selecting the **Enable SMI Agent** check box.

b. Enable the SLP by selecting the **Enable SLP** check box, if necessary.

Only enabled after you select the **Enable SMI Agent** check box.

c. Enable the SSL by selecting the **Enable SSL** check box, if necessary.

Only enabled after you select the **Enable SMI Agent** check box.

d. Enter the SMI Agent port number in the **SMI Agent Port #** field (default is 5989 if **SSL Enabled** is selected; otherwise, the default is 5988).

e. Click **Next**.

12. (SAN Enterprise or SMI Agent) Select one of the following options on the **SAN Network Size** screen and click **Next**:

NOTE
Port count is equal to the total number of switch ports across all fabrics.

- **Small (managing up to 2000 switch ports, 1-20 domains)**
- **Medium (managing up to 5000 switch ports, 21-60 domains)**
- **Large (managing up to 9000 switch ports, 61-120 domains)**

13. Verify your configuration information on the **Server Configuration Summary** screen and click **Next**.

14. Complete the following steps on the **Start Server** screen.
    a. (Trial and Licensed only) Select the **Start SMI Agent** check box, if necessary.
    b. (Trial and Licensed only) Select the **Start SLP** check box, if necessary.
    c. Select the **Start Client** check box, if necessary.
    d. Click **Finish**.

       After all of the services are started, the **Log In** dialog box displays.

       To make changes to the configuration, you can re-launch the configuration wizard (refer to "Configuring an explicit server IP address" on page 31).
15. Enter your user name and password.

    The defaults are **Administrator** and **password**, respectively. If you migrated from a previous release, your user name and password do not change.

    NOTE
    Do not enter *Domain\User_Name* in the **User ID** field for LDAP server authentication.
16. Click **Login**.
17. Click **OK** on the **IBM Network Advisor Login Banner**.

Chapter

4

Uninstallation

In this chapter

This section provides step-by-step instructions to uninstall IBM Network Advisor and SMI Agent from both Windows and UNIX systems.

NOTE
IBM Network Advisor is installed on a separate directory from your previous version; therefore, you do not need to uninstall the previous version immediately. However, you cannot run both versions simultaneously.

Uninstalling from Windows systems

Follow these instructions to uninstall the IBM Network Advisor and SMI Agent from your Windows system.

1. Select **Start > Programs > IBM Network Advisor 12.1.0 > Uninstall IBM Network Advisor**.
2. Select one of the following options on the **Uninstall Option** screen:
   - **Partial Uninstall** — Configuration and performance data is retained to be re-used by the new installation. This is the default option.
   - **Full Uninstall** — All data is removed.
3. Click **Uninstall**.
4. Click **Done** on the **Uninstall Complete** screen.

Uninstalling from Windows systems (headless uninstall)

If the application was installed using the headless installation, complete the following steps to uninstall IBM Network Advisor and SMI Agent from your Windows server.

1. Open a command prompt.
2. Choose one of the following options:
   - To partially uninstall IBM Network Advisor (configuration and performance data is retained to be re-used by the new installation), execute *Install_Home*\Uninstall_IBM Network Advisor 12.1.0\Uninstall_IBM Network Advisor 12.1.0.exe –f <*absolute path of partial uninstall property file*>.
   - To fully uninstall IBM Network Advisor (all data is removed), execute *Install_Home*\Uninstall_IBM Network Advisor 12.1.0\Uninstall_IBM Network Advisor 12.1.0.exe –f <*absolute path of full uninstall property file*>.

   When uninstallation is complete, an "Uninstallation complete" message displays. You must manually delete the *Install_Home*/silent folder.

Uninstalling from UNIX systems

Follow these instructions to uninstall the IBM Network Advisor and SMI Agent from your UNIX system.

NOTE
The Uninstall folder is retained.

1. Go to *Install_Home*/Uninstall_Network_Advisor12_1_0.
2. Execute **./Uninstall_IBM_Network_Advisor12_1_0**.
3. Select one of the following options on the **Uninstall Option** screen:
   - **Partial Uninstall** — Configuration and performance data is retained to be re-used by the new installation. This is the default option.
   - **Full Uninstall** — All data is removed.
4. Click **Uninstall**.
5. Click **Done** on the **Uninstall Complete** screen.

Uninstalling from UNIX systems (headless uninstall)

If the application was installed using the headless installation, complete the following steps to uninstall IBM Network Advisor and SMI Agent from your UNIX server.

1. Go to *Install_Home*/Uninstall_Network_Advisor12_1_0.
2. Choose one of the following options:
   - To partially uninstall IBM Network Advisor (configuration and performance data is retained to be re-used by the new installation), execute **Uninstall_IBM_Network_Advisor 12_1_0 –f** *<absolute path of partial uninstall property file>*.
   - To fully uninstall IBM Network Advisor (all data is removed), execute **\Uninstall_Network_IBM_Advisor 12_1_0 –f** *<absolute path of full uninstall property file>*.

   When uninstallation is complete, an “Uninstallation complete” message displays. You must manually delete the *Install_Home*/silent folder.

4 Uninstalling from UNIX systems (headless uninstall)

Appendix

References

A

In this Appendix

IBM Network Advisor packages

Table 16 summarizes the packages and available versions for each package.

TABLE 16 Packages and versions

Package	Versions
SAN with SMI Agent	Licensed Version — Enterprise • SAN — Support for 36 fabrics, 10,000 devices, and 9,000 switch ports **NOTE:** Virtual Fabrics are counted as Fabrics when calculating the managed count limits.
	Licensed Version — Professional Plus • SAN — Support for 36 fabrics, 4,096 devices, and,2560 switch ports **NOTE:** Virtual Fabrics are counted as Fabrics when calculating the managed count limits.
	Professional • SAN — Support for 1 fabric, 1,000 devices, and 1,000 ports **NOTE:** SMI Agent is not supported on Professional.

Edition feature support

Table 17 details whether the SAN features are supported in the Professional Plus or Enterprise versions, or only through the Element Manager of the device.

TABLE 17 SAN features supported

Feature	Professional	Professional Plus	Enterprise
AAA (Authentication, Authorization, and Auditing) Authentication and authorization configuration	No	Yes	Yes
Access Gateway (AG) management			
AG display			
Support for firmware download, supportSave, performance statistics, and configuration file management	Yes	Yes	Yes
Active session management	Yes	Yes	Yes
Bottleneck detection			
Configuration	No	Yes	Yes
Statistics	No	Yes	Yes
Badge on topology and product tree	Yes	Yes	Yes
Show affected host	No	Yes	Yes
Call Home support			
Support for all call home centers	No	Yes	Yes
SupportSave for Fabric OS switches	No	Yes	Yes
Support for appending the last 30 events in a call home event for e-mail-based call home centers	No	Yes	Yes
Certificate management		Yes	Yes
Configuration management			
Configuration repository management	No	Yes	Yes
Firmware download	Yes	Yes	Yes
Manual backup **NOTE:** Professional only supports one switch at a time.	Yes	Yes	Yes
Save configuration **NOTE:** Professional only supports one switch at a time.	Yes	Yes	Yes
Periodic configuration backup and persistence	No	Yes	Yes
Replicate switch configuration	No	Yes	Yes
Dashboard	Yes	Yes	Yes
DCB configuration management	Yes	Yes	Yes
DCX backbone chassis discovery and management	No	No	Yes
Deployment Manager			
Diagnostic port test	No	Yes	Yes
Digital diagnostic	Yes	Yes	Yes

TABLE 17 SAN features supported (Continued)

Feature	Professional	Professional Plus	Enterprise
Encryption			
Layer 2 FC support	Yes	Yes	Yes
Encryption configuration and monitoring	Yes	Yes	Yes
Access Gateway – Cisco interop support	Yes	Yes	Yes
Device decommissioning	Yes	Yes	Yes
End device connectivity Collection Views	Yes	Yes	Yes
Fabric binding	No	Yes	Yes
Fabric Watch			
Hardware	Element Manager	Element Manager	Element Manager
Ports	Element Manager	Element Manager	Element Manager
Admin	Element Manager	Element Manager	Element Manager
Router Admin	Element Manager	Element Manager	Element Manager
Name Server	Element Manager	Element Manager	Element Manager
Fault management	Element Manager	Element Manager	Element Manager
Show switch events	Yes	Yes	Yes
Show fabric events	Yes	Yes	Yes
Syslog registration and forwarding	Yes	Yes	Yes
SNMP trap registration and forwarding	Yes	Yes	Yes
Trap configuration, credentials, and customization	Yes	Yes	Yes
Event forwarding	No	Yes	Yes
Event custom report	No	Yes	Yes
Event processing (event policies and pseudo events)	No	Yes	Yes
Common SNMP/Trap registration	Yes	Yes	Yes
FCIP management			
FCIP configuration wizard	Yes	Yes	Yes
Iperf and IP trace route	Yes	Yes	Yes
FCoE management			
FCoE configuration	Yes	Yes	Yes
Migration from DCFM	Yes	Yes	Yes
FICON/CUP			

TABLE 17 SAN features supported (Continued)

Feature	Professional	Professional Plus	Enterprise
Cascaded FICON configuration wizard	No	No	Yes
Cascaded FICON Fabric merge wizard	No	No	Yes
PDCM Matrix	Element Manager	Element Manager	Yes
Firmware management and supportSave			
Firmware download	Yes	Yes	Yes
Capture SupportSave	Yes	Yes	Yes
Flow Vision	No	Yes	Yes
Frame monitor	No	Yes	Yes
HBA management			
HBA management	Yes	Yes	Yes
VM management	Yes	Yes	Yes
Driver/DIOS management	No	Yes	Yes
Fabric assigned WWN	No	Yes	Yes
HBA Server and Storage port mapping	No	Yes	Yes
High Integrity Fabric	No	Yes	Yes
IPv6 — Server - Switch support	Yes	Yes	Yes
iSCSI discovery	Yes	Yes	Yes
Layer 2 trace route	No	Yes	Yes
License	No	Yes	Yes
MAPS management	No	Yes	Yes
Meta-SAN Routing configuration Domain ID configuration	No	Yes	Yes
Name Server	Yes	Yes	Yes
Open Trunking Support			
Display trunks on the topology	Yes	Yes	Yes
Display trunks properties	Yes	Yes	Yes
Display marching ants	Yes	Yes	Yes
Display connections properties	Yes	Yes	Yes

TABLE 17 SAN features supported (Continued)

Feature	Professional	Professional Plus	Enterprise
Performance management - SNMP monitoring			
Real Time Performance collection, display, and reports	Yes	Yes	Yes
Historical Performance collection, display, and reports	No	Yes	Yes
Thresholds	No	Yes	Yes
Top talkers - Supported on SAN switches and Access Gateway	No	Yes	Yes
Marching ants	No	Yes	Yes
Data aging	No	Yes	Yes
End-to-End monitors	No	Yes	Yes
Policy Monitor	Yes	Yes	Yes
Port Administration	Element Manager	Element Manager	Element Manager
Port Fencing	No	Yes	Yes
Port group configuration	No	No	Yes
Reports	Yes	Yes	Yes
Generate reports	Yes	Yes	Yes
View reports	Yes	Yes	Yes
Performance reports	Yes	Yes	Yes
FCR reports	Yes	Yes	Yes
SCOM plug-in support	No	Yes	Yes
Security management			
Replicate switch policy configuration	No	Yes	Yes
SNMP configuration	Yes	Yes	Yes
L2 ACL configuration	Yes	Yes	Yes

NOTE: Only supported on DCB devices.

TABLE 17 SAN features supported (Continued)

Feature	Professional	Professional Plus	Enterprise
SMI Agent	No	Yes	Yes
Server Profile			
Fabric Profile			
Indication Sub Profile			
Zone Control Sub Profile			
Enhanced Zoning and Enhanced Zoning Control Sub Profile			
FDMI (Fabric Device Management Interface) Sub Profile			
Fabrics Virtual Fabrics Sub Profile			
Topology View Sub Profile			
FC HBA (Fibre Channel Host Bus Adapter) Profile			
Fan, Power Supply, and Sensor Profiles			
Inter Fabric Routing (FCR) Profile			
Trunking			
CP Blade Sub Profile			
CEE (Converged Enhanced Ethernet)			
Launch In Context Profile			
Switch Profile			
Role Based Authorization (CEE ACL) Profile			
N port Virtualizer (AG NPIV) Profile			
Profile Registration Sub Profile			
Object Manager Adapter Sub Profile			
Fabric Views Sub Profile			
Physical Package Sub Profile			
Software Sub Profile			
Access Points Sub Profile			
Location Sub Profile			
Fabric Switch Partitioning Sub Profile			
FC Initiator Ports Sub Profile			
Fabric and Host discovery			
SAN Zoning			
Switch configuration management	Yes	Yes	Yes
Basic configurations through the Element Manager			
Switch port enable/disable through right-click menu	Yes	Yes	Yes
Technical SupportSave	Yes	Yes	Yes
Telnet	Yes	Yes	Yes
NOTE: Telnet through the server is only supported on Windows systems.			
Tools launcher (Setup Tools)	No	Yes	Yes
Troubleshooting and Diagnostics			
Device connectivity troubleshooting wizard	Yes	Yes	Yes
Trace route and Ping	Yes	Yes	Yes
Fabric device sharing	No	Yes	Yes
User management	No	Yes	Yes
View management	No	Yes	Yes

TABLE 17 SAN features supported (Continued)

Feature	Professional	Professional Plus	Enterprise
Virtual fabric support			
Discovery	Yes	Yes	Yes
Configuration	No	Yes	Yes
VLAN management	Yes	Yes	Yes
VM Plugin Support	No	Yes	Yes
Web Element Manager	Yes	Yes	Yes
Zoning			
Member selection	Yes	Yes	Yes
Zone editing	Yes	Yes	Yes
Live fabric library scope	Yes	Yes	Yes
QoS support	Yes	Yes	Yes
Zone alias support	Yes	Yes	Yes
Delete Zone database	No	Yes	Yes
Impact analysis	Yes	Yes	Yes
Remove offline devices	No	Yes	Yes
TI Zones	Yes	Yes	Yes
Device to Zone / zoneset participation analysis	Yes	Yes	Yes
LSAN Zones	No	Yes	Yes
Rolling back to an activated zone database	No	Yes	Yes
Import or export a zone database	No	Yes	Yes

Management server and client ports

The Management application has two parts: the Server and the Client. The Server is installed on one machine and stores device-related information; it does not have a user interface. To view information through a user interface, you must log in to the Server through a Client. The Server and Clients may reside on the same machine, or on separate machines. If you are running Professional, the server and the client must be on the same machine.

In some cases, a network may utilize virtual private network (VPN) or firewall technology, which can prohibit communication between Products and the Servers or Clients. In other words, a Server or Client can find a Product, appear to log in, but is immediately logged out because the Product cannot reach the Server or Client. To resolve this issue, check to determine if the ports in the table below need to be opened up in the firewall.

NOTE
Professional edition does not support remote clients.

Table 18 lists the default port numbers and whether or not it needs to be opened up in the firewall and includes the following information:

- **Port Number** — The port at the destination end of the communication path.
- **Ports** — The name of the port.
- **Transport** — The transport type (TCP or UDP).
- **Description** — A brief description of the port.
- **Communication Path** — The “source” to “destination” values. Client and Server refer to the Management application client and server unless stated otherwise. Product refers to the Fabric OS, Network OS, or IronWare OS devices.
- **Open in Firewall** — Whether the port needs to be open in the firewall.

TABLE 18 Port usage and firewall requirements

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
20[1]	FTP Port (Control)	TCP	FTP Control port for internal FTP server	Client–Server Product–Server	Yes
21[1]	FTP Port (Data)	TCP	FTP Data port for internal FTP server	Client–Server Product–Server	Yes
22[2]	SSH or SCP or SFTP	TCP	Secure telnet and secure upload and download to product	Server–Product Client –Product Product – Server	Yes
23	Telnet	TCP	Telnet port from server/client to product	Server–Product Client–Product	Yes
25[2]	SMTP Server port	TCP	SMTP Server port for e-mail communication if you use e-mail notifications without SSL	Server–SMTP Server	Yes
49[2]	TACACS+ Authentication port	TCP	TACACS+ server port for authentication if you use TACACS+ as an external authentication	Server–TACACS+ Server	Yes
69	TFTP	UDP	File upload/download to product	Product-Server	Yes

TABLE 18 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
80[2]	Management application HTTP server	TCP	Non-SSL HTTP/1.1 connector port if you use secure client-server communication. You need this port for HTTP redirection	Client–Server	Yes
80[1]	Product HTTP server	TCP	Product non-SSL http port for http and CAL communication if you do not use secure communication to the product	Server–Product	Yes
			Product non-SSL http port for http and CAL communication if you do not use secure communication to the product and you do not use the Management application server proxy	Client–Product	Yes
161[2]	SNMP port	UDP	Default SNMP port	Server–Product	Yes
162[2]	SNMP Trap port	UDP	Default SNMP trap port	Product-Server	Yes
389[2]	LDAP Authentication Server Port	UDP TCP	LDAP server port for authentication if you use LDAP as an external authentication	Server–LDAP Server	Yes
443[1,2]	HTTPS server	TCP	HTTPS (HTTP over SSL) server port if you use secure client - server communication	Client-Server	Yes
443[2]			HTTPS (HTTP over SSL) server port if you use secure communication to the product	Server–Product	Yes
443			HTTPS (HTTP over SSL) server port if you use secure communication to the product and you do not use the Management application server proxy	Client–Product	Yes
443[2]			HTTPS (HTTP over SSL) server port if you use vCenter discovery	Server-vCenter Server	Yes
465[2]	SMTP Server port for SSL	TCP	SMTP Server port for e-mail communication if you use e-mail notifications with SSL	Server-SMTP Server	Yes
514[2]	Syslog Port	UDP	Default Syslog Port	Product–Server Managed Host - Server	Yes
636[2]	LDAP Authentication SSL port	TCP	LDAP server port for authentication if you use LDAP as an external authentication and SSL is enabled	Server–LDAP Server	Yes

TABLE 18 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
1812[2]	RADIUS Authentication Server Port	UDP	RADIUS server port for authentication if you use RADIUS as an external authentication	Server–RADIUS Server	Yes
1813[2]	RADIUS Accounting Server Port	UDP	RADIUS server port for accounting if you use RADIUS as an external authentication	Server–RADIUS Server	Yes
5432	Database port	TCP	Port used by database if you access the database remotely from a third-party application	Remote ODBC–Database	Yes
5988	SMI Server port	TCP	SMI server port on the Management application and the CIM/SMI port on HBAs if you use SMI Agent without SSL	SMI Client- Server	Yes
				Server-Managed Host	Yes
5989[1,2]	SMI Server port with SSL enabled	TCP	SMI Agent port on the Management application and the CIM/SMI port on HBAs if you use SMI Agent with SSL	SMI Agent Server–Client	Yes
				Server-Managed Host	Yes
6343[2]	sFlow	UDP	Receives sFlow data from products if you are monitoring with sFlow	Product-Server	Yes
24600[1,2]	JNP (Java Naming Protocol) port	TCP	Use for service location. Uses SSL for privacy.	Client–Server	Yes
24601[1,2]	EJB (Enterprise Java Bean) connection port	TCP	Client requests to server. Uses SSL for privacy.	Client–Server	Yes
24602[1,2]	HornetQ Netty port	TCP	Use for JMS (Java Message Service), async messages from server to client. Uses SSL for privacy.	Client–Server	Yes
24603[1,2]	JMX RMI port	TCP	Use for JMS control. Uses SSL for privacy.	Client–Server	Yes
24604[1,2]	RMI naming service port	TCP		Client–Server	Yes
24605[1,2]	RMI/JRMP invoker port	TCP		Client–Server	Yes
24606[1,2]	Event Handling CIM Indication listener port	TCP	Used for HBA management	Managed Host - Server	Yes
24607[1,2]	HCM Proxy CIM Indication Listener port	TCP	Used for HBA management	Managed Host - Server	Yes
24608[2]	Reserved for future use	TCP	Not used	Client - Server	No
24609[2]	Reserved for future use	TCP	Not used	Client - Server	No
24610[2]	Reserved for future use	TCP	Not used	Client - Server	No

TABLE 18 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
24611[2]	JBoss Transaction Services Recovery Manager port	TCP	Not used remotely	Server	Yes
24612[2]	JBoss Transaction Status Manager port	TCP	Not used remotely	Server	Yes
24613[2]	JBoss Pooled invoker port	TCP	Not used remotely	Server	Yes
24614[2]	JBoss Socket invoker port	TCP	Not used remotely	Server	Yes
24615[2]	JBoss RMI dynamic class loading port	TCP	Web service port, not used remotely	Server	Yes
24616[2]	Apache JServ port	TCP	Proxys web server requests, not used remotely	Server	Yes
24617[2]	Remote Management application connector access port	TCP	Not used remotely	Server	Yes
34568	HCM Agent discovery port	TCP	Used for HBA management via JSON	Server - Managed Host	Yes
55556[1]	Launch in Context (LIC) client hand shaking port	TCP	Client port used to check if a Management application client opened using LIC is running on the same host **NOTE:** If this port is in use, the application uses the next available port.	Client	No

1. Port does not need to be open in the firewall for Professional edtion.

2. The default port number. You must use the same port number for all products or hosts managed by the Management server. This port is configurable in the Management server; however, some products and firmware versions do not allow you to configure a port.

Scalability limits

The following tables summarize the scalability limits for support with IBM Network Advisor.

Table 19 summarizes the SAN scalability limits for support with IBM Network Advisor Enterprise edition.

TABLE 19 Enterprise-supported limits by SAN size

	Small	Medium	Large
Number of Fabrics	8	16	36
Number of Switches and Access Gateways	40	90	200
Number of Switch Ports	2000	5000	9000
Number of Device Ports	5000	10000	20000
Performance Monitoring Polling	5 minutes	5 minutes	5 minutes

Table 20 summarizes the SAN scalability limits for support with IBM Network Advisor Professional Plus edition.

TABLE 20 Professional Plus-supported limits by SAN size

Values	Limits
Number of Fabrics	36
Number of Switches and Access Gateways	40
Number of Switch Ports	2560
Number of Device Ports	4096
Performance Monitoring Polling	5 minutes

Table 21 summarizes the SAN scalability limits for support with Network Advisor Professional edition.

TABLE 21 Professional-supported limits by SAN size

Values	Limits
Number of Fabrics	1
Number of Switches and Access Gateways	15
Number of Switch Ports	1000
Number of Device Ports	1000
Performance Monitoring Polling	N/A

Table 22 summarizes the SAN scalability limits for pure Fabric OS fabrics with IBM Network Advisor Enterprise edition.

TABLE 22 Enterprise-supported limits by SAN size for SMI Agent only on Fabric OS fabrics

	Small	Medium	Large
Number of Fabrics	8	16	36
Number of Switches and Access Gateways	40	90	200
Number of Switch Ports	2000	5000	9000
Number of Device Ports	5000	10000	20000

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