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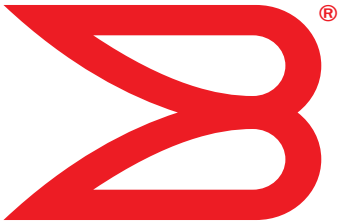

Brocade Network Advisor

SAN Installation and Migration Guide

Supporting Network Advisor 12.4.1

BROCADE

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Document History

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Brocade Network Advisor SAN Installation and Migration Guide	53-1002801-01	New document	December 2012
Brocade Network Advisor SAN Installation and Migration Guide	53-1003747-02	Update for 12.1	July 2013
Brocade Network Advisor SAN Installation and Migration Guide	53-1003158-01	Update for 12.3.0	July 2014
Brocade Network Advisor SAN Installation and Migration Guide	53-1003374-01	Update for 12.3.1	August 2014
Brocade Network Advisor SAN Installation and Migration Guide	53-1003580-01	Update for 12.3.1	December 2014
Brocade Network Advisor SAN Installation and Migration Guide	53-1003747-01	Update for 12.4.0	April 2015
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Contents

Chapter 2 Network Advisor Configuration

Chapter 3 Data Migration

About This Document

In this chapter

How this document is organized

This document is organized to help you find the information that you want as quickly and easily as possible.

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, "Network Advisor Configuration," provides step-by-step instructions to configure a fresh 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 Network Advisor.
- Chapter 4, "Uninstallation," provides step-by-step instructions for performing a partial or full uninstall of Network Advisor.
- Appendix A, "References," provides the following information for quick lookup.
  - 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 Brocade Communications Systems, Inc. for Network Advisor 12.1.X, documenting all possible configurations and scenarios is beyond the scope of this document.

Fabric OS hardware and software support

The following firmware platforms are supported by this release of 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
Discovery of a Secure Fabric OS fabric in strict mode is not supported.

The hardware platforms in the following table are supported by this release of Network Advisor 12.1.X.

TABLE 1 Fabric OS-supported hardware

Device name	Terminology used in documentation	Firmware level required
Brocade 200E switch	16-port, 4 Gbps FC Switch	
Brocade 300 switch	24-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
Brocade 4012 switch	Embedded 12-port, 4 Gbps FC Switch	
Brocade 4016 switch	Embedded 16-port, 4 Gbps FC Switch	
Brocade 4018 switch	Embedded 18-port, 4 Gbps FC Switch	
Brocade 4020 switch	Embedded 20-port, 4 Gbps FC Switch	
Brocade 4024 switch	Embedded 24-port, 4 Gbps FC Switch	Fabric OS v5.3.1 or later
Brocade 4100 switch	32-port, 4 Gbps FC Switch	
Brocade 4900 switch	64-port, 4 Gbps FC Switch	Fabric OS v5.2.0 or later
Brocade 5000 switch	32-port, 4 Gbps FC Interop Switch	Fabric OS v5.2.1 or later
Brocade 5100 switch	40-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
Brocade 5300 switch	80-port, 8 Gbps FC Switch	Fabric OS v6.1.0 or later
Brocade 5410 embedded switch	Embedded 12-port, 8 Gbps Switch	Fabric OS v6.1.0 or later
Brocade 5424 embedded switch	Embedded 24-port, 8 Gbps Switch	Fabric OS v6.1.0 or later
Brocade 5431 embedded switch	Embedded 16-port, 8 Gbps Stackable Switch	Fabric OS v7.2.0 or later
Brocade 5450 embedded switch	Embedded 16-port, 8 Gbps Switch	Fabric OS v6.2.0 or later
Brocade 5460 embedded switch	Embedded 24-port, 8 Gbps Switch	Fabric OS v6.1.0_emb or later
Brocade 5470 embedded switch	Embedded 24-port, 8 Gbps Switch	Fabric OS v6.1.0 or later
Brocade 5480 embedded switch	Embedded 24-port, 8 Gbps Switch	Fabric OS v6.1.0 or later

TABLE 1 Fabric OS-supported hardware (Continued)

Device name	Terminology used in documentation	Firmware level required
Brocade 6505 switch	24-port, 16 Gbps Edge switch	Fabric OS v7.0.1 or later
Brocade M6505 embedded switch	24-port, 16 Gbps embedded switch	Fabric OS v7.2.0 or later
Brocade 6510 switch	48-port, 16 Gbps switch	Fabric OS v7.0.0 or later
Brocade 6520 switch	96-port, 16 Gbps switch	Fabric OS v7.1.0 or later
Brocade 6547 embedded switch	48-port, 16 Gbps embedded switch	Fabric OS v7.2.0 or later
Brocade 7500 Extension switch	4 Gbps Router, Extension Switch	Fabric OS v5.1.0 or later
Brocade 7500E Extension switch	4 Gbps Extension Switch	Fabric OS v5.1.0 or later
FR4-18i Blade	4 Gbps Router, Extension blades	
FX8-24 Blade	8 Gbps Router, Extension blades	Fabric OS v6.4.0 or later
Brocade AP7600 switch	4 Gbps 32-port Switch	Fabric OS v6.1.0 or later
Brocade 7800 switch	8 Gbps Extension Switch	Fabric OS v6.3.0 or later
Brocade 8000 switch	8 Gbps 8-FC port, 10 GbE 24-DCB port Switch	Fabric OS v6.1.2_CEE
Brocade 8470 FCoE embedded switch	FCoE Embedded Switch	Fabric OS v6.3.1_CEE
Brocade VA-40FC switch	8 Gbps 40-port Switch	
Brocade 415 Host Bus Adapter	4 Gbps 1-port HBA	
Brocade 425 Host Bus Adapter	4 Gbps 2-port HBA	
Brocade 815 Host Bus Adapter	8 Gbps 1-port HBA	
Brocade 825 Host Bus Adapter	8 Gbps 2-port HBA	
Brocade 1860 Fabric Adapter	16 Gbps FC HBA mode 10 Gbps CNA mode 10 Gbps NIC mode	Adapter Software 3.0.0.0 or later
Brocade 1867 HBA	16 Gbps Mezzanine HBA	Adapter Software 3.0.3.0 or later
Brocade 48000 director	Director Chassis	
Brocade 48000 director 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	Fabric OS v5.2.0 or later (FC4-48)
Brocade 48000 director with FR4-18i Blades	Director Chassis with 4 Gbps router, extension blades	Fabric OS v5.1.0 or later (FR4-18i)
Brocade 48000 director with FC4-16IP Blades	Director Chassis with 4 Gbps 8-FC port and 8 GbE iSCSI blades	Fabric OS v5.2.0 or later (FC4-16IP)
Brocade 48000 director with FC10-6 Blades	Director Chassis with 10 Gbps 6-port ISL blades	Fabric OS v5.3.0 or later (FC10-6)
Brocade DCX [1, 2]	8-slot Backbone Chassis	Fabric OS v6.0.0 or later
Brocade DCX [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
Brocade DCX [1, 2] with FC8-64 Blades	8-slot Backbone Chassis with 8 Gbps 64-FC port blades	Fabric OS v6.4.0
Brocade DCX [1, 2] with FR4-18i Blades	8-slot Backbone Chassis with 4 Gbps Router, Extension blade	Fabric OS v6.0.0 or later
Brocade DCX [1, 2] with FC10-6 Blades	8-slot Backbone Chassis with FC 10 - 6 ISL Blade	Fabric OS v6.2.0

TABLE 1 Fabric OS-supported hardware (Continued)

Device name	Terminology used in documentation	Firmware level required
Brocade DCX [1, 2] with FS8-18 Blades	8-slot Backbone Chassis with Encryption Blade	Fabric OS v6.1.1_enc or later
Brocade DCX [1, 2] with FX8-24 Blades	8-slot Backbone Chassis with 8 Gbps 12-FC port, 10 GbE ports, 2-10 GbE ports blade	Fabric OS v6.3.1_CEE
Brocade DCX [1, 2] with FCoE10-24 Blades	8-slot Backbone Chassis with 10 Gbps 24-port FCoE blade	Fabric OS v6.3.1_CEE
Brocade DCX-4S	4-slot Backbone Chassis	Fabric OS v6.0.0 or later
Brocade DCX-4S 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
Brocade DCX-4S with FC8-64 Blades	4-slot Backbone Chassis with 8 Gbps 64-FC port blades	Fabric OS v6.4.0
Brocade DCX-4S with FR4-18i Blades	4-slot Backbone Chassis with 4 Gbps Router, Extension blade	Fabric OS v6.2.0
Brocade DCX-4S with FC10-6 Blades	4-slot Backbone Chassis with FC 10 - 6 ISL Blade	Fabric OS v6.2.0
Brocade DCX-4S with FS8-18 Blades	4-slot Backbone Chassis with Encryption Blade	Fabric OS v6.1.1_enc or later
Brocade DCX-4S with FX8-24 Blades	4-slot Backbone Chassis with 8 Gbps 12-FC port, 10 GbE ports, 2-10 GbE ports blade	Fabric OS v6.3.1_CEE
Brocade DCX-4S with FCoE10-24 Blades	4-slot Backbone Chassis with 10 Gbps 24-port FCoE blade	Fabric OS v6.3.0 or later
Brocade DCX 8510-4	16 Gbps 4-slot Backbone Chassis	Fabric OS v7.0.0 or later
Brocade DCX 8510-8[1, 2]	16 Gbps 8-slot Backbone Chassis	Fabric OS v7.0.0 or later
Brocade Encryption Switch	8 Gbps Encryption Switch	Fabric OS v6.1.1_enc or later
FS8-18 Encryption Blade	Encryption Blade	
FA4-18 Application Platform Blade	Application Platform Blade	
FC8-16 Blade	FC 8 GB 16-port Blade	
FC8-32 Blade	FC 8 GB 32-port Blade	
FC8-48 Blade	FC 8 GB 48-port Blade	
FC8-64 Blade	FC 8 GB 64-port Blade	
FC10-6 Blade	FC 10 - 6 ISL Blade	
FC8-32E blade[3]	8 Gbps 32-port blade	Fabric OS v7.0.1 or later
FC8-48E blade[3]	8 Gbps 48-port blade	Fabric OS v7.0.1 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 Gbps FCoE Port Router Blade	

TABLE 1 Fabric OS-supported hardware (Continued)

Device name	Terminology used in documentation	Firmware level required
FX8-24 Blade [1, 2]	8 Gbps Extension Blade	

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 DCX 8510-4 and DCX 8510-8 chassis.

What's new in this document

The following changes have been made since this document was last released:

- Information that was added:
  - Documented OS cache requriements (refer to "Operating system cache requirements" on page 6)
  - Documented Linux 64-bit troubleshooting (refer to "Testing the connection on Linux systems" on page 28)
  - Documented unsupported migration work arounds (refer to "Pre-migration requirements" on page 43).
- Information that was changed:
  - Updated server and client operating system details (refer to "Server and client operating system requirements" on page 2)
  - Updated the Java-Plug-ins ("Browser requirements" on page 6)
  - Updated the number of clients allowed ("Client and server system requirements" on page 7)
  - Updated configuration procedure ("Configuring Network Advisor" on page 15)
  - Updated accessing the interface procedures ("Accessing the Network Advisor interfaces" on page 21)
  - Updated Linux ODBC driver procedure ("Installing the ODBC driver on Linux systems" on page 27)
  - Updated migration paths ("Supported migration paths" on page 40)
- 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 all lowercase.

Notes

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.

Key terms

For definitions specific to Brocade and Fibre Channel, see the technical glossaries on MyBrocade. See "Brocade resources" on page xv for instructions on accessing MyBrocade.

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

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

Notice to the reader

This document may contain references to the trademarks of the following corporations. These trademarks are the properties of their respective companies and corporations.

These references are made for informational purposes only.

Corporation	Referenced trademarks and products
Linus Torvalds	Linux
Microsoft Corporation	Windows, Windows NT, Internet Explorer
Netscape Communications Corporation	Netscape
Red Hat, Inc.	Red Hat, Red Hat Network, Maximum RPM, Linux Undercover
Sun Microsystems, Inc.	Sun, Solaris, Sun Fire, Sun Ultra, Java Plug-in
The Open Group	UNIX
VMware, Inc.	VMware

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, go to *http://my.brocade.com* to register at no cost for a user ID and password.

White papers, online demonstrations, and data sheets are available through the Brocade website at:

http://www.brocade.com/products-solutions/products/index.page

For additional Brocade documentation, visit the Brocade website:

http://www.brocade.com

Release notes are available on the MyBrocade website.

Other industry resources

For additional resource information, visit the Technical Committee T11 website. This website provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

http://www.t11.org

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association website:

http://www.fibrechannel.org

Getting technical help

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

1. Management Application Serial Number

   To obtain the Management application serial number, select Help > License. The License dialog box displays.

2. General Information

   - Switch model
   - Switch operating system version
   - Software name and software version, if applicable
   - 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:

   - Brocade 300, 4100, 4900, 5100, 5300, 7500, 7800, 8000, VA-40FC, and Brocade Encryption Switch—On the switch ID pull-out tab located inside the chassis on the port side on the left
   - Brocade 5000—On the switch ID pull-out tab located on the bottom of the port side of the switch
   - Brocade 7600—On the bottom of the chassis
   - Brocade 48000—Inside the chassis next to the power supply bays
   - Brocade DCX—On the bottom right on the port side of the chassis
   - Brocade DCX-4S—On the bottom right on the port side of the chassis, directly above the cable management comb

4. World Wide Name (WWN)

   Use the licenseIdShow command to display the WWN of the chassis.

   If you cannot use the licenseIdShow command because the switch is inoperable, you can get the WWN from the same place as the serial number, except for the Brocade DCX. For the Brocade DCX, access the numbers on the WWN cards by removing the Brocade logo plate at the top of the nonport side of the chassis.

Document feedback

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

documentation@brocade.com

Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

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 system (OS) for servers and the packages supported by each OS version.

NOTE
It is recommended that you run Network Advisor on a dedicated machine to avoid conflicts with other applications that use the same resources and ports (such as SNMP, web server, and so on).

NOTE
Enterprise edition and Professional Plus edition are not supported on 32-bit operating systems. You must migrate to a 64-bit operating system.

NOTE
If the required operating system is not available, a warning message displays during installation.

TABLE 2 Server operating system requirements

Operating system	Version	Guest OS version	Supported packages
Windows®	- 2008 Standard edition (x86 32-bit) - 8 Enterprise (x86 32-bit) - 8.1 Enterprise (x86 32-bit)		SAN with SMI Agent Professional 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 Data Center Edition (x86 64-bit) - 2012 Standard Edition (x86 64-bit) - 2012 R2 Data Center Edition (x86 64-bit) - 2012 R2 Standard Edition (x86 64-bit) - 8 Enterprise (x86 64-bit) - 8.1 Enterprise (x86 64-bit)		SAN with SMI Agent SMI Agent only

TABLE 2 Server operating system requirements (Continued)

Operating system	Version	Guest OS version	Supported packages
Linux®	- RedHat Enterprise 6.4 Advanced (x86 32-bit) - RedHat Enterprise 6.5 Advanced (x86 32-bit) - RedHat Enterprise 6.6 Advanced (32-bit) - RedHat Enterprise 7.0 Advanced (x86 32-bit) - SuSE Enterprise Server 11.3 (32-bit) - SuSE Enterprise Server 12 (32-bit) - Oracle Enterprise 6.4 (x86 32-bit) - Oracle Enterprise 6.5 (x86 32-bit) - Oracle Enterprise 7.0 (32-bit)		SAN with SMI Agent Professional SMI Agent only
	- RedHat Enterprise 6.4 Advanced (x86 64-bit) - RedHat Enterprise 6.5 Advanced (x86 64-bit) - RedHat Enterprise 6.6 Advanced (x86 64-bit) - RedHat Enterprise 7.0 Advanced (x86 64-bit) - SuSE Enterprise Server 11.3 (x86 64-bit) - SuSE Enterprise Server 12 (x86 64-bit) - Oracle Enterprise 6.4 (x86 64-bit) - Oracle Enterprise 6.5 (x86 64-bit) - Oracle Enterprise 7.0 (x86 64-bit)		SAN with SMI Agent SMI Agent only
Guest VMs	- VMware® ESXi 5.1[1] - VMware® ESXi 5.5 - Microsoft Hyper-V (Hyper-V Server 2008 R2, Windows Server 2012, Windows Server 2012 R2 Data Center) - KVM (RH 6.5)	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 Network Advisor virtual CPUs on a single physical CPU.

Table 3 summarizes the required OS for clients. Network Advisor clients are supported on 32-bit and 64-bit Windows and Linux systems.

NOTE
If you are managing more than 9000 SAN ports, the client is not supported on 32-bit systems.

TABLE 3 Client operating system requirements

Operating system	Version	Guest OS version
Windows®	- 7 Enterprise (x86 32-bit) - 8 Enterprise (x86 32-bit) - 8.1 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 Data Center Edition (x86 64-bit) - 2012 Standard 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) - 8.1 Enterprise (x86 64-bit)	

TABLE 3 Client operating system requirements

Operating system	Version	Guest OS version
Linux®	- RedHat Enterprise 6.4 Advanced (x86 32-bit) - RedHat Enterprise 6.5 Advanced (x86 32-bit) - RedHat Enterprise 6.6 Advanced (x86 32-bit) - RedHat Enterprise 7.0 Advanced (x86 32-bit) - SuSE Enterprise Server 11.3 (32-bit) - SuSE Enterprise Server 12 (32-bit) - Oracle Enterprise 6.4 (x86 32-bit) - Oracle Enterprise 6.5 (x86 32-bit) - Oracle Enterprise 7.0 (32-bit)	
	- RedHat Enterprise 6.4 Advanced (x86 64-bit) - RedHat Enterprise 6.5 Advanced (x86 64-bit) - RedHat Enterprise 6.6 Advanced (x86 64-bit) - RedHat Enterprise 7.0 Advanced (x86 64-bit) - SuSE Enterprise Server 11.3 (x86 64-bit) - SuSE Enterprise Server 12 (x86 64-bit) - Oracle Enterprise 6.4 (x86 64-bit) - Oracle Enterprise 6.5 (x86 64-bit) - Oracle Enterprise 7.0 (x86 64-bit)	
Guest VMs	- VMware® ESXi 5.1 - VMware ESXi 5.5 - Microsoft Hyper-V (Hyper-V Server 2008 R2, Windows Server 2012, Windows Server 2012 R2 Data Center) - KVM (RH 6.5)	Supports all client OS versions available for Windows and Linux.

Memory, host, and disk space requirements

Memory requirements are only applicable when there are no other applications running on the Network Advisor server. Paging space should be equal to or exceed the physical memory size.

NOTE
To manage more than 9000 SAN ports, you must have a 16 core processor.

NOTE
To efficiently manage more than 9000 SAN ports, it is recommended to allocate a minimum of 2 GB client memory and 6 GB server memory.

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

NOTE
If you enable periodic supportSave or configure the Network Advisor server as the Upload Failure Data Capture location for monitored switches, you must add additional disk space. 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.

Table 4 summarizes the memory, host, and disk space requirements for a remote client.

TABLE 4 Memory, Host, and Disk space requirements for remote client

Resources	Required
Installed Memory	4 GB
Processor Core Count	2
Disk Space	1 GB

Table 5 summarizes the minimum system requirements for server (plus 1 client) installation.

TABLE 5 Minimum system requirements for server (plus 1 client) installation

Resources	Professional Edition	Professional Plus or Enterprise Edition
Installed Memory	4 GB (32-bit) 6 GB (64 bit)	6 GB
Processor Core **Count** (including physical and logical cores)	2	2
Disk **Space**	10 GB	20 GB

Table 6 summarizes the recommended system requirements for server (plus 1 client) installation.

TABLE 6 Recommended system requirements for server (plus 1 client) installation

Resources	Small	Medium	Large
Installed Memory	16 GB	16 GB	16 GB
Processor Core **Count** (including physical and logical cores)	2	4	8
Disk **Space**	20 GB	80 GB	100 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.

The virtual memory requirements for Windows system is 1 GB for minimum paging file size and 4 GB for maximum paging file size

TABLE 7 Linux swap space requirements

Installed physical memory (RAM) size	Recommended swap size
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 time the amount of RAM

NOTE
For networks with more than 9000 ports, the recommended memory allocation is 6 GB.

Browser requirements

The launch of 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 11.0.9 or later on Windows
  - Firefox 24 or later on Windows or Linux
  - Google Chrome 33 or later on Windows
- Java Plug-ins — For the current supported JRE version for Network Advisor and Web Tools, refer to the Release Notes.

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

  NOTE
  If the minimum system requirement is not met, you will be blocked from the configuration and an error message will be displayed.

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

Client and server system requirements

NOTE
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.

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 on a 64-bit server 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 *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

You can download the software and documentation from the MyBrocade website.

1. Go to the MyBrocade website.

   http://my.brocade.com/

2. Enter your user ID and password.

   If you do not already have a MyBrocade account, you can create one.

3. Select **MyBrocade** from the **Take me to** list, if necessary.
4. Click **LOG IN**.
5. Click **downloads** on the main page.
6. Select **Management Software** from the **Download by** list.
7. Click **Brocade Network Advisor** in the **Product Name** list.
8. Select the highest version number for the latest GA code.

   For example, click **Brocade Network Advisor 12.3.x**, then click **Brocade Network Advisor 12.3.1 Brocade GA.**

   To download the documentation, click **Brocade Network Advisor 12.3.1 Manuals** and then select the manual you want to download.

9. Select one of the following links to download the software:
   - Network Advisor 12.4.1 GA for Windows
   - Network Advisor 12.4.1 GA for Linux

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

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

Pre-installation requirements

Before you install 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 Network Advisor 12.4.

- 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 Management application 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 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 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 39.

NOTE
SAN with SMI Agent + IP Network Advisoris not supported on 32-bit Windows systems. For more information, refer to "Pre-migration requirements" on page 43.

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

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

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

1. Choose one of the following options:
    - For Windows systems, navigate to the *Download_Location**Application_Name*\windows\ directory, right-click install.exe and select **Run as administrator**.
    - For UNIX systems, complete the following steps.
        a. On the Management application server, navigate 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. For example, C:\ (Windows) or /root (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**.

NOTE
If a minimum of 10 GB space is not available on your server during installation, a warning message displays and installation fails.

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 local host" on page 11) 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 "Network Advisor Configuration" on page 15.
- If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 39.

For Linux systems, the following lists the folder permissions configured during installation:

- *Install_Home* — 775
- conf — 775
- conf/schema folder (including sub-folders) — 775
- data — 775
- database — 700
- db (including sub -folders) — 775
- temp — 775
- support — 777
- All other folders — 774

Mapping the loopback address to the local host

To map the loopback address to the local host, 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 "Network Advisor Configuration" on page 15.
   - If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 39.

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. Headless installation performs the actual installation; however, you must use the Configuration wizard in graphical user interface mode to copy data and settings, configure the FTP or SCP server, configure IP, and configure server ports.

Before you install 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 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 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 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, complete the following steps:

  1. Select **Start > Programs > Accessories**, right-click **Command Prompt** and select **Run as administrator**.
  2. Execute this command:
     `install.exe -i silent -DHEADLESS_CONFIG_MODE="false"`
  3. From the *Install_Home*/bin directory, execute this command:
     `configwizard.bat "-DHEADLESS_CONFIGURATION=`*Property_File*`" "-DHEADLESS=true"`
     where *Property_File* is the absolute path of the headless installation property file.

- For UNIX systems, complete the following steps:

  1. Open a UNIX shell and execute this command:
     `sh install.bin -i silent -DHEADLESS_CONFIG_MODE="false"`
  2. From the *Install_Home*/bin directory, execute this command:
     `sh configwizard "-DHEADLESS_CONFIGURATION=`*Property_File*`" "-DHEADLESS=true"`
     where *Property_File* is the absolute path of the headless installation property file.

  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 "Network Advisor Configuration" on page 15.
  - If you are upgrading from a previous version and need to migrate data, refer to "Data Migration" on page 39.

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.

Collecting supportsave on Windows and Linux

To collect server supportsave, run the script file located at:

```
<Install_Home>\bin\commandsupportsave
```

Once the script file is triggered, the server supportsave is collected at the following location:

```
<Install_Home>\support
```

Client-only installation

You can install a client-only application on a machine other than the server (without using a web browser) by creating a client bundle on the server, and then copying and installing that client on another machine.

Installing the client-only application

NOTE
The client bundle is supported only on a 64-bit OS.

NOTE
To download the client bundle, the browser operating system and server operating system must be the same.

NOTE
The download client is bundled with the Netwok Advisor server java runtime environment package.

1. Click the client bundle and download the file.
2. Extract the client bundle.
3. Navigate to the *extract_location*\bin directory and run the appropraite .bat file.
   - For Windows, navigate to C:\Users*user_name*\desktop\windows-clientbundle\bin) and run `dcmclient.bat`.
   - For Linux, navigate to opt/linux-clientbundle/bin and run `dcmclient`.

   If you modify the data in the **Options** dialog box, the Client bundle must be triggered manually.
   - For Windows, navigate to *Install_Home*\bin) and run `create-client-bundle.bat`.
   - For Linux, navigate to *Install_Home*\bin) and run `create-client-bundle`.

   The **Network Advisor Log In** dialog box displays.
4. Enter the IP address of the Network Advisor server in the **Network Address** list.

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

   NOTE
   You can remove a server from the **Network Address** list by selecting 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 Network Advisor application displays.

Chapter

2

Network Advisor Configuration

In this chapter

Configuring 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 39.

To configure 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 from an earlier release of Network Advisor to 12.4.1 after you complete the 12.4.1 configuration.

To migrate data from a previous management application version, refer to "Data Migration" on page 39.

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 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 DCX and DCX 8510-8 Backbone chassis require the Enterprise edition.

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

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

   - **Network Advisor - 120 days Trial**

     Go to step 6. Enables you to manage SAN networks from a single interface for 120 days.

     ATTENTION
     If you choose to install Trial, once the trial period ends (120 days), you must upgrade to Licensed software.

   - **Network Advisor - Professional**

     Go to step 6. Bundled with Fabric OS and IronWare OS devices to manage small IP or SAN networks from a single interface. SMI Agent is not available with Professional.

5. (Licensed software only) If you are installing licensed software, browse to the license file (.xml) and click **Next** on the **Server License** screen.

   You can also copy (Ctrl+c) and paste (Ctrl+v) the license key in to the **License Key** field. The **License Key** field is not case-sensitive.

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 *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 that 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 password.
   - 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**.

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 OSand 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.

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

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

- Select **Any** from the **Switch - Server IP Configuration Preferred Address** list to enable switch and server communication with one of the reachable IP address present in the server. By default, **Any** option is selected.

  or

- Select an IP address from the **Switch - Server IP Configuration Preferred Address** list. The preferred IP address is used for switch and server communication. If the selected IP address changes, you will be unable to connect to the server. To change the IP address after configuration, refer to "Configuring an explicit server IP address" on page 34.

c. Click **Next**.

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

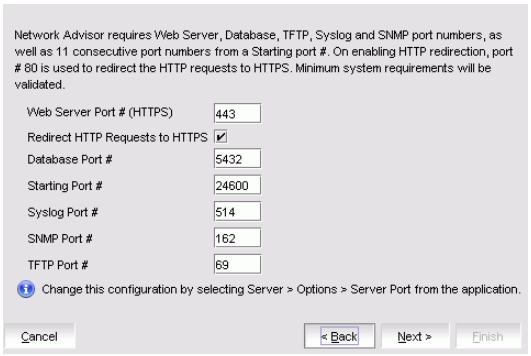

FIGURE 1 Server Configuration screen

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 *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 11 consecutive free ports beginning with the starting port number.

NOTE
For Trial and Licensed software, the server requires 11 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 25.

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

g. Enter a port number in the **TFTP Port Number** field (default is 69).

h. 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**.

If you are configuring Professional software, go to step 12.

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.

NOTE
SAN with SMI Agent + IP edition is not supported on a 32-bit Windows system.

- **Small (managing up to 2000 switch ports, 1-20 domains)**
- **Medium (managing up to 5000 switch ports, 21-60 domains)**
- **Large (managing up to 15000 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. Enable feature usage data transfer from the application by selecting the **Yes, I want to participate** option.

    If you do not want to participate in feature usage data transfer, make sure the **No, Thank You** option is selected. You can stop participating at any time. To view an example of the usage data, click **View Example Data**.

    To stop participating in feature usage data transfer after configuration, refer to "Product improvement" on page 35.

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.

       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 34).

15. 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.

16. Click **Login**.
17. Click **OK** on the **Network Advisor Login Banner**.

Accessing the Network Advisor interfaces

Use the following procedures to access 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.

   NOTE
   You can remove a server from the **Network Address** list by selecting the IP address and clicking **Delete**.

3. 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.

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

   The Network Advisor application displays.

Launching a remote client

The remote client link in the **Start** menu does not automatically upgrade when you upgrade the Management application. You must clear the previous version from the Java cache. To clear the previous version, refer to "Clearing previous versions of the remote client" on page 23.

The remote client requires Oracle JRE. For the current supported JRE version for Network Advisor, refer to the Release Notes. 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.

NOTE
If you are managing more than 9000 SAN ports, the client is not supported on 32-bit systems.

1. Choose one of the following options:
   - Open a web browser and enter the IP address of the 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*.

     If this is the first time you are accessing this version of Network Advisor, this creates a start menu shortcut automatically in Network Advisor program directory.

     For Linux systems, remote client shortcuts are not created.
   - Select Network Advisor (*Server_IP_Address*) in the Network Advisor directory from the start menu.

   The Network Advisor web client login page displays.
2. Click **Desktop Client**.

   The Network Advisor web start page displays.
3. Click the Network Advisor web start link.

   The **Log In** dialog box displays.
4. 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.

   NOTE
   You can 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 Network Advisor application displays.

Clearing previous versions of the remote client

The remote client link in the **Start** menu does not automatically upgrade when you upgrade the Management application. You must clear the previous version from the Java cache.

To clear the Java cache, complete the following steps.

1. Select **Start > Settings > Control Panel > Java**.

   The **Java Control Panel** dialog box displays.

2. Click **View** on the **General** tab.

   The **Java Cache Viewer** dialog box displays.

3. Right-click the application and select **Delete**.
4. Click **Close** on the **Java Cache Viewer** dialog box.
5. Click **OK** on the **Java Control Panel** dialog box.

   To create a remote client link in the **Start** menu, refer to "Launching a remote client" on page 22.

Launching the SMC on Windows

Open the **Server Management Console** from the **Start** menu on the 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 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 link in the **Start** menu does not automatically upgrade when you upgrade the Management application. You must clear the previous version from the Java cache. To clear the previous version, refer to "Clearing previous versions of the remote client" on page 23.

The remote client requires Oracle JRE. For the current supported JRE version for Network Advisor, refer to the Release Notes. For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

1. Choose one of the following options:
   - Open a web browser and enter the IP address of the 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*.

     If this is the first time you are accessing this version of Network Advisor, this creates a start menu shortcut automatically in Network Advisor program directory.

     For Linux systems, remote client shortcuts are not created.
   - Select Network Advisor (*Server_IP_Address*) in the Network Advisor directory from the start menu.

   The Network Advisor web client login page displays.
2. Click **Desktop Client**.

   The Network Advisor web start page displays.
3. Click the SMIA Configuration Tool web start link.

   The **SMIA Configuration Tool Log In** dialog box displays.
4. Enter your user name and password.

   The defaults are Administrator and password, respectively.

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**.

   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 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 Network Advisor database.

To install the ODBC driver, complete the following steps.

1. Right-click psqlodbc.exe, located olocated where you downloaded the software (*Download_Home*/BROCADE/Network Advisor/odbc/Windows), and select **Run as administrator**.
2. Install the file to the usual location for your system's application files (for example, C:\Program Files\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. Select **Start > Settings > Control Panel > Administrative Tools.**
2. Right-click **Data Sources (ODBC)** and select **Run as administrator**.

   The **ODBC Data Source Administrator** dialog box displays. If the **ODBC Data Source Administrator** dialog box does not display, select **Start > Run**, type `%windir%\SysWOW64\odbcad32.exe,` and press **Enter**.
3. Click the **System DSN** tab.
4. Click **Add**.

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

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

10. Select **enable** or **disable** from the **SSL Mode** list to specify whether or not to use SSL when connecting to the database.
11. Enter the IP address or host name of the Network Advisor server in the **Server** field.
12. Enter the database server port number in the **Port Number** field.
13. Enter the database user name in the **User Name** field.
14. Enter the password in the **Password** field.
15. 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.

16. Click **OK** on the **Connection Test** dialog box.
17. Click **Save**.
18. 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 Network Advisor database.

To install the ODBC driver, complete the following steps.

1. Execute the following command in the terminal:

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

   For 32-bit Linux systems, the installer file is located where you downloaded the software (*Download_Home*/BROCADE/Network Advisor/odbc/Linux/psqlodbc.bin.

   For 64-bit Linux systems, the installer file is located where you downloaded the software (*Download_Home*/BROCADE/Network Advisor/odbc/Linux_64/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 datasource on Linux systems

Before you edit the INI files, install 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 datasource 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 datasource saved in the odbc.ini file is populated in the **Datasource** dialog box.
   b. Select the datasource 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 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 Network Advisor software download.

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 32.

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 30.
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 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 SNNpcscd, 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 > Network Advisor 12.4.1 > 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.

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

   b. Select an IP address from the **Switch - Server IP Configuration Preferred Address** list. The preferred IP address is used for switch and server communication.

   or

   Select **Any** from the **Switch - Server IP Configuration Preferred Address** list to enable switch and server communication with one of the reachable IP address present in the server. By default, **Any** option is selected.

   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.

Product improvement

To improve its products, Brocade is collecting usage statistics from the field. If you agree to participate in the program, the Network Advisor server will transmit data back to the secure Brocade web server (HTTPS). The Brocade web server is hosted in a Brocade network.

Brocade collects the following usage data:

- Installation details
  - The version information (such as Major, Minor, Revision, and Patch)
  - The Edition (such as Enterprise, Professional Plus, or Professional)
  - The Package (such as SAN, IP, or SAN + IP)
  - Whether SSL is enabled or not
  - Generates a unique identifier based on the MAC address
  - The operating system (such as Windows or Linux)
- User actions
  - Top level menu actions
  - Tool bar actions
  - Right-click menu actions
- Feature details
  - Feature name
  - Button identifier (such as **OK**, **Help**, or **Cancel**, and so on)

Enabling product improvement data transfer

You can enable feature usage data transfer during installation or migration. For more information, refer to "Installation" on page 1. You can also enable data transfer from the **Options** dialog box once your system is up and running.

To enable feature usage data transfer from the application, complete the following steps.

1. Select **Server > Options**.

   The **Options** dialog box displays.

2. Select **Product Improvement** in the **Category** list.

3. Select the **Yes, I want to participate** option.

   To view an example of the usage data, click **View Example Data**.

4. Click **OK** to save your selection and close the **Options** dialog box.

Disabling product improvement data transfer

You can disable feature usage data transfer from the **Options** dialog box once your system is up and running.

To disable feature usage data transfer from the application, complete the following steps.

1. Select **Server > Options**.

   The **Options** dialog box displays.

2. Select **Product Improvement** in the **Category** list.
3. Select the **No, thank you** option.
4. Click **OK** to save your selection and close the **Options** dialog box.

Data transfer

If you agree to participate in the program, these are the actions that occur on the client and server.

1. You log in to the Network Advisor client.

   The main window displays.

2. The application automatically schedules a timer.

   The timer is configured with an initial delay of 5 minutes and an interval of 24 hours.

3. Once scheduled, the client triggers the scheduled data transfer.
4. The client checks the reachability of the Brocade web server for the data transfer to make sure that the client workstation has HTTP connectivity.

   If the Brocade web server is reachable, the client schedules the timer.

5. The client triggers the schedule to run in 5 minutes and then every 24 hours thereafter.
6. When the scheduled timer runs, the client requests the server to transfer the usage data.
7. The server determines the availability of the data based on the following details:
   - Last transfer timestamp must be greater than 24 hours to avoid frequent data uploads.
   - Data must be available for transfer. Data availability is determined by the difference between the last data transfer and the current data.
8. The client requests a data transfer.

   If data is available, the server nominates the client to transfer data. Once nominated, any further upload requests are denied.

   NOTE
   If the nominated client's session is ended or stuck, the session is invalidated and the state is cleared.

9. The nominated client requests the server to prepare the data.
10. The server compiles the usage data text file into a .zip file using the following naming convention: UUID_usagedata_file_creataion_timestamp, where UUID is the unique identification of the server based on the MAC address.

11. When the file is successfully created, the client changes the state of the data transfer to "Uploading" and transmits the data.

    The client transmits the data securely to the Brocade web server using the Apache HTTP Components third-party library. The client communicates with the Brocade web server using an authorization token.

12. When the transfer is complete, the client updates the Brocade web server database with the transfer status (success or failure). The client also triggers an application event with the following details: success or failure, source client IP address, and source user name.

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

3

Data Migration

In this chapter

Upgrading the license

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. The following tables list the available upgrade paths.

TABLE 8 SAN upgrade paths

Current software release	To software release
SAN Professional	SAN Professional Plus or Licensed version 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 **Network Advisor License** dialog box displays.

2. Browse to the license file (.xml) and click **Update**.
3. Click **OK** on the **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 **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 44.

Direct migration is not supported on pre-12.2.X releases. Table 9 shows the migration paths from DCFM and INM. Table 10 shows the migration paths from Network Advisor 12.1.X or earlier releases.

NOTE
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.

NOTE
Network Advisor 11.2.X includes 11.2.0, 11.2.1, and 11.2.2.

TABLE 9 DCFM and INM release migration path

	Network Advisor 12.4.1
DCFM 10.4.X	DCFM 10.4.X > Network Advisor 11.1.X > Network Advisor 12.0.X > Network Advisor 12.3.X Network Advisor 12.4.1
INM 3.3	INM 3.3.X > Network Advisor 11.0.X > Network Advisor 11.1.X > Network Advisor 12.0.X > Network Advisor 12.3.X Network Advisor 12.4.1

TABLE 10 Pre-12.1.X release migration path

	Network Advisor 12.4.1
Network Advisor 11.0.X	Network Advisor 11.0.X > Network Advisor 11.1.X > Network Advisor 12.0.X > Network Advisor 12.3.X Network Advisor 12.4.1
Network Advisor 11.1.X	Network Advisor 11.1.X > Network Advisor 12.0.X > Network Advisor 12.3.X Network Advisor 12.4.1
Network Advisor 11.2.X	Network Advisor 11.2.X > Network Advisor 12.0.X > Network Advisor 12.3.X Network Advisor 12.4.1
Network Advisor 11.3.x	Network Advisor 11.3.X > Network Advisor 12.0.X > network Advisor 12.1.X > Network Advisor 12.3.X Network Advisor 12.4.1
Network Advisor 12.0.x	Network Advisor 12.0.X > Network Advisor 12.1.x > Network Advisor 12.3.X Network Advisor 12.4.1
Network Advisor 12.1.x	Network Advisor 12.1.x > Network Advisor 12.3.X Network Advisor 12.4.1

Table 11 shows the direct migration paths from the Network Advisor 12.2.0 or later Professional, Trial, and Licensed versions. For the step-by-step migration procedures, refer to "Migrating data" on page 48.

NOTE
Network Advisor 12.2.X includes only 12.2.0.

NOTE
Network Advisor 12.3.X includes 12.3.0, 12.3.1, 12.3.2, 12.3.3, and 12.3.4.

TABLE 11 Network Advisor version migration paths

Current version	Professional version	Trial Version	Licensed Version	
		Enterprise	Professional Plus	Enterprise
Network Advisor 12.2.X[1] Professional	Yes[2]	Yes[2]	Yes[2]	Yes[2]
Network Advisor 12.2.X[1] Professional Plus Trial	No	Yes[2]	Yes[2]	Yes[2]
Network Advisor 12.2.X[1] Professional Plus Licensed	No	No	Yes[2]	Yes[2]
Network Advisor 12.2.X[1] Enterprise Trial	No	Yes[2]	No	Yes[2]
Network Advisor 12.2.X[1] Enterprise Licensed	No	Yes[2]	No	Yes[2]

TABLE 11 Network Advisor version migration paths (Continued)

Current version	Professional version	Trial Version	Licensed Version	
		Enterprise	Professional Plus	Enterprise
Network Advisor 12.3.X/12.4.0 Professional	Yes[2]	Yes[2]	Yes[2]	Yes[2]
Network Advisor 12.3.X/12.4.0 Professional Plus Trial	No	Yes[2]	Yes[2]	Yes[2]
Network Advisor 12.3.X/12.4.0 Professional Plus Licensed	No	No	Yes[2]	Yes[2]
Network Advisor 12.3.X/12.4.0 Enterprise Trial	No	Yes[2]	No	Yes[2]
Network Advisor 12.3.X/12.4.0 Enterprise Licensed	No	No	No	Yes[2]
Network Advisor 12.4.1 Professional	Yes[2]	Yes[2]	Yes	Yes
Network Advisor 12.4.1 Professional Plus Trial	No	Yes	Yes	Yes
Network Advisor 12.4.1 Professional Plus Licensed	No	Yes	Yes	Yes
Network Advisor 12.4.1 Enterprise Trial	No	Yes	Yes	Yes
Network Advisor 12.4.1 Enterprise Licensed	No	Yes	Yes	Yes

1. Network path migration is not supported from Network Advisor 12.2.X on a 32-bit machine to Network Advisor 12.4.1 on a 64-bit machine.

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 12 shows the migration paths from SMI Agent only. For the step-by-step migration procedures, refer to "Migrating data" on page 48.

TABLE 12 SMI Agent only migration paths

Current version	Professional version	Trial version		Licensed Version		SMI Agent only
		Professional Plus	Enterprise	Professional Plus	Enterprise	
Network Advisor 12.2.X /12.3.X/12.4.X SMI Agent only	No	No	No	No	No	Yes

DCFM migration paths

NOTE
Before you migrate from DCFM to 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 Network Advisor 12.4.1. You must first migrate to DCFM 10.4.X, then migrate to Network Advisor 11.1.X, then migrate to Network Advisor 12.0.X, then migrate to Network Advisor 12.2.X, and then migrate to Network Advisor 12.4.1.

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 Network Advisor 11.1.X, refer to the *Network Advisor Migration Guide* for Network Advisor 11.1.X.

INM migration paths

You cannot migrate directly from INM to Network Advisor 12.4.1. You must first migrate to Network Advisor 11.0.X, then migrate to Network Advisor 11.1.X, then migrate to Network Advisor 12.0.X, then migrate Network Advisor to 12.2.X, and then migrate to Network Advisor 12.4.1. To migrate from INM to Network Advisor 11.1.X, contact your customer representative.

EFCM and Fabric Manager migration paths

You cannot migrate directly from EFCM or Fabric Manager to Network Advisor 12.4.1. To migrate from EFCM or Fabric Manager, you must first migrate to DCFM 10.3.X, then migrate to Network Advisor 11.1.X, then migrate to Network Advisor 12.0.X, then migrate to Network Advisor 12.2.X, and then migrate to Network Advisor 12.4.1. 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 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. For the current supported JRE version for Network Advisor and Web Tools, refer to the Release Notes. For the website listing patch information, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.
- Fully back up your current Management application data on your management server.
- Close all instances of the application before migrating.
- Install 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 55) 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 Network Advisor version on the same machine and migrate the partially uninstalled data.

        If your current release is pre-11.3.X, you must migrate to Network Advisor 11.3.0 or later. Refer to Table 9 on page 40 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 48).

Pre-migration requirements when migrating from one server to another

If you are migrating from Network Advisor 12.2.X, 12.3.X, or 12.4.X on a 32-bit Windows server to Network Advisor 12.4.1 on a 64-bit Windows server, complete the following steps.

1. Back up the server for 12.2.X, 12.3.X, or 12.4.X using **Options** > **Server Backup** on the 32-bit Windows server.
2. Install Network Advisor 12.2.X, 12.3.X, or 12.4.X on the 64-bit Windows server.
3. Select **SMC** > **Restore** to restore the backup on the 32-bit Windows server.
4. Install Network Advisor 12.4.1 on the 64-bit Windows server.

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from a pre-12.2.X release on a 32-bit Windows server to Network Advisor 12.4.1 on a 64-bit Windows server, complete the following steps.

1. Install and migrate to Network Advisor 12.2.X, 12.3.X, or 12.4.X in the same machine (refer to "Supported migration paths" on page 40).
2. Back up the server using **Options** > **Server Backup** on the 32-bit Windows server.
3. Install the same version (12.2.X, 12.3.X, or 12.4.X) on the 64-bit Windows server.
4. Select **SMC** > **Restore** to restore the backup on the 32-bit Windows server.
5. Install Network Advisor 12.4.1 on the 64-bit Windows server.

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from Network Advisor 12.2.X, 12.3.X, or 12.4.X on a 32-bit Linux server to Network Advisor 12.4.1 on a 64-bit pure Linux server, complete the following steps.

1. Back up the server for 12.2.X, 12.3.X, or 12.4.X using **Options** > **Server Backup** on the 32-bit Linux server.
2. Install the same version (12.2.X, 12.3.X, or 12.4.X) on the 64-bit pure Linux server.
3. Select **SMC** > **Restore** to restore the backup on the 32-bit Linux server.
4. Install Network Advisor 12.4.1 on the 64-bit pure Linux server.

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from a pre-12.2.X release on a 32-bit Linux server to Network Advisor 12.4.1 on a 64-bit pure Linux server, complete the following steps.

1. Install and migrate to Network Advisor 12.2.X, 12.3.X, or 12.4.X on the 32-bit Linux server (refer to "Supported migration paths" on page 40).
2. Back up the server using **Options** > **Server Backup** on the 32-bit Linux server.
3. Install the same version (12.2.X, 12.3.X, or 12.4.X) on the 64-bit pure Linux server.
4. Select **SMC** > **Restore** to restore the backup on the 32-bit Linux server.
5. Install Network Advisor 12.4.1 on the 64-bit pure Linux server.

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from Network Advisor 12.2.X, 12.3.X, or 12.4.X on a 32-bit Linux server to Network Advisor 12.4.1 on a 64-bit Linux server (32-bit compatible), complete the following steps.

1. Back up the server for Network Advisor 12.2.X, 12.3.X, or 12.4.X using **Options** > **Server Backup** on the 32-bit Linux server.
2. Install Network Advisor 12.2.X, 12.3.X, or 12.4.X on the 64-bit Linux server (32-bit compatible).
3. Select **SMC** > **Restore** to restore the backup on the 32-bit Linux server.
4. Install Network Advisor 12.4.1 on the 64-bit Linux server (32-bit compatible).

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from a pre-12.2.X release on a 32-bit Linux server to Network Advisor 12.4.1 on a 64-bit Linux server (32-bit compatible), complete the following steps.

1. Install and migrate to Network Advisor 12.2.X, 12.3.X, or 12.4.X on the 32-bit Linux server (refer to "Supported migration paths" on page 40).
2. Back up the server using **Options** > **Server Backup** on the 32-bit Linux server.
3. Install Network Advisor 12.2.X, 12.3.X, or 12.4.X on the 64-bit Linux server (32-bit compatible).
4. Select **SMC** > **Restore** to restore the backup on the 32-bit Linux server.
5. Install Network Advisor 12.4.1 on the 64-bit Linux server (32-bit compatible).

   Perform seamless migration to Network Advisor 12.4.1 (refer to "Migrating data" on page 48).

If you are migrating from a pre-12.2.0 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-11.3.0 release, you must first migrate to Network Advisor 12.0.X on the current server (refer to Table 9 on page 40 for the release migration path).

1. Install Network Advisor 12.2.X on your new machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 48) using the network path.
2. Install Network Advisor 12.4.1 on your new machine (refer to "Data Migration" on page 39) and migrate your data ("Migrating data" on page 48).

If you are migrating from a Network Advisor 12.2.X release on a 32-bit server to Network Advisor 12.4.1 on a 64-bit server, complete the following steps.

1. Back up the Network Advisor 12.2.X server data on your current 32-bit machine. For instructions, refer to "Configuring backup" in the *Brocade Network Advisor User Manual* or online help.
2. Install Network Advisor 12.2.X on your new 64-bit machine (refer to "Installation" on page 1).
3. Restore the server backup from your original 32-bit machine. For instructions, refer to "Restoring data" in the *Brocade Network Advisor User Manual* or online help.
4. Install Network Advisor 12.4.1 on the 64-bit Windows server (refer to "Data Migration" on page 39) and migrate your data ("Migrating data" on page 48).

If you are migrating from a 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-12.0.X release, you must first migrate to Network Advisor 12.0.X on your current server (refer to Table 9 on page 40 for the release migration path).

1. Install Network Advisor 12.2.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 48).
2. Install Network Advisor 12.4.1 on your new machine (refer to "Data Migration" on page 39) and migrate your data ("Migrating data" on page 48).

If you are migrating from a 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-12.0.X release, you must first migrate to Network Advisor 12.0.X on your current server (refer to Table 9 on page 40 for the release migration path).

1. Install Network Advisor 12.2.X on your current machine (refer to "Installation" on page 1) and migrate your data ("Migrating data" on page 48).
2. Back up the server data on your current machine. For instructions, refer to "Configuring backup" in the *Brocade Network Advisor User Manual* or online help.
3. Install Network Advisor 12.2.X on the supported server (refer to "Data Migration" on page 39).
4. Restore the server backup from your original server. For instructions, refer to "Restoring data" in the *Brocade Network Advisor User Manual* or online help.
5. Install Network Advisor 12.4.1 on your new machine (refer to "Data Migration" on page 39) and migrate your data ("Migrating data" on page 48).

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-12.0.X release, you must first migrate to Network Advisor 12.2.X on your current server (refer to Table 9 on page 40 for the release migration path).

1. Install Network Advisor 12.4.1 (refer to "Installation" on page 1) on the current machine and migrate your data (refer to "Migrating data" on page 48).
2. Back up the server data on your current machine. For instructions, refer to "Configuring backup" in the *Brocade Network Advisor User Manual* or online help.
3. Install Network Advisor 12.4.1 (refer to "Installation" on page 1) on the new machine.
4. Restore the server backup from your original machine. For instructions, refer to "Restoring data" in the *Brocade 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 systems 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 39. If you have not installed the application, refer to "Installation" on page 1.

NOTE
If an error occurs while migrating from version 12.3.0 or earlier to version 12.4.1, it rolls back to the earlier version. Migration rollback is not supported if you are performing headless migration.

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. Click **Start** on the **Data Migration** screen.

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

4. 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 5.

   If you are migrating from Licensed software, go to step 6.

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

   NOTE
   The DCX and DCX 8510-8 Backbone chassis require Enterprise edition.

   - **Network Advisor - Licensed version**

     Continue with step 6. Requires you to enter a license key during configuration to enable features and configuration.

   - **Network Advisor - 120 days Trial**

     Go to step 7. Enables you to manage SAN networks from a single interface for 120 days.

     ATTENTION
     If you choose to install Trial, once the trial period ends (120 days), you must upgrade to Licensed software.

   - **Network Advisor - Professional**

     Go to step 7. Bundled with Fabric OS and IronWare OS devices to manage small IP or SAN networks from a single interface.

6. Choose one of the following options on the **Server License** screen:

   - If you are migrating from a licensed source, the source license information displays. Click **Next**. Continue with step 7.
   - If you are migrating from Professional or Trial software to Licensed software, browse to the license file (.xml) and click **Next**. Continue with step 7.

   The **License Key** field is not case-sensitive.

   NOTE
   Downgrading the license from the current configuration during migration is not supported.

7. 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.

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 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 34.

c. Click **Next**.

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

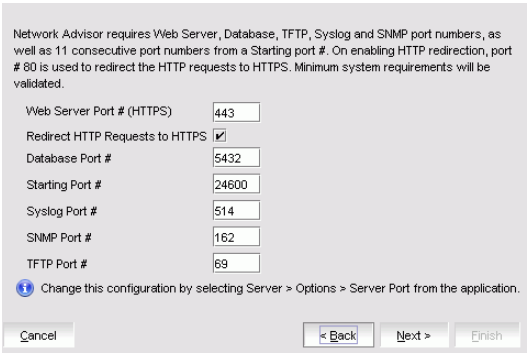

FIGURE 2 **Server Configuration screen**

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 11 consecutive free ports beginning with the starting port number.

NOTE
For Trial and Licensed software, the server requires 11 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 25.

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

g. Enter a port number in the **TFTP Port #** field (default is 69).

h. 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 10.

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**.

If you are configuring Professional software, go to step 12.

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 15000 switch ports, 61-120 domains)**

12. Enable feature usage data transfer from the application by selecting the **Yes, I want to participate** option.

    You can stop participating at any time. To view an example of the usage data, click **View Example Data**.

    To stop participating in feature usage data transfer after configuration, refer to "Product improvement" on page 35.

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 34).

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 **Network Advisor Login Banner**.

Cross flavor migration

To migrate from Brocade Network Advisor 12.2.X to a non-Brocade Network Advisor 12.4.1, complete the following steps.

1. Install Brocade Network Advisor 12.2.X (refer to "Installing the application" on page 9).
2. Install non-Brocade Network Advisor 12.4.1 (refer to "Installing the application" on page 9).

3. Migrate the supported (partial or full) data from Brocade Network Advisor 12.2.X (refer to "Migrating data" on page 48) to the Non-Brocade Network Advisor 12.4.1 by browsing to the Brocade Network Advisor 12.4.1 location on the **Copy Data and Setting** screen.

NOTE
If the Non-Brocade Network Advisor does not support SAN + IP, it is recommended that you install SAN only Brocade Network Advisor and then migrate to Non-Brocade SAN + IP Network Advisor.

Migration rollback

NOTE
Migration rollback is not supported if you are performing headless migration.

Migration rollback is triggered when a failure occurs while migrating to a different version of Brocade Network Advisor. After successful rollback, the previous version will be running and the destination version will be uninstalled. The destination version failure logs and the source version supportsave will be zipped and stored at the source BNA_HOME\support folder in the following format.

```
Zip file format, Migration_Failure_SupportSave_<Time stamp>.zip
```

Migration rollback due to insufficient space

When migration rollback fails due to insufficient space, you can either increase the disk space and try rollback or cancel the migration rollback. The destination version is uninstalled manually if you cancel the migration rollback. Use the following commands, to retrieve the source version.

For Windows

```
Install_Home>bin>dbsvc install
Install_Home>bin>dbsvc start
Install_Home>bin>service.bat dcmsvc install
Install_Home>bin>service.bat dcmsvc start
```

For Windows, if SLP is enabled

```
Install_Home>cimom>bin>slpd.bat -install
Install_Home>cimom>bin>slpd.bat -start
```

For Windows, if CIMOM is enabled

```
Install_Home>bin>service.bat cimomsvc install
Install_Home>bin>service.bat cimomsvc start
```

For Linux

```
Install_Home>bin>sh dbsvc start
Install_Home>bin>sh service dcmsvc start
```

For Linux, if SLP is enabled

```
Install_Home>bin>sh slpsvc start
```

For Linux, if CIMOM is enabled

```
Install_Home>bin>sh service cimomsvc start
```

Chapter

4

Uninstallation

In this chapter

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

NOTE
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 Network Advisor and SMI Agent from your Windows system.

1. Select **Start > Programs > Network Advisor 12.4.1 > Uninstall 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 Network Advisor and SMI Agent from your Windows server.

1. Open a command prompt.
2. Choose one of the following options:
   - To partially uninstall Network Advisor (configuration and performance data is retained to be re-used by the new installation), execute Install_Home\Uninstall_Network Advisor 12.4.1\Uninstall_Network Advisor 12.4.1.exe –f <absolute path of partial uninstall property file>.
   - To fully uninstall Network Advisor (all data is removed), execute Install_Home\Uninstall_Network Advisor 12.4.1\Uninstall_Network Advisor 12.4.1.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 Network Advisor and SMI Agent from your UNIX system.

NOTE
The Uninstall folder is retained.

1. Go to Install_Home/Uninstall_Network_Advisor12_4_1.
2. Execute ./Uninstall_Network_Advisor12_4_1.
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 Network Advisor and SMI Agent from your UNIX server.

1. Go to Install_Home/Uninstall_Network_Advisor12_4_1.
2. Choose one of the following options:
   - To partially uninstall Network Advisor (configuration and performance data is retained to be re-used by the new installation), execute Uninstall_Network_Advisor 12_4_1 –f <absolute path of partial uninstall property file>.
   - To fully uninstall Network Advisor (all data is removed), execute .\Uninstall_Network_Advisor 12_4_1 –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.

Appendix

References

A

In this appendix

Network Advisor packages

Table 13 summarizes the packages and available editions for each package.

TABLE 13 Packages and versions

Package	Editions
SAN with SMI Agent +IP	• Enterprise (trial and licensed) • Professional Plus (trial and licensed) • Professional
SAN with SMI Agent	• Enterprise (trial and licensed) • Professional Plus (trial and licensed) • Professional
IP	• Enterprise (trial and licensed) • Professional
SMI Agent	**NOTE:** Network Advisor clients are not available in the SMI Agent only package. Clients are not required when other management tools are used the SMI Agent.

For a list of the supported scalablility limits for Network Advisor by edition, refer to "Scalability limits" on page 60.

Scalability limits

Table 14 summarizes the scalability limits supported for Network Advisor by edition.

TABLE 14 Supported scalability limits by Network Advisor edition

	Enterprise edition			SAN Professional Plus + IP Base edition	Professional edition
	Small	Medium	Large		
SAN Switch Ports	2000	5000	15000	2560	300
SAN Switches and Access Gateways	40	100	400	40	15
SAN Devices	5000	15000	40000	5000	1000
SAN Fabrics	25	50	100	36	2
IP Switches[1]	50	200	1550 (supported) 1200 (recommended) (with performance monitoring on up to 20000 ports)	50	50
MPLS Switches	1	10	100	1	Not supported.
VDX Switches	50	100	400	50	50
Managed Hosts	20	100	400	100	20
vCenters	1	5	10	5	1
VMs (inlcudes powered down VMs)	1000	5000	10000	5000	1000
ESX Hosts	200	1000	2000	1000	200

1.The IP switch count includes MPLS and VDX switches.

NOTE
Virtual Fabrics are counted as fabrics when calculating the managed count limits.

NOTE
SMI Agent is not supported on Professional edition.

NOTE
Supported network latency between Network Advisor server and client or server and devices is 100ms.

Edition feature support

Table 15 details whether the features are supported in the Professional Plus or Enterprise versions, or only through the Element Manager of the device.

TABLE 15 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	Yes	Yes	Yes
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	NO	Yes	Yes
COMPASS	No	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
Diagnostic port test	No	Yes	Yes
Digital diagnostic	Yes	Yes	Yes

TABLE 15 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 15 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 15 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
REST API	No	Yes	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 15 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 15 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 16 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.

NOTE
For bi-directional protocols, you must open the firewall port bi-directionally.

TABLE 16 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

TABLE 16 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
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
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

TABLE 16 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
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
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]	JBoss remoting connector port	TCP	Use for service location. Uses SSL for privacy.	Client–Server	Yes
24601[1, 2]	JBoss Transaction Services Recovery Manager port	TCP	Not used remotely.	Server	Yes
24602[1, 2]	JBoss Transaction Status Manager port	TCP	Not used remotely.	Server	Yes
24603[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
24604[1, 2]	JMX remoting connector port	TCP	Management console port for native connector (JMX)	Client–Server	Yes
24605[1, 2]	JBoss https management port TCP	TCP	Management console port for HTTPS based management	Client–Server	Yes
24606[1, 2]	Fault Management 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

TABLE 16 Port usage and firewall requirements (Continued)

Port Number	Ports	Transport	Description	Communication Path	Open in Firewall
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
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.