Nokia IP200 Series
Security Platform
Installation Guide

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Nokia Contact Information

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</tr>
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<table>
<thead>
<tr>
<th>Web Site:</th>
<th><a href="https://support.nokia.com/">https://support.nokia.com/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:tac.support@nokia.com">tac.support@nokia.com</a></td>
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<table>
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<tr>
<th>Americas</th>
<th>Europe</th>
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</thead>
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<tr>
<td>Voice: 1-888-361-5030 or 1-613-271-6721</td>
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<td>Fax: 1-613-271-8782</td>
<td>Fax: +44 (0) 125-286-5666</td>
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<td>Fax: +65-67232897</td>
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</tr>
</tbody>
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About this Guide

This guide provides information for the installation and use of the Nokia IP200 Series security platform, which consists of the Nokia IP260 and Nokia IP265 appliances. Installation and maintenance should be performed by experienced technicians or Nokia-approved service providers only.

This preface provides the following information:

- In This Guide
- Conventions This Guide Uses
- Related Documentation

In This Guide

This guide is organized into the following chapters and appendixes:

- **Chapter 1, “Overview”** presents a general overview of the Nokia IP200 Security Platform.
- **Chapter 2, “Installing a Nokia IP200 Security Appliance”** explains how to rack mount the appliance and how to physically connect it to a network and power.
- **Chapter 3, “Performing the Initial Configuration”** explains how to make the appliance available on the network.
- **Chapter 4, “Connecting to the Ethernet Ports”** describes how to connect to the supported Ethernet ports.
Chapter 5, “Configuring and Activating Encryption Acceleration” describes how to configure and activate the built-in encryption acceleration feature.

Chapter 6, “Installing Flash-Memory PC Cards” explains how to install or replace ATA flash-memory PC cards in your IP200 appliance.

Chapter 7, “Using the Nokia IPSO Boot Manager” explains how to use the boot manager, which is part of the Nokia IPSO software.

Chapter 8, “Troubleshooting” discusses problems you might encounter and proposes solutions to these problems.

Appendix A, “Technical Specifications” gives technical specifications such as interface characteristics.

Appendix B, “Compliance Information” includes compliance and regulatory information.

Conventions This Guide Uses

The following sections describe the conventions this guide uses, including notices, text conventions, and command-line conventions.

Notices

⚠️ Warning
Warnings advise the user that bodily injury might occur because of a physical hazard.

⚠️ Caution
Cautions indicate potential equipment damage, equipment malfunction, loss of performance, loss of data, or interruption of service.
Command-Line Conventions

This section defines the elements of commands that are available in Nokia Internet Communications products. You might encounter one or more of the following elements in a command-line path.

Table 1 Command-Line Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>command</td>
<td>A user-generated instruction typically sent using a console or terminal. The command statement and its associated syntax must be entered exactly as shown in lowercase letters.</td>
</tr>
</tbody>
</table>
| italics    | Indicates a variable in a command that you must supply. For example: delete interface \textit{if\_name}  
Supply an interface name in place of the variable. For example: delete interface \textit{nic1} |
| angle brackets < > | Indicates arguments for which you must supply a value: retry-limit <1–100>  
Supply a value. For example: retry-limit 60 |
Table 1 Command-Line Conventions (continued)

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-flag</td>
<td>A flag is usually an abbreviation for a function, menu, or option name, or for a compiler or preprocessor argument. You must enter a flag exactly as shown, including the preceding hyphen.</td>
</tr>
<tr>
<td>.ext</td>
<td>A filename extension, such as .ext, might follow a variable that represents a filename. Type this extension exactly as shown, immediately after the name of the file. The extension might be optional in certain products.</td>
</tr>
<tr>
<td>( . ; + * / )</td>
<td>Punctuation and mathematical notations are literal symbols that you must enter exactly as shown.</td>
</tr>
</tbody>
</table>

**Text Conventions**

Table 2 describes the text conventions this guide uses.

Table 2 Text Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>monospace font</td>
<td>Indicates command syntax, or represents computer or screen output, for example: Log error 12453</td>
</tr>
<tr>
<td><strong>bold monospace font</strong></td>
<td>Indicates text you enter or type, for example: # configure nat</td>
</tr>
<tr>
<td>Key names</td>
<td>Keys that you press simultaneously are linked by a plus sign (+): Press Ctrl + Alt + Del.</td>
</tr>
<tr>
<td>Menu commands</td>
<td>Menu commands are separated by a greater than sign (&gt;): Choose File &gt; Open.</td>
</tr>
</tbody>
</table>
You can find this guide in PDF on the Nokia support Web site (https://support.nokia.com/).

In addition to this guide, documentation for this product includes the following:

- **Getting Started Guide and Release Notes** for the version of IPSO you are using
- **Nokia Network Voyager Reference Guide** for the version of IPSO you are using
- **CLI Reference Guide** for the version of IPSO you are using
- Nokia Network Voyager inline help

You can access the Nokia Voyager inline help, the **Nokia Network Voyager Reference Guide**, and the **CLI Reference Guide** for the version of IPSO you are using from the Nokia Voyager application.

Check Point documentation is available from the Check Point Web site at http://www.checkpoint.com. You can also order Check Point documentation from Nokia or download it from the Nokia support site at https://support.nokia.com.

### Table 2 Text Conventions (continued)

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The words enter and type</td>
<td>Enter indicates you type something and then press the Return or Enter key.</td>
</tr>
<tr>
<td></td>
<td>Do not press the Return or Enter key when an instruction says <em>type</em>.</td>
</tr>
<tr>
<td><em>Italics</em></td>
<td>• Emphasizes a point or denotes new terms at the place where they are defined in the text.</td>
</tr>
<tr>
<td></td>
<td>• Indicates an external book title reference.</td>
</tr>
<tr>
<td></td>
<td>• Indicates a variable in a command:</td>
</tr>
<tr>
<td></td>
<td>delete interface <em>if_name</em></td>
</tr>
</tbody>
</table>
Overview

This chapter provides an overview of the Nokia IP200 Security Platform and the requirements for using the IP200 appliances. The following topics are covered:

- About the Nokia IP200 Security Platform on page 19
- Nokia IP200 Security Platform Appliance Overview on page 20
- Site Requirements on page 26
- Safety Warnings and Cautions on page 27
- Product Disposal on page 26
- Managing IP200 Security Platform Appliances on page 28

About the Nokia IP200 Security Platform

The Nokia IP200 Security Platform combines the power of Nokia IPSO software with your choice of firewall and VPN applications.

The IP200 platform provides built-in hardware-based encryption acceleration. The IP200 appliances are ideally suited for growing companies and satellite offices that want high-performance IP routing combined with the industry-leading Check Point VPN-1/FireWall-1 enterprise security suite. The small size of the IP200 appliances makes them ideal for installations that need to conserve space.
As network devices, the IP200 appliances support a comprehensive suite of IP-routing functions and protocols, including RIPv1/RIPv2, IGRP, OSPF and BGP4 for unicast traffic, and DVMRP for multicast traffic. The integrated router functionality eliminates the need for separate intranet and access routers in security applications.

For more information and technical specifications, see “Technical Specifications” on page 87.

Nokia IP200 Security Platform Appliance Overview

The following figures show component locations for Nokia IP200 appliances.

Figure 1 Component Locations Front View
**Built-in Ethernet Ports**

Figure 3 shows the layout of the built-in Ethernet ports and LEDs.

**Figure 3  Built-In Ethernet Interface Front Panel Details**

- **Activity LED (yellow)**
- **Link LED (green)**
- **RJ-45 connectors**

**Note**
Nokia products support NICs purchased from Nokia Corporation or Nokia-approved resellers only. The Nokia Global Support Services group can provide support only for Nokia products that use Nokia-approved accessories. For sales or reseller information, contact a Nokia service provider listed in the "Nokia Contact Information" on page 3.
Console and Serial (AUX) Ports

Use the built-in console port to supply the information that makes the appliance available on the network. Use the built-in serial (AUX) port for RS232-compliant equipment you are using with your appliance; for example, as a modem connection for managing the appliance. Figure 4 provides pin assignment information for console and serial connections.

Caution
Nokia recommends that you use the console cable that was delivered with your appliance for your console connection. Otherwise, ensure that the pin assignments for your cable match those provided in this section.

Note
Although pin assignments are the same for console and serial connections, they are used differently by the appliance. Therefore, do not use these two connectors interchangeably.
Figure 4 Pin Assignments for Console and AUX Connections

<table>
<thead>
<tr>
<th>Pin#</th>
<th>Assignment</th>
<th>Input or output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD (AUX port only; not used by the console port)</td>
<td>Input</td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
<td>Input</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>Output</td>
</tr>
<tr>
<td>4</td>
<td>DTR</td>
<td>Output</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>Input</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
<td>Output</td>
</tr>
<tr>
<td>8</td>
<td>CTS</td>
<td>Input</td>
</tr>
<tr>
<td>9</td>
<td>not used</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 shows how to match pins at the console or serial connector with output pins on DB9 or DB25 cables you are using with terminal devices or other appropriate equipment.

**Table 3  Pin Assignments for DB9 and DB25 Interface Cables**

<table>
<thead>
<tr>
<th>Console or serial pin and assignment</th>
<th>DB9 cable output pin and assignment</th>
<th>DB25 cable output pin and assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shield (FG)</td>
<td>Shield (FG)</td>
<td>1 (FG)</td>
</tr>
<tr>
<td>2 (RXD)</td>
<td>3 (TXD)</td>
<td>2 (TXD)</td>
</tr>
<tr>
<td>3 (TXD)</td>
<td>2 (RXD)</td>
<td>3 (RXD)</td>
</tr>
<tr>
<td>4 (DTR)</td>
<td>6 (DSR)</td>
<td>6 (DSR)</td>
</tr>
<tr>
<td>5 (SG)</td>
<td>5 (SG)</td>
<td>7 (SG)</td>
</tr>
<tr>
<td>6 (DSR)</td>
<td>4 (DTR)</td>
<td>20 (DTR)</td>
</tr>
<tr>
<td>7 (RTS)</td>
<td>8 (CTS)</td>
<td>5 (CTS)</td>
</tr>
<tr>
<td>8 (CTS)</td>
<td>7 (RTS)</td>
<td>4 (RTS)</td>
</tr>
</tbody>
</table>

**System Status LEDs**

You can monitor the basic operation of Nokia IP200 appliances by checking their status LEDs. The system status LEDs are located on the front panel of the appliance, as Figure 5 shows.
Figure 5  Appliance Status LEDs

![Appliance Status LEDs Diagram]

**Figure 4** describes the status conditions for each of the LEDs for all indications they might display.

**Table 4  Appliance Status LEDs**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caution</td>
<td>None (off)</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Yellow (steady)</td>
<td>Initial boot flash activity or Internal voltage problem</td>
</tr>
<tr>
<td></td>
<td>Yellow (blinking)</td>
<td>Temperature fault</td>
</tr>
</tbody>
</table>
Figure 4 describes the status conditions for each of the LEDs for all indications they might display.

Table 4 Appliance Status LEDs (continued)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power or</td>
<td>Blue</td>
<td>Power on</td>
</tr>
<tr>
<td>Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>None (off)</td>
<td>Power off</td>
</tr>
<tr>
<td>Critical</td>
<td>None (off)</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>One or more fans are defective.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>or No recognizable boot device with a valid kernel found.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>or Kernel panic (followed in 20 seconds by CPU reset).</td>
</tr>
</tbody>
</table>

For information about the built-in Ethernet interface LEDs, see “Built-in Ethernet Ports” on page 21.

Site Requirements

Before you install a Nokia IP200 appliance, ensure that your computer room or wiring closet conforms to the environmental specifications listed in Appendix A, “Technical Specifications.”

Product Disposal

At the end of its useful life, your appliance and all peripherals included with it, including power cords and cables, must be disposed of in accordance with all applicable national, state, and local laws and regulations. These devices contain materials and components that must be disposed of properly.
Therefore, to help prevent damage to the environment, Nokia encourages you to dispose of these devices in an environmentally-friendly manner.

The following resources are available to you to help with equipment-disposal decisions:

- Many Nokia products are labeled with information about the materials used in their manufacture that can help those who will process equipment after you have disposed of it.
- The Nokia web site (http://www.nokia.com) provides information about our environmental programs and practices, which includes details about materials used in manufacturing and end-of-life practices. You can also find your product’s Eco Declaration, which provides basic information on the environmental attributes of the product covering material use, packaging, disassembly, and recycling.
- Contact your local waste management agencies for guidelines specific to your area.

The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of-life. This applies to your device but also to any enhancements marked with this symbol. Do not dispose of these products as unsorted municipal waste. 

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Safety Warnings and Cautions

**Warning**

To reduce the risk of fire, electric shock, and injury when you use telephone equipment, follow basic safety precautions. Do not use the product near water.

---
Caution
Do not place objects over the ventilation holes on the IP200 appliance. The components might overheat and become damaged.

Caution
For IP200 appliances intended for shipment outside of the United States, the power cord might not be included. If a power cord is not provided, use a power cord rated at 6A, 250V, maximum 15 feet long, made of HAR cordage and IEC fittings approved by the country of end use.

Managing IP200 Security Platform Appliances

You can manage Nokia IP200 appliances by using one of the following interfaces:

- **Nokia Network Voyager**—an SSL-secured, Web-based element management interface to Nokia IP security platforms. Network Voyager is preinstalled on the IP200 appliance and enabled through the IPSO operating system. With Network Voyager, you can manage, monitor, and configure the IP200 appliance from any authorized location within the network by using a standard Web browser.

  For information about how to access Network Voyager and the related reference materials, see “Using Nokia Network Voyager to Manage Your Appliance” on page 46.

- **The Nokia IPSO command-line interface (CLI)**—an SSHv2-secured interface that enables you to configure Nokia IP security platforms from the command line. Everything that you can accomplish with Nokia Voyager—to manage and configure the IP200 appliance—you can also do with the CLI.
For information about how to access the CLI, see the Nokia CLI Reference Guide for the version of IPSO you are using.

- **Nokia Horizon Manager**—a secure GUI-based software image management application. With Horizon Manager, you can securely install and upgrade the Nokia proprietary IPSO operating system, plus hardware and third-party applications such as Check Point FireWall-1. Horizon Manager can perform installations and upgrades on up to 2,500 Nokia IP security platforms, offering administrators the most rapid and dependable upgrade to Check Point NG.

For information about how to obtain Horizon Manager, see “Nokia Contact Information” on page 3.
2 Installing a Nokia IP200 Security Appliance

You can rack mount Nokia IP200 Security appliances in the following ways:

- A single appliance in a one-unit space (1U)
- Two appliances can be rack mounted in a 1U space if you install them in a rack-mountable shell, which you can order separately.

This section describes how you can perform both of these installations.

Rack Mounting a Single Nokia IP200 Appliance

Before you mount the appliance on the rack, install the two side brackets with four screws on each side as shown in Figure 6. The brackets and screws are included with the materials you receive with the appliance.

Two mounting positions allow you to mount the appliance either flush with the rack (bracket position A), or two inches forward of the rack (bracket position B).
You can mount IP200 appliances in a standard 19-inch rack with four mounting screws as Figure 7 shows.
Rack Mounting Two Nokia IP200 Appliances Side by Side

The following procedure describes how to install two Nokia IP200 appliances in a 1U rack space.

This method does not allow you to change the position of the mounting brackets, as you can when you use the single-appliance installation method.
To install two IP200 SECURITY Appliances side by side in a 1U space

1. Secure the rack-mountable shell on the rack with two screws on each side.

   **Note**
   To avoid damaging your equipment, Nokia recommends that you use all four rack-mounting screws when you install your appliance on the rack.

2. For each appliance you are installing in the shell, use a screwdriver to rotate both locking latches on the appliance counterclockwise until
locking arms *completely* clear the sides of the shell to prevent damage during the installation.

3. Slide one or two appliances into the shell openings.

   If you are installing only one appliance into the shell, you can cover the empty opening with a filler panel, which you secure with a single screw.

   **Note**
   Filler panels are shipped with the shell if you order it separately. If you do not have a filler panel available and need one, contact your Nokia sales representative.
4. Secure each appliance to the shell by using a screwdriver to turn the locking latch \textit{clockwise} until you cannot turn it with light force. To remove the appliance, use a screwdriver to turn the locking latch \textit{counterclockwise} until you cannot turn it with light force.
The following figure shows how the installation appears if you are using two appliances side-by-side in a 1U space.
The first time you turn on power to a Nokia IP200 appliance, the initial configuration process begins. This process enables you to configure the network settings and provides access to the \textit{admin} account.

You can perform the initial configuration in two ways:

- Configure a DHCP server to provide the initial configuration information the first time the appliance is started.
- Perform the initial configuration manually by using a console connection.

This chapter describes how to perform the initial configuration manually by using a console connection. It includes the following sections:

- \textbf{Using a Console Connection}
- \textbf{Connecting Power and Turning the Power On}
- \textbf{Performing the Initial Configuration}
- \textbf{Connecting Network Interfaces}
- \textbf{Using Nokia Network Voyager to Manage Your Appliance}
- \textbf{Using the Command-Line Interface to Manage Your Appliance}
- \textbf{Using Nokia Horizon Manager}
Performing the Initial Configuration

Note
Nokia recommends that you physically install all hardware components before you perform the initial configuration procedure this chapter describes. For information about how to install other components, see Chapter 6, "Installing Flash-Memory PC Cards."

Using a Console Connection

If you do not use DHCP to perform the initial configuration of your Nokia IP200 appliance, you must use a serial console connection (cable included). After you perform the initial configuration, the console connection is no longer required.

You can use any standard VT100-compatible terminal with an RS-232 data terminal equipment (DTE) interface or terminal-emulation program configured with the following settings for the console:

- 9600 bps
- 8 data bits
- No parity
- 1 stop bit

To connect to the console

1. Connect the supplied null-modem cable (console cable) to the console port on the front panel of the IP200 appliance.
   Use only the DB9 port labeled Console on the front panel; the serial port (AUX) is an auxiliary modem port.
If you connect the console port to a data communications equipment (DCE) device, use a straight-through cable.

For cable pin assignments for the console connection, see Figure 4 on page 23.

2. Connect the other end of the cable to the VT100 console or to a system running a terminal-emulation program.

Connecting Power and Turning the Power On

A power switch and a receptacle for the power cord are located on each power supply on the back of the appliance as shown in Figure 8.
To connect the power supply

1. Connect the power cord securely into the power cord receptacle on the power supply.

2. Plug the other end of the power cord into a grounded power strip or wall outlet.

3. Toggle the power switch to the on position to provide power to the IP200 appliance.

**Caution**
To reduce stress on the power supply, when you turn the appliance on, wait at least ten seconds before you turn it off. Likewise, when you turn the power supply off, wait at least ten seconds before you turn it back on.

**Note**
Because the flash-memory PC card is hot replaceable for the IP200, you do not need to install a flash-memory PC card to boot from before you turn on the appliance.
Performing the Initial Configuration

The initial configuration allows you to assign a hostname, create the admin password, and to configure the management interface.

To perform the initial configuration
1. Turn on the appliance.
   At the console a series of startup messages appears, then the following prompt appears:
   
   Type any character to enter command mode.
   
   The prompt remains on the screen for about five seconds. If you type any character during this time, the system activates the Nokia IPSO boot manager.

   Note
   The IP200 appliance power supply automatically detects the input voltage (115 VAC or 220 VAC [100 to 127 and 200 to 240]) and configures itself appropriately.

4. Check the power LED (the Nokia logo) on the front panel of the appliance to ensure that the power supply is operating correctly.
If the fans are not running, or if the power LED is not illuminated, make sure that:
   - The power cord is properly connected.
   - The power supply switch is on.
   - Power is turned on to the power strip or wall receptacle into which you plugged the appliance.
If the fans are still not running, or if the power LED does not illuminate, contact your Nokia service provider as listed in “Nokia Contact Information” on page 3 for technical support.
Note
For information about how to use the boot manager, see Chapter 7, “Using the Nokia IPSO Boot Manager.”

After some miscellaneous output appears, the following prompt appears:

Hostname?

If the Hostname? prompt does not appear on the console, check the console port and console display connections to ensure that the serial cable is completely plugged in at both ends. If you verify the console connections and still do not see either the BOOTMGR> or Hostname? prompts, verify that the terminal or terminal emulator program settings are correct. If the settings are correct, contact your Nokia service provider as listed in “Nokia Contact Information” on page 3.

2. Respond to the Hostname? prompt within 30 seconds to prevent the DHCP client from starting.

If the DHCP client starts and you have already connected to a network interface, a DHCP server on your network might configure the appliance with an incorrect host name and IP address (this could happen if a DHCP server on your network is configured to respond to any request). To reset the incorrect host name and IP address:

a. Establish a console connection to the system.

b. Enter the following:

   \texttt{rm /config/active}

   or

   \texttt{mv /config/active /config/active.old}

c. Reboot the appliance.

d. Respond to the Hostname? prompt within 30 seconds to prevent the DHCP client from restarting.

3. At each subsequent prompt, enter the requested configuration information.
For more information about how to respond to the prompts during the initial configuration process, see the release notes for the Nokia software release you are running.

4. When you are prompted to select an interface, Nokia recommends that you select one of the Ethernet management ports, which are numbered eth-s5p1 through eth-s5p4.

To select an interface, enter the number adjacent to the physical ID in the list of connected interfaces.

**Note**
A physical ID identifies the network interface card (NIC) type (eth) and provides information about its slot number (slot-num) and port number (port-num).

The physical ID syntax is:

```
eth-s<slot-num>p<port-num>
```

5. After you complete the initial configuration, connect the network interfaces and use Network Voyager to configure them.

**Connecting Network Interfaces**

Connect at least one network interface to the network to use as the Nokia Network Voyager system-management interface.

You can also connect the remaining Ethernet interface cables at this point, although you are not required to do so.

To connect 10/100 Ethernet devices, use a straight-through cable with an RJ-45 connector to connect to a 10-Mbps or 100-Mbps hub.

For further details, see “Connecting to Ethernet Ports” on page 52.

You can use Nokia Network Voyager or the command-line interface (CLI) to configure the remaining network ports on your IP200 appliance. Details about
how to use Network Voyager, the CLI, and Nokia Horizon Manager are provided in the following sections.

### Using Nokia Network Voyager to Manage Your Appliance

You can use Nokia Network Voyager, an SSL-secured, Web-based element management interface to Nokia IP security platforms, to configure and monitor your appliance. Network Voyager is preinstalled on the IP200 appliance and enabled through the IPSO operating system. With Network Voyager, you can manage, monitor, and configure the IP200 appliance from any authorized location within the network by using a standard Web browser.

#### To open Nokia Network Voyager

1. Start a Web browser on the host you plan to use to configure or monitor your appliance.

2. In the Location or Address field, enter the IP address of the initial interface you configured for the appliance.

   You are prompted to enter the admin username and the password you entered when you performed the initial configuration.

---

**Note**

If the username login screen does not appear, you might not have a physical network connection between the host and your appliance, or you might have a network routing problem. Confirm the information you entered during the initial configuration and check that all cables are firmly connected. For more information, see Chapter 8, "Troubleshooting."
Viewing Nokia IPSO Documentation by Using Nokia Network Voyager

As you use Nokia Network Voyager, the Nokia Network Voyager Reference Guide for the version of IPSO you are using and Network Voyager inline help (context-sensitive help) are available for you to use.

You can access both information sources from the Voyager interface, as Figure 9 shows.

**Figure 9  Nokia Network Voyager Reference Access Points**
Nokia Network Voyager Reference Guide for Nokia IPSO

The *Nokia Network Voyager Reference Guide* is the comprehensive reference source for Nokia Network Voyager. To access this source if you are running Nokia IPSO, click Doc.

You can also access the *Nokia Network Voyager Reference Guide for IPSO* and other Nokia IPSO documentation at the Nokia support site (https://support.nokia.com) or on the software CD that was delivered with your appliance (see the doc folder).

Nokia Network Voyager Inline Help for IPSO

You can access inline help when you use Nokia Network Voyager. Inline help is the context-sensitive information source for Network Voyager.

To access inline help for the window you are viewing, click Help. Close and Print buttons are available at the bottom of each inline help window you view.

Using the Command-Line Interface to Manage Your Appliance

You can also use the Nokia IPSO command-line interface (CLI) to manage and configure Nokia IP security platforms from the command line. Everything that you can accomplish with Network Voyager you can also do with the CLI.

Log on to the platform by using a command-line connection (SSH, console, or Telnet) over a TCP/IP network as an admin, cadmin, or monitor user:

- If you log in as a cadmin (cluster administrator) user, you can change and view configuration settings on all the cluster nodes. For information about how to administer a cluster, see the traffic management commands section in the *CLI Reference Guide* for the version of IPSO you are using.
If you log in as a monitor user, you can execute only the show form of commands. That is, you can view configuration settings, but you cannot change them.

You can now execute CLI commands from the CLI shell and the IPSO shell. The IPSO shell is what you see when you initially log on to the platform.

<table>
<thead>
<tr>
<th>Execute from</th>
<th>To implement</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| IPSO command line | Enter the following command to invoke the CLI shell: **clish**  
The prompt changes, and you can then enter CLI commands. | Enter any CLI commands in an interactive mode with help text and other helpful CLI features. |
| IPSO command line | Enter **clish -c**  
cli-command | Execute a single CLI command. You must place double-quotation marks around the CLI command |
| Command files | From inside the CLI shell, enter **load commands filename** | Load commands from a text file that contains commands. The argument must be the name of a regular file. |

For more information about how to access and use the CLI, see the *Nokia CLI Reference Guide* for the version of IPSO you are using.

**Using Nokia Horizon Manager**

You can use Nokia Horizon Manager to install and upgrade Nokia IPSO. For information about how to obtain Horizon Manager, see the “Nokia Contact Information” on page 3.
Performing the Initial Configuration
4 Connecting to the Ethernet Ports

This chapter describes how to connect Ethernet network cabling to your Nokia IP200 appliance.

⚠️ Caution
To help guard against electrostatic discharge damage, make sure you are properly grounded by using a grounding wrist strap and following the instructions provided with the wrist strap before you handle the components or open the appliance. If you do not have a grounding wrist strap, make sure you are properly grounded before you touch any electronic component.

Built-In Four-Port 10/100 Ethernet Interface

Every Nokia IP200 appliance has four built-in dual-mode 10-Mbps and 100-Mbps ports.
Ethernet Features

The Ethernet interface supports tracing through tcpdump.

You can configure and monitor Ethernet interfaces with Nokia Network Voyager or the command-line interface (CLI). Specifically, you set the port speed and full-duplex or half-duplex mode by using Network Voyager or the CLI.

For information about how to access Network Voyager and the related reference materials, see “Using Nokia Network Voyager to Manage Your Appliance” on page 46.

For information about how to access the CLI, see the Nokia CLI Reference Guide for the version of Nokia IPSO you are using.

After the power is turned on, the Ethernet link LEDs on the appliance and on the remote equipment illuminate to indicate the connection. As data is transmitted, the activity LEDs on the appliance illuminates.

Connecting to Ethernet Ports

Caution

Cables that connect to Ethernet ports must be IEEE 802.3 compliant to prevent potential data loss.

To connect to a 10-Mbps or 100-Mbps hub, use a straight-through RJ-45 cable.

To connect directly to a host, use an RJ-45 crossover cable.

Use IEEE 802.3 10BASE-T, 100BASE-TX CAT5 unshielded twisted-pair, full-duplex or half-duplex cable.

You can order appropriate adapter cables separately. You can order additional cables from a cable vendor of your choice.
The following figure shows the pin assignments for the cable. The RJ-45 cable output connector is numbered from left to right, with the copper tabs facing down and toward you.

**Figure 10 Output Connector for the Ethernet Cable**

<table>
<thead>
<tr>
<th>Pin#</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX</td>
</tr>
<tr>
<td>2</td>
<td>TX</td>
</tr>
<tr>
<td>3</td>
<td>RX</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>RX</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
The following figure shows the pin assignments for the RJ-45 crossover cable.

**Figure 11 Ethernet Crossover Cable Pin Connections**
This chapter contains information about the Nokia encryption accelerator card for the Nokia IP200 appliance. The card provides high-speed cryptographic processing that enhances VPN performance.

**Configuring and Activating Nokia Encryption Acceleration**

The Nokia IP200 Security Platform provides built-in hardware-based encryption acceleration. The accelerator card has no external connections and requires no cables.

Perform the procedures in this section only if SecureXL is turned off. If SecureXL is turned on, the accelerator is automatically enabled.

The accelerator card software package is part of Nokia IPSO, so the appliance automatically detects and configures the card.
Configuring Software to Use Hardware Acceleration

Use Nokia Network Voyager to configure virtual private network (VPN) tunnels to use hardware acceleration. This step is necessary to use Nokia encryption acceleration on IP200 appliances.

**To enable encryption acceleration for a Check Point VPN**

3. Click Cryptographic Hardware Acceleration.
4. At Hardware Device Configuration, click On. Click Apply to enable encryption acceleration.
Installing Flash-Memory PC Cards

This chapter includes information about how to install ATA flash-memory PC cards in your IP200 appliance to provide non-volatile, random-access memory (RAM).

You can use the flash-memory PC card to store local system logs, Nokia IPSO images, and configuration files.

The IP200 appliance has two PC-card slots that each support an 8-MB or greater flash-memory PC card. The two slots are located on the front panel of the appliance, as shown in Figure 12.
Before You Begin

To install a flash-memory PC card, you need:

- Physical access to the appliance
- Access to the appliance by using Nokia Network Voyager or the command-line interface (CLI)
- Replacement flash-memory PC card and accompanying documentation

Caution
To avoid potential equipment malfunction, Nokia recommends that you obtain flash-memory PC cards only from Nokia or authorized resellers. For further information, contact the appropriate Nokia customer support site listed in “Nokia Contact Information” on page 3.
Installing a Flash-Memory PC Card

Caution
You risk damage to the appliance or loss of data if you do not use the following procedure when you replace the flash-memory PC card.

Note
You can use only one of the slots at a time, and Nokia recommends that you use only the top PC-card slot for optimum ESD protection.

To install the flash-memory PC card
1. Insert the flash-memory PC card into PC-card slot 1 or slot 2.
2. Press gently on the card until it is firmly seated in the slot.
   The eject button to the left of the slot should be flush with the card.

Storing System Logs on the Flash-Memory PC Card

You can use the flash-memory PC card to store system log messages. Use Nokia Network Voyager to configure the flash-memory PC card as an optional disk. After you reboot your Nokia IP200 appliance, use Network Voyager to configure system logging options. For more information, see the Nokia Network Voyager Reference Guide.

If you configure the flash-memory PC card as an optional disk, you must perform one of the following procedures before you remove the flash-memory PC card.
To use Nokia Network Voyager to disable a flash-memory PC card you use for storing system logs before you remove it

1. Click System Logging under System Configuration and check the Unselect check box.
2. Click Apply.
3. Click Up.
4. Click Optional Disks under System Configuration and click the Off radio button under Local Logging.
5. Click Apply.
6. Click Save.
7. Click Up.
8. Click Reboot, Shut Down System to shut down or reboot the appliance.

You can now remove the flash-memory PC card.

To use the CLI to disable a flash-memory PC card you use for storing system logs before you remove it

1. Enter the following command:
   ```
   set syslog local-log off
   ```
2. Enter the following command, where the number 1 or 2 indicates the PC-card slot:
   ```
   set optional-disk device-id <1 | 2> off
   ```
3. Enter the following command:
   ```
   halt or reboot
   ```

You can now remove the flash-memory PC card.
Transferring Files with the Flash-Memory PC Card

You can copy Nokia IPSO images or configuration files between the internal compact flash memory and the flash-memory PC card. If you do not use Nokia Network Voyager to configure the flash-memory PC card as an optional disk, you must mount the flash-memory PC card when you insert it in the PC-card slot, and you must unmount the flash-memory PC card before you remove it. You do not need to reboot or shut down the system if you manually mount and unmount the flash-memory PC card.

To transfer Nokia IPSO images or configuration files to the flash-memory PC card

1. Insert the flash-memory PC card into the IP200 appliance.
2. Connect to the IP200 appliance by using a console or terminal connection.
3. Mount the flash-memory PC card by using the following command:
   
   ```
   mount /dev/wd1 /cdrom
   ```
   
   The /cdrom directory is a default directory in IPSO for mounting media.
4. Use the cp command to transfer IPSO images or configuration files to and from the flash-memory PC card.

For example, to copy the current IPSO image from the compact flash to the flash-memory PC card, use the following command:

   ```
   cp /image/current/ipso.tgz /cdrom/
   ```
5. Use the following command to unmount the flash-memory PC card before you eject it:
   
   `umount /cdrom`

6. To remove the card, slowly push the eject button located to the left of the card.

   **Caution**
   Hold the flash-memory PC card while you push the eject button to prevent the card from ejecting too quickly.
Using the Nokia IPSO Boot Manager

Nokia IP200 appliances incorporate a boot manager to control the boot process. This chapter describes how to access the boot manager command-line interface, set boot manager variables and password, and upgrade the boot manager.

The boot manager allows you to perform a number of tasks, including:

- Booting from alternative Nokia IPSO images, which might reside on non-default devices or directories.
- Installing new versions of Nokia IPSO (the operating system).
  
  For information on installing new version of Nokia IPSO images, see the Getting Started Guide and Release Notes for the version of IPSO that you are using.

- Obtaining system information.
- Performing various housekeeping tasks.

The boot manager boots the IP200 appliance from a Nokia IPSO image, which resides on an IP200 hard-disk drive or in compact flash memory depending on the appliance you are using.

When you first receive your appliance, the boot manager uses factory-default parameters (such as kernel and boot device) for the boot process. The factory defaults cause the appliance to bypass the boot manager prompt after about 3 seconds. You can change these defaults if you need to, or you can use
different parameters in the command line at boot time. The boot manager maintains the default values of these parameters on the hard-disk drive or in flash memory, depending on which appliance you are using. You can use the boot manager commands to set these values.

Unless you set the autoboot variable to no, the appliance automatically boots Nokia IPSO after waiting at the boot manager prompt for the number of seconds specified by the bootwait variable. For further information, see “Setting and Viewing Boot-Manager Variables” on page 67.

You can use the following commands in the boot manager.

- **boot**—Load and run kernel or executable. For more information, see “Using the Boot Manager to Boot the System” on page 66.
- **halt**—Halt the system. For more information, see “Stopping the System from the Boot Manager” on page 66
- **help**—List the boot manager commands.
- **install**—Install new IPSO image. For information about using the install command to install Nokia IPSO images, see the Getting Started Guide and Release Notes for the version of Nokia IPSO you are running.
- **setenv**—Set environment variable. For more information, see “setenv” on page 69.
- **unsetenv**—Clear environment variable. For more information, see “unsetenv” on page 69.
- **printenv**—Print environment variables. For more information, see “printenv” on page 69.
- **set-defaults**—Set boot manager variables to their factory-default values. For more information, see “set-defaults” on page 70.
- **passwd**—Set a password for the boot manager. For more information, see “Protecting the Boot Manager with a Password” on page 72.
- **ls**—List the contents of directories on the hard-disk drives or flash memory. For more information, see “ls” on page 71.
- **sysinfo**—Display system information. For more information, see “sysinfo” on page 71.
Starting the Boot-Manager Command-Line Interface

Use the following procedure to enter the boot manager and begin entering commands.

To enter the boot manager

1. Connect to the appliance with a console connection.
2. Boot or reboot the system.
3. The following text might appear. If it does, enter 1.

   Verifying DMI Pool Data
   1 . . . Bootmgr
   2 . . . IPSO

4. Type any character when the following text appears:

   Type any character to enter command mode.

   If you do not press a key, the system continues to boot after the bootwait period expires.

   The boot manager command prompt appears:

   BOOTMGR[1]>

5. To exit the boot manager and continue booting up, type boot.
Note
You can escape from the boot manager to the shell if you need to inspect the system state by typing `sh` at the command prompt.

Stopping the System from the Boot Manager

Use the `halt` command to halt the system.
Nokia recommends that you use the `halt` command to shut down your system to ensure that all of your mounted file systems are unmounted.

Using the Boot Manager to Boot the System

Use can use the `boot` command to boot up the Nokia IPSO operating system. The command also allows you to specify the boot device, boot file, and any number of boot flags from the command line.

The command has the following syntax:

```
boot [boot-device] [boot-file] [boot-flags]
```

where:

- `boot-device` is the storage device from which the operating system loads at boot up
- `boot-file` is the operating system kernel
- `boot-flags` control the operation of the command

You can supply all, any, or none of the arguments. If you do not supply an argument, the boot manager uses the default values described in Table 5 on page 67. For descriptions of the available boot flags, see Table 6.

For example, enter the following command at the boot-manager command prompt to boot `mykernel` from device `wd0` in verbose and debug mode:

```
BOOTMGR[0] > boot wd0 /image/current/mykernel -vd
```
Setting and Viewing Boot-Manager Variables

The boot manager stores a number of variables in nonvolatile memory. You can set and view most variables from the boot manager prompt. Table 5 lists the boot-manager variables that you can set.

Note
Nokia recommends that you do not modify any of the default values for boot manager variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>autoboot</td>
<td>Determines whether the boot process stops at the boot manager command line during a boot up. If set to yes, the boot process waits for the amount of time specified by the bootwait variable for input from the keyboard. If input is received, the boot manager goes to the boot manager command line; otherwise, it proceeds with the boot up. If set to no, the boot process stops at the boot manager command line during a boot up. Default: yes</td>
</tr>
<tr>
<td>boot-device</td>
<td>Device from which the operating system kernel file loads. Default: wd0</td>
</tr>
<tr>
<td>boot-file</td>
<td>Name of the operating system kernel file. Default: /image/current/kernel.</td>
</tr>
<tr>
<td>boot-flags</td>
<td>String of flags passed to the kernel. There is no default setting. See Table 6 for descriptions of the boot flags.</td>
</tr>
</tbody>
</table>
Using the Nokia IPSO Boot Manager

Table 5 Boot Manager Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bootwait</td>
<td>Amount of time, in seconds, that the boot manager waits for input during a boot up when autoboot is set to yes. Default: Depends on the platform. Usually 0 or 3.</td>
</tr>
<tr>
<td>testboot</td>
<td>If testboot is set to Yes, the system testboots the new image and if there is a failure, such as a panic or crash, the system reverts automatically to the original image. Default: No</td>
</tr>
</tbody>
</table>

Table 6 lists the available boot flags.

Table 6 Boot Flags

<table>
<thead>
<tr>
<th>Flag</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-d</td>
<td>Debug mode. Enters the kernel debugger as soon as possible in the kernel initialization.</td>
</tr>
<tr>
<td>-m</td>
<td>This flag is used on flash-based (diskless) systems to set the miniroot variable to 1.</td>
</tr>
<tr>
<td>-r</td>
<td>File system read-only after rebooting. You might want to use this while doing maintenance tasks.</td>
</tr>
<tr>
<td>-s</td>
<td>Single-user mode, which removes your system from the network. To perform certain system tasks, such as resetting the password, you must boot in single-user mode. If the console is marked as insecure, you must enter the root password to access the manager. Exit single-user mode by pressing Control + D, or by pressing Enter, after which the system restarts.</td>
</tr>
<tr>
<td>-v</td>
<td>Verbose mode. Verbose during device probing and thereafter.</td>
</tr>
<tr>
<td>-x</td>
<td>Instructs the system not to identify the flash disk as wd0. Rarely used.</td>
</tr>
</tbody>
</table>
printenv

Use the printenv command to view the values of variables currently stored in
the boot-manager nonvolatile memory and the version of the boot manager
that is currently installed. The command has the following syntax:

```
printenv
```

For example:

```
BOOTMGR[1]> printenv
NOKIA IPSO BOOTMGR VERSION=3.8.1-BETA023A
11.04.2004-170000
autoboot: YES

setenv

Use the setenv command to set a particular variable to a value. The command
has the following syntax:

```
setenv name value
```

where `name` is the name of the variable, and `value` is the new value for the
variable to assume.

This example command sets the value of autoboot to YES:

```
BOOTMGR[2]> setenv autoboot YES
```

unsetenv

Use the unsetenv command to set a variable to null value. The command has
the following syntax:

```
unsetenv name
```
where name is the name of the variable to be cleared. Name can be autoboot, testboot, bootwait, boot-file, boot-flags, or boot-device.

**set-defaults**

Use the set-defaults command to set variables to their factory-default values. The command has the following syntax:

```
set-defaults name
```

where name is the name of the variable to be set to its factory default. If name is not specified, all variables are set to their factory defaults.

For example, the following command sets the value of autoboot to YES, the factory default:

```
BOOTMGR[2]> set-defaults autoboot
```

**setalias**

Use the setalias command to set an alias. The command has the following syntax:

```
setalias name device
```

where name is the alias name, and device the device for which name is the alias.

You can have a maximum of eight aliases set at one time.

**unsetalias**

Use the unsetalias command to clear an alias. The command has the following syntax:

```
unsetalias name
```

where name is the name of the alias to be cleared.

For example, the following command deletes the flash alias from the list of aliases:

```
BOOTMGR[2]> unsetalias flash
```
showalias

Use the showalias command to view the values of the aliases currently stored in the boot manager nonvolatile memory. The command has the following syntax:

showalias

Viewing Other System Information

Use the ls and sysinfo commands to view additional information.

ls

Use the ls command to view the contents of directories on the hard-disk drives or flash memory in your appliance. The command has the following syntax:

ls device directory

where device is the hard-disk drive or flash memory that contains the directory to view, and directory is the directory on that device. Both device and directory are optional. The default directory is /image on the wd0 device.

For example:

BOOTMGR[2]> ls wd0 /image/current
.description bootmgr ipso.tgz
rfs_utils
RFS_LINKS cdrom kernel sbin
VERSION dev kernel.debug usr
bin etc mnt web

sysinfo

Use the sysinfo command to view system information such as CPU speed and memory size. The command has the following syntax:

sysinfo
For example:

```
BOOTMGR[2]> sysinfo
CPU 0: 866 MHz Pentium-III w ATC
Memory: 536870912 (512M bytes)
Disk Devices:
  IO port 0x1f0 wdc0: unit 0 (wd0): <SanDisk SDCFB-16>
    16MB (31360 sectors), 31 cyls, 16 heads, 63 S/T, 512 B/S
  IO port 0x1f0 wdc0: unit 1 (wd1): <IC35L020AVER07-0>
    20576MB (40188960 sectors), 2501 cyls, 255 heads, 63 S/T, 512 B/S
Network Interfaces:
  eth-s1p1: flags=131<LINK,BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:78 speed 10M half duplex
  eth-s1p2: flags=131<LINK,BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:79 speed 10M half duplex
  eth-s1p3: flags=131<LINK,BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:7a speed 10M half duplex
  eth-s1p4: flags=131<LINK,BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:7b speed 10M half duplex
  loop0: flags=10b<UP,LINK,LOOPBACK,PRESENT>
  soverf0: flags=2923<UP,LINK,MULTICAST,PRESENT,IPV6ONLY>
  stof0: flags=2903<UP,LINK,PRESENT,IPV6ONLY>
  tun0: flags=107<UP,LINK,POINTOPOINT,PRESENT>
  eth1: flags=130<BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:8a speed 10M half duplex
  eth2: flags=130<BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:8b speed 10M half duplex
  eth3: flags=130<BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:88 speed 10M half duplex
  eth4: flags=130<BROADCAST,MULTICAST,PRESENT>
    ether 0:a0:8e:40:a5:89 speed 10M half duplex
```

Protecting the Boot Manager with a Password

To prevent accidental or unauthorized access to the information stored on your appliance, you can require that the user enter a password to access the
boot manager install command. Use the passwd command to set a password for the boot manager.

⚠️ Caution
It is difficult to remove the use of a password for the boot manager once it is set. It is also difficult to reset the boot manager password if you lose it.

The boot manager password gives access to the install command in boot manager, it does not give access to Nokia IPSO.

**To set or change the boot manager password**

1. At the boot manager command prompt enter:
   
   ```
   BOOTMGR[0]> passwd
   ```
   
   The passwd utility prompts you for your current password.

2. If the appliance is already protected by a password, enter your current password.
   
   The boot manager prompts you for the new password.

3. Enter the new password.
   
   The boot manager prompts you to re-enter the new password for verification.

4. Enter the new password again.

If you lost or forgot the boot manager password, you can reset it provided that you have physical access to the appliance (console connection) by using the following procedure to remove the use of the password function in the boot manager.

**To remove the use of a boot manager password**

1. Login to the IPSO shell.

2. Enter the following command:
Using the Nokia IPSO Boot Manager

dd if=/image/current/bootmgr/<boot_manager_file>
of=/dev/[rwd0 | rwd1]

where <boot_manager_file> is the name of the boot manager file on your system. For example, the boot manager file for IPSO 4.0 is nkipflash-4.0.bin, for IPSO 3.9 it is nkipflash-3.9.bin, and so on.

**Note**
In this command, use rwd1, as the boot manager resides on wd1 in multi-user mode.
You can also use the command `ipsctl kern:bootmgr:bmdev` to determine the boot manager device.

3. If you wish to establish a boot manager password again, follow the procedure under “To set or change the boot manager password” on page 73.

If you have lost both the admin password and the boot manager password and your appliance is disk-based, you can reset the boot manager password, using the following alternative procedure.

**To reset the boot manager password on a disk-based appliance**

1. Turn off the power to the appliance.
2. Remove the hard-disk drive from the appliance.
3. Turn on the power to the appliance.
4. When the appliance reboots, enter the boot manager.
5. At the boot manager command prompt, type `passwd`.
   The New Password prompt appears.
6. Enter your new password.
7. Turn off the power to the appliance.
8. Reinstall the hard-disk drive.
9. Turn on the power to the appliance.
Note
If your system is flash-based (diskless) and you have lost both the admin and boot manager passwords, contact Nokia Customer Support for further assistance. See “Nokia Contact Information” on page 3 for contact details.

Resetting the Admin Password
If you lose the admin password, you can reset it by using the `overpw` command after using the boot manager to boot to the IPSO CLI in single-user mode, as described in the following procedure.

To reset the admin password
1. Enter the boot manager command line using the procedure in “To enter the boot manager” on page 65.
2. Log in to your appliance in single-user mode by entering the following command:
   ```
   BOOTMGR[0]> boot -s
   ```
   The Nokia IPSO prompt (#) appears.
3. Run the `overpw` command:
   ```
   /etc/overpw
   ```
4. Enter a new temporary password when prompted to do so.
5. Reboot your appliance.
6. Log in to Network Voyager and change the admin password to a permanent password.
7 Using the Nokia IPSO Boot Manager

Note
This procedure might not work for flash-based (diskless) platforms prior to IPSO 3.9. If you appliance is flash-based (diskless) and running an IPSO version prior to 3.9, contact Nokia Customer Support.

You must have physical access (a console connection) to the appliance to perform this procedure. This command does not appear in the CLI help menu.

Reinstalling or Upgrading the Boot Manager

When you add a Nokia IPSO image, the Nokia IPSO boot manager is upgraded automatically if your system does not have the boot manager for the image you are adding. For information about adding Nokia IPSO images, see the Getting Started Guide and Release Notes for the version of Nokia IPSO you are running.

This section describes how you install, upgrade or downgrade the boot manager independently of your adding a Nokia IPSO image, or upgrading or downgrading the Nokia IPSO system. Run the install and upgrade commands from the IPSO command line.

Note
Some versions of the boot manager are not compatible with some IPSO versions. If you try to upgrade or downgrade the boot manager to a version that is not compatible, you are prevented from doing so.

The command to install the boot manager has the following syntax:

```
install_bootmgr boot-device boot-file
```

The command to upgrade or downgrade the boot manager has the following syntax:

```
upgrade_bootmgr boot-device boot-file
```

where:
Reinstalling or Upgrading the Boot Manager

- **boot-device** is the storage device to which you write the new boot manager image and from which the boot manager image loads at boot up.
- **boot-file** is the new boot manager and is named *nkipflash*.

Execute the `install_bootmgr` or `upgrade_bootmgr` command from Nokia IPSO (the operating system), not from the boot manager. The boot manager is installed at the factory; you should not need to reinstall it. If you do need to reinstall the boot manager, use the following procedure.

To install, upgrade, or downgrade the boot manager

1. Obtain the boot manager you want to install.
   
   If you have access to the Nokia support web site, you can download the boot manager from the same page you would use to download Nokia IPSO system software. If you don’t have access to the Nokia support web site, contact the appropriate Nokia customer support site as listed in “Nokia Contact Information” on page 3 for instructions and a new boot manager.

2. At the Nokia IPSO command prompt, do one of the following:
   - To install the boot manager, enter:
     ```
     /etc/install_bootmgr [wd0 | wd1] /image/current/bootmgr/nkipflash
     ```
   - To upgrade or downgrade the boot manager, enter:
     ```
     /etc/upgrade_bootmgr [wd0 | wd1] /etc/nkipflash
     ```
     where [wd0 | wd1] refers to the location of the boot manager.

---

**Note**

On the IP200, the boot manager resides on wd1 in multi-user mode. You can also use the command `ipsctl kern:bootmgr:bmdev` to determine the boot manager device.
These commands install, upgrade, or downgrade the boot manager with the new image (nkipflash), writing it into the hard-disk drive or flash memory (wd1). The process takes some time to complete. Do not interrupt the install, upgrade, or downgrade process.

**Troubleshooting**

**Appliance Locks Up and Stops Responding After You Upgrade Nokia IPSO With a Console Connection**

**Problem** During the upgrade process, some of the environment variables might not have updated correctly.

You can verify the current boot manager settings by issuing a `printenv` command at the boot manager prompt, as shown in this example:

```plaintext
Loading boot manager ..
BOOTMGR[0]>$ printenv
BOOTMGR[93]>$ printenv
NOKIA IPSO BOOTMGR VERSION=3.8 09.05.2003-130000
autoboot: YES
testboot: NO
bootwait: 3
booth-file:
boot-flags:
boot-device:
vendor: Nokia
model: IP
bmslice: 4
```

No referenced boot-file or boot-device appears.

Setting the boot manager to defaults causes the boot manager to determine that no environment variables are set, and it responds by importing the
defaults from the binary file. To set the boot manager to defaults, issue the set-defaults command at the boot manager prompt as shown in this example:

BOOTMGR> set-defaults

If you issue the printenv command again, the boot-file and boot-device entries are present, as shown in this example:

```
BOOTMGR[2]> printenv
BOOTMGR[93]> printenv
NOKIA IPSO BOOTMGR VERSION=3.8 09.05.2003-130000
autoboot: YES
testboot: NO
bootwait: 3
boot-file: /image/current/kernel
boot-flags:
boot-device: wd0
vendor: Nokia
model: IP
bmslice: 4
```

Issue the halt command to restart your appliance:

```
BOOTMGR> halt
```
Using the Nokia IPSO Boot Manager
This chapter provides troubleshooting tips, problems, and solutions related to Nokia IP200 appliance installations.

For information about how to reinstall Nokia IPSO on to your appliance, see Chapter 7, “Using the Nokia IPSO Boot Manager.”

**General Troubleshooting Information**

The information in this section relates to problems you might encounter during the Nokia IP200 appliance installation.

**Appliance Not Receiving Power**

**Problem**  
Power cord is not properly plugged in.

**Solution**  
Check cord. Make sure it is properly seated at both ends.

**Problem**  
Power supply not providing power.

**Solution**  
Check power source. If no power is present at the source, take appropriate action such as inserting a new fuse or resetting circuit breaker.

**Unable to Log In to the Console Port—No Error Message**

Two laptop computers (using terminal emulation programs) or terminals should be able to communicate back to back in the same way that the terminal
communicates with the IP200 appliance. If this is not possible with your laptop computer or terminal, the problem is with the terminal or cable and not with the appliance.

**Problem**  No console connection to the IP200 appliance.
**Solution**  For information about how to create a console connection, see “To connect to the console” on page 40.

**Problem**  Not connected with a null-modem cable.
**Solution**  Verify that you are using a null-modem cable. For pinout information, see “To connect to the console” on page 40.

**Problem**  Wrong terminal settings.
**Solution**  Verify terminal settings: 8 data bits, 1 stop bit, no parity, 9600 bps.

**Problem**  Terminal set for flow control.
**Solution**  The IP200 appliance does not use flow control. The terminal should be set for no flow control.

**Problem**  Defective IP200 appliance or file system.
**Solution**  Contact the Nokia customer support site listed in “Nokia Contact Information” on page 3.

**Login Prompt Appears, But Password Not Accepted**

**Problem**  Database is corrupt
**Solution**  Return to default settings or contact the Nokia customer support site listed in “Nokia Contact Information” on page 3.
Problem  Entered wrong password.
Solution  Obtain a valid password or set the password to a default value.

Note
You must have local serial access to your appliance console to perform this procedure. With a keyboard and monitor directly connected to the appliance, the boot prompt does not appear, and you cannot perform this procedure.

For information about how to reset the admin password to a default value or how to reset the default database settings, see the Nokia Network Voyager Reference Guide or CLI Reference Guide for the version of IPSO you are using.

Do Not Receive a Login Prompt—Error Messages Appear

Problem  The IP200 appliance is defective, or the file system on the appliance is defective.
Solution  Contact the Nokia customer support site listed in “Nokia Contact Information” on page 3.

Note
Use the full installation procedure to install a new system. The new system completely replaces the contents of the drive and might be needed to restore or reload an IP200 appliance. This procedure erases any configuration database on the appliance. For information about how to complete the full installation procedure, see the current release notes. The release notes are located on the Nokia customer support Web site as listed in the "Nokia Contact Information” on page 3.
Troubleshooting

Not Able to Connect to Nokia Network Voyager Using the Ethernet Port, But Console Access Works

Problem Network Voyager access or Ethernet port disabled.
Solution Use the CLI over the console connection to verify the interface configuration and modify the configuration as necessary. For more information, see the CLI Reference Guide for the version of IPSO you are using.

Do Not See Interfaces That Should be Present

Problem Local IP200 appliance ports do not appear.
Solution Your IP200 appliance might be defective. Contact the appropriate Nokia customer support site as listed in “Nokia Contact Information” on page 3.

Note The problem could be with the Ethernet port. Try connecting the Ethernet cable to another port.

Common Ethernet Problems—Connectivity with Attached Device

Problem No link light.
Solution You might have used the wrong cable. Use a crossover cable between the IP200 appliance and a host, and a straight-through cable between an appliance and a hub.

Problem Unblinking activity LED.
Solution You might have set the wrong speed. Verify that the speeds match on each end of the Ethernet connection (10 or 100 Mbps).
Problem  Port not enabled.
Solution  Verify from the Interface page in Network Voyager that the interface port is configured as active.

Problem  High collision rate on the hub.
Solution  Disconnect connections one at a time until the problem is localized to one computer and troubleshoot further.
Physical Specifications

Physical Dimensions

| Dimensions | Height: 1.60 in. (4.06 cm) single appliance | 1.71 in. (4.34 cm) in shell |
|           | Width: 8.15 in. (20.70 cm) single appliance | 17.00 in. (43.18 cm) shell only |
|           | Depth: 15.95 in. (40.51 cm) single appliance without handles | 17.33 in (44.02 cm) single appliance with handles | 16 in. (40.64 cm) shell only |

Weight

Weights are for the IP260 and might be less depending on which model you are installing.
- 9.1 lbs. (4.1kg): Single base system with mounting brackets
- 23.6 lbs. (10.7 kg): Shell containing two base systems

Space Requirements

Nokia IP200 appliances are designed for front-screw mounting in a 19-inch rack. Each IP200 appliance requires the following space in a rack:
- 1.60 inches (4.06 centimeters) of vertical space for a single appliance
- 1.71 inches (4.34 centimeters) of vertical space for appliances in a shell
A  Technical Specifications

- 16 inches (40.64 centimeters) behind the front-panel of the rack plus 6 inches (15 centimeters) behind the appliance to allow the back exit fan to circulate air properly.

Caution
Do not place objects over the ventilation holes on the IP200 appliance. The appliance might overheat and become damaged.

For information about changes to the software requirements or additional applications that have become available since this guide was published, contact your Nokia service provider, as listed in “Nokia Contact Information” on page 3.

Other Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum altitude of operation</td>
<td>10,000 feet above sea level</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>0 to 45°C Celsius</td>
</tr>
<tr>
<td>Mean Time Between Failure (MTBF)</td>
<td>IP260:</td>
</tr>
<tr>
<td></td>
<td>at 25°C: 79,990 hours</td>
</tr>
<tr>
<td></td>
<td>at 40°C: 70,706 hours</td>
</tr>
<tr>
<td></td>
<td>IP265:</td>
</tr>
<tr>
<td></td>
<td>at 25°C: 109,072 hours</td>
</tr>
<tr>
<td></td>
<td>at 40°C: 92,508 hours</td>
</tr>
<tr>
<td>Power consumption</td>
<td>35 watts</td>
</tr>
</tbody>
</table>
### Appliance Interfaces

<table>
<thead>
<tr>
<th>Interface</th>
<th>Cable Type</th>
<th>Cable Output Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>IEEE 802.3 10BASE-T, 100BASE-TX unshielded twisted pair, full-duplex or half-duplex</td>
<td>RJ-45</td>
</tr>
</tbody>
</table>

**Appliance Interfaces**

Nokia IP200 Series Security Platform Installation Guide

89
This appendix contains the following compliance information:

- Declaration of Conformity
- Compliance Statements
- FCC Notice (US)

**Declaration of Conformity**

According to ISO/IEC Guide 22 and EN 45014:

**Manufacturer’s Name:** Nokia Inc.

**Manufacturer’s Address:**

313 Fairchild Drive  
Mountain View, CA 94043-2215  
USA
B Compliance Information

declares that the product:

Product Name: IP260, IP265
Model Number: EM5400
Product Options: All
Serial Number: 1 to 100,000
Date First Applied: 2005

conforms to the following standards:

Safety: UL 60950-1:2003, First Edition
CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003

EMC: EN55024 1998, EN55022A 1998, EN61000-3-2, EN61000-3-3

Supplementary information:

Pursuant to directive 1999/5/EC this product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC with Amendment 93/68/EEC.
Compliance Statements

This hardware complies with the standards listed in this section.

**Emissions Standards**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC Part 15 Subpart B Class A</td>
<td>US/Canada</td>
</tr>
<tr>
<td>EN55022 (CISPR 22 Class A)</td>
<td>European Community (CE)</td>
</tr>
</tbody>
</table>
B Compliance Information

Immunity Standards
- EN55024 European Community (CE)
- EN61000-4-2
- EN61000-4-3
- EN61000-4-4
- EN61000-4-5
- EN61000-4-6
- EN61000-4-11

Harmonics and Voltage Fluctuation
- EN61000-3-2 European Community (CE)
- EN61000-3-3 European Community (CE)

Safety Standards
- UL60950/EN60950 US/European Community(CE)
- CAN/CSA-C22.2 No.60950 Canada

FCC Notice (US)
This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no
guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the computer and receiver.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

⚠️ **Caution**

Any changes or modifications not expressly approved by the grantee of this device could void the user’s authority to operate the equipment.
B Compliance Information
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