Infoblox Installation Guide Network Automation 2200 Appliance
Introduction

This guide provides an overview of the Network Automation NT-2200 network services appliance running the Infoblox Network Automation™ network change management and configuration management software, and explains how to install and configure the system.

Product Overview

The Network Automation NT-2200 is a high performance network appliance designed for improved throughput and responsiveness for the Network Automation application suites, including the Automation Change Manager (ACM) for automating responses to network changes; Switch Port Manager (SPM) for managing and controlling switched Ethernet networks, Security Device Controller for managing and controlling firewalls and packet-filtering routers; and the full NetMRI package. You configure and manage the Network Automation NT-2200 through an easy-to-use Infoblox GUI that works efficiently in Windows, Linux, and Mac environments using standard web browsers. For more information about the Infoblox Network Automation GUI, refer to the Infoblox Network Automation Administrator Guide for your system.

Key features of the Network Automation NT-2200 include the following:

- Field replaceable hard disk drives
- Hot-swappable AC power supplies
- Field replaceable fan modules
- Multiple active Ethernet interfaces for network management (LAN1, LAN2 and MGMT)

The Network Automation NT-2200 appliance is a Class A digital appliance per FCC regulations, and RoHS and WEEE compliant.

Hardware Components

The Network Automation NT-2200 is a 2-U platform that is mounted in a standard equipment rack using the mounting brackets and bolts that ship with the appliance. For information about rack mounting, see Rack Mounting.

Front Panel

The front panel components include the LCD (liquid crystal display) panel and navigation buttons, communication ports, and hard disk drives, as shown in Figure 2. The hard disk drives are concealed under a removable drive bay door. You must remove the door to access the hard disk drives, as shown in Figure 1. For explanations of the Ethernet port LEDs, and console and Ethernet port connector pin assignments, see Ethernet Port LEDs and Connector Pin Assignments.

Figure 1 Removing the Network Automation NT-2200 Drive Bay Door

1. Grip the side of the drive bay door.
2. Gently pull the door open.
3. Remove the door from the front panel.
Table 1 describes the front panel components.

Table 1 Front Panel Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Disk Drives</td>
<td>Four hot-swappable Infoblox data storage devices configured in a RAID (Redundant Array of Independent Disks) 10 array. Each disk drive has two LEDs that indicate the connection and activity status on the disk drive. The top LED glows green when the disk drive is connected and operational, and the lower LED is green during read-write operations. The LEDs are dark when the disk drive is not connected.</td>
</tr>
<tr>
<td>On/Off Switch</td>
<td>A power switch to turn the power supply of the appliance on and off. The switch is hidden. Use a small blunt object, such as a paper clip, to gently push the switch.</td>
</tr>
<tr>
<td>USB Ports</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>MGMT Port</td>
<td>A 10/100/1000-Mbps gigabit Ethernet port used for appliance management. You must use the MGMT port for initial appliance setup and for primary system operation. The MGMT port may also be used for scan interface connections to managed networks. Infoblox recommends retaining the MGMT port exclusively for appliance management traffic.</td>
</tr>
<tr>
<td>LAN1 Port</td>
<td>A 10/100/1000-Mbps gigabit Ethernet port that is used for scan interface connections to managed networks. You can enable the LAN1 port and define its use through the GUI after the initial setup. For related information, see Configuring Scan Interfaces of the Network Automation Administrator's Guide, Release 6.9.</td>
</tr>
<tr>
<td>LAN2 Port</td>
<td>A 10/100/1000-Mbps gigabit Ethernet port that is used for scan interface connections to managed networks. You can enable the LAN2 port and define its use through the GUI after the initial setup. For related information, see Configuring Scan Interfaces of the Network Automation Administrator's Guide, Release 6.9.</td>
</tr>
<tr>
<td>Console Port</td>
<td>A male DB-9 serial port for a console connection to change basic configuration settings and view system functions through the CLI (command line interface).</td>
</tr>
<tr>
<td></td>
<td><strong>Caution:</strong> Should you need to use a USB-to-Serial adapter to carry a serial connection over a USB port in a computer that lacks a 9-pin serial interface, use a properly grounded USB-to-Serial dongle to connect to the serial console port. If the dongle connects to a laptop, the laptop must be grounded properly as well. Failure to do so may result in damage to the serial console port of the Infoblox appliance. Infoblox is not responsible for such damage.</td>
</tr>
<tr>
<td>UID Button</td>
<td>The unit identification button. When you press the UID button, the LCD panel on the front panel blinks and the UID LED on the rear panel glows blue. In a rack environment, the UID feature enables easier location of a server when moving between the front and rear of the rack.</td>
</tr>
<tr>
<td>LCD Panel</td>
<td>An LCD screen that displays the installed software version and the IP address of the appliance.</td>
</tr>
</tbody>
</table>
Ethernet Port LEDs

To see the link activity and connection speed of an Ethernet port, check its Activity and Link LEDs. Figure 3 shows the status the LEDs convey through their color and illumination (steady glow or blinking).

Figure 3 LEDs

<table>
<thead>
<tr>
<th>Label</th>
<th>Color</th>
<th>Port Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Steady Yellow</td>
<td>Link is up but inactive</td>
</tr>
<tr>
<td></td>
<td>Blinking Yellow</td>
<td>Link is up and active</td>
</tr>
<tr>
<td></td>
<td>Dark</td>
<td>Link is down</td>
</tr>
<tr>
<td>Link</td>
<td>Steady Amber</td>
<td>1000 Mbps</td>
</tr>
<tr>
<td></td>
<td>Steady Green</td>
<td>100 Mbps</td>
</tr>
<tr>
<td></td>
<td>Dark</td>
<td>10 Mbps</td>
</tr>
</tbody>
</table>

Connector Pin Assignments

The Network Automation NT-2200 appliance has three types of ports on its front panel:

- USB port (reserved for future use)
- Male DB-9 console port
- RJ-45 10Base-T/100Base-T/1000Base-T auto-sensing gigabit Ethernet ports (3 active)

The DB-9 and RJ-45 Ethernet connector pin assignments are described in Figure 4. DB-9 pin assignments follow the EIA232 standard. RJ-45 Ethernet pin assignments follow IEEE 802.3 specifications. All Infoblox Ethernet ports are auto-sensing and automatically adjust to standard straight-through and cross-over Ethernet cables.

Note: Contact your Infoblox sales representative to obtain Infoblox-specific serial console cables.

10Base-T Ethernet and 100Base-T fast Ethernet use the same two pairs of wires. The twisted pair of wires connecting to pins 1 and 2 transmit data, and the twisted pair connecting to pins 3 and 6 receive data. For 1000Base-T connections, all four twisted-pair wires are used for bidirectional traffic.

Figure 4 Connector Pin Assignments
Rear Panel

The Network Automation NT-2200 appliance ships with dual AC power supplies and five fan modules. The power supplies and fan modules are field replaceable. The power supplies are also hot-swappable so you can replace either single power supply without disrupting the operations of the appliance.

Figure 5 Network Automation NT-2200, Rear View
Table 2 Rear Panel Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan Modules</td>
<td>Five field replaceable fan modules to help maintain optimum operating temperature. Each fan has an air vent that allows warm air to flow out of the appliance. Do not obstruct.</td>
</tr>
<tr>
<td>UID LED</td>
<td>Blue = UID is activated through pressing the UID button on the appliance or through the Infoblox GUI or CLI command. Dark = UID is deactivated. Note: When UID is activated, the LCD on the front panel blinks at the same time.</td>
</tr>
<tr>
<td>UID Button</td>
<td>The unit identification button. When you press the UID button, the LCD panel on the front panel blinks and the UID LED on the rear panel glows blue. In a rack environment, the UID feature enables easier location of a server when moving between the front and rear of the rack. You can also identify the appliance through the Infoblox GUI and CLI command.</td>
</tr>
<tr>
<td>Power Supplies</td>
<td>Each of the two redundant power supplies has a three-prong power outlet for connecting the appliance to a standard AC (Alternating Current) power source.</td>
</tr>
</tbody>
</table>

System, Environmental, and Power Specifications

System specifications describe the physical characteristics of the Infoblox appliance. Environmental specifications describe Infoblox appliance temperature and moisture limits. Power specifications describe the electrical range within which the appliance circuitry can operate.

System Specifications

- **Form Factor**: 2-U rack-mountable appliance
- **Dimensions**: 3.46” H x 17.36” W x 21.26” D (8.8 cm H x 44.1 cm W x 54.0 cm D)
- **Weight**: Approximately 40 pounds (18.14 kg)
- **Ethernet Ports**: MGMT, HA, LAN1, LAN2 – auto-sensing 10Base-T/100Base-T/1000Base-T
- **Serial Port**: DB-9 (9600/8n1, Xon/Xoff)
- **USB Ports**: Two USBs 2.0/1.1 compliant
- **LCD Panel**: LCD (liquid crystal display) with input buttons

Environmental Specifications

- Operating Temperature: 41 to 95 degrees F (5 to 35 degrees C)
- Storage Temperature: -13 to 158 degrees F (-25 to 70 degrees C)
- Operating Relative Humidity: 10% to 90% (non-condensing)
- Airflow CFM (Cubic Feet/Minute): 49CFM
- Airflow Direction: Front-to-Back
**Electrical Power Specifications**

- **AC Power Supply**: Dual input, 960 Watts
  - Input Voltage: 100 – 240VAC
  - Input Frequency: 47 – 63 HZ
  - Input Current: 7A max at 230V
  - Inrush Current: 20A max at 230V
  - Power Factor: > 0.94/230V 50 Hz
  - Maximum Power Draw: 255W
  - Heat Output (BTU/hour): 871 at 100VAC to 240VAC
- **Optional DC Power Supply**: 960 Watts
  - Input Voltage.: -36 - 72DC
  - Input Current: 20A/-36VDC, 10A/-72VDC
  - Inrush Current: 100A 2u sec max
  - Maximum Power Consumption: 255W
  - Heat Output (BTU/hour): 871 at 48VDC

**Installing an Appliance**

Follow these instructions to rack mount the Network Automation NT-2200, connect it to a power source, and cable it to a network. Before proceeding, review the Infoblox Safety Guide and follow the necessary precautions.

**Note**: Ensure that you install the appliance in an environment that allows open air to the front and back of the appliance. Do not obstruct the appliance or block air flow going from the front to the back of the appliance.

**Rack Mounting**

The Network Automation NT-2200 appliance mounts into a standard 19” (48 cm) equipment rack. The appliances ship with accessory kits that contain the following: a pair of rack slide brackets and chassis slide rails, a pair of rack ears, eight (8) 10-32 screws, and eight (8) 8-32 screws. To mount the appliances to an equipment rack, you also need a #2 screwdriver with a cross-headed tip. There are two ways to rack mount the Network Automation NT-2200:

- Two-post rack mount
- Four-post rack mount

**Two-Post Rack Mount**

To mount the appliance to an equipment rack and secure it at the rear rack posts:

1. Align the mounting holes on the rack ears with the rear-most mounting holes on each side of the chassis.
2. Attach each rack ear on each side of the chassis with two (2) 8-32 screws, as shown in Figure 6.

*Figure 6 Rack Ears in Two-Post Rack Mount*

3. With one person on each side, lift the appliance and position it in the equipment rack.
4. Attach each rack ear to the equipment rack with two (2) 10-32 screws on each side.

Four-Post 600mm Rack Mounting

**Caution:** The Four-Post 600mm chassis rack rails kit provided with the Infoblox appliance provides only a limited range of travel. It does not extend through the entire depth of the equipment rack. Exercise caution when withdrawing the appliance from its position in the equipment rack.

For a four-post rack mount, you combine the bundled pair of rack ears with a pair of chassis rack rails providing up to 600mm depth in a four-post rack. The chassis rack rail assembly is bundled with the appliance at time of purchase. This kit also is provided as a field-replaceable unit; see Replaceable Unit and SFP Part Numbers in this Guide for information. The chassis rack rail kit is designed to allow one person to perform the physical installation of the rack rail kit and the appliance.

1. Align the mounting holes on the rack ears with the front-most mounting holes on each side of the chassis.
2. Attach the rack ears to each side of the chassis with two (2) 8-32 screws, as shown in Figure 8.
3. Slide the inner chassis slide rails out of the rack slide brackets, as shown in Figure 7.

*Figure 7 Chassis Slide Rail and Rack Slide Bracket*

4. Align the mounting holes on the chassis slide rails with the rear-most mounting holes on each side of the chassis. Ensure that you place the chassis slide rails in the correct orientation. Otherwise, the mounting holes do not align properly.
5. Attach the chassis slide rails to each side of the chassis with two (2) 8-32 screws, as shown in Figure 8.

*Figure 8 Rack Ears and Chassis Slide Rails in Four-Post Rack Mount*

6. Select a desired location and secure the rack slide brackets to the rear posts of the equipment rack with two (2) 10-32 screws on each side of the rack.
7. With one person on each side, lift the appliance and position it in front of the equipment rack.
8. Align the chassis slider rails on the appliance with the rack slide brackets on the posts of the equipment rack.
9. Slide the appliance into the rack slide brackets.
10. Secure the rack ears to the front rack posts with two (2) 10-32 screws on each side of the rack.

**Adjustable Rail Four-Post Rack Mounting**

Infoblox provides an adjustable four-post rail kit with 600mm to 900mm depth adjustment, designed to allow one person to perform physical installation of the rack kit and the appliance. This kit is provided as a field-replaceable unit; for information, see *Network Automation NT-2200 FRUs* in this Guide. The adjustable rail kit is designed to allow one person to perform the physical installation of the rail kit and the appliance. The adjustable rail kit is designed for tight vertical spaces on the interior of a four-post rack, allowing for appliance installation in restricted rack spaces, including 2U of available rack space. Figure 9 shows a rail assembly.

*Figure 9 Sliding Rack Rail assembly*

The adjustable rack rail kit includes the following items for installation:

- Eight (8) Flat-head beveled 8/32" screws that attach rail pieces to the appliance chassis
- Eight (8) Phillips-head 10/32" screws for affixing the rack rails to the four-post rack

The technician must provide four attachable cage nuts for adapting the square mounting holes on the rear posts of the four-post rack to accept the 10/32" screws.

To install the adjustable rail kit, do the following:

1. Install the cage nuts in the rear rack posts in the desired location, as indicated in Figure 10:

*Figure 10 Install cage nuts on the rear posts of the designated rack space*

2. Fasten the catch tab of the rack rail on the front of the rack space designated for the appliance. Each rack rail (2) in the adjustable rail kit provides a metal catch tab on the front end of the rack rail. This catch tab fastens to a square mounting hole as shown in Figure 11.

*Figure 11 Catch tab fastens on front posts of designated space*
3. Extend the rack rail assembly backwards, align the mounting holes on the chassis slide rails with the required cage nuts, and fasten the back end of the rack rail to the two cage nuts on the rear post of the designated space. As noted, the rack rail assembly has an extension range from the minimum of 600mm to a maximum of 900mm.

4. Perform Steps 2 and 3 for the second rack rail assembly.

5. Attach the chassis slide rails to each side of the chassis with four (4) flathead 8-32 screws, in the orientation shown in Figure 12.

Figure 12 Chassis slide rails Installation

6. Lift the appliance and position it in front of the equipment rack.

7. Align the chassis slide rails on the appliance with the rack rail assemblies on the posts of the equipment rack.

8. Slide the appliance into the rack rail assembly.

9. Secure the rack ears to the rack with two (2) 10-32 screws on each side of the rack.

Powering the Appliance

Note: To prevent possible data corruption, Infoblox recommends connecting power for the Network Automation appliance through an uninterruptible power supply (UPS).

The Network Automation NT-2200 ships with two (2) hot-swappable AC power supply modules, labeled PS1 and PS2. Infoblox recommends using the power cables shipped with the appliance to connect each power supply to separate power circuits. In the event of a power failure on one circuit, the appliance operates on the other circuit.
To power the appliance, do the following:

For each power supply, connect a power cable between the power connector on the back of the appliance and a properly grounded and rated power circuit that meets the provisions of the current edition of the National Electrical Code, or other wiring rules that apply to your location. Make sure that the outlet is near the appliance and is easily accessible. Use the power cable that ships with the Infoblox appliance to connect it to a power source.

1. Make sure that both power switches are off.
2. Use both power cables to connect each power supply to rated power circuits that meet the provisions of the current edition of the National Electrical Code, or other wiring rules that apply to your location. Connect each power supply to separate power circuits, if possible. If one power circuit fails, the other may still be operative.
3. Turn on both power switches.

Cabling the Appliance to a Network

Use Category 5/6 Ethernet cables to connect the Network Automation NT-2200 appliance to the network. The Network Automation NT-2200 appliance does not require a monitor, keyboard, or mouse for normal operation. It requires only an Ethernet connection. Follow these steps to connect the NT-2200 appliance to your network:

1. Configure the appliance to use one port (same port for both system administration and network analysis): Using a straight-through RJ45 Ethernet cable, connect from the MGMT Ethernet connector on the appliance front panel to an available Ethernet connection on the network.

or

Configure the appliance to use two ports (the MGMT port for Network Automation administration and the LAN1 port for network analysis): Using straight-through RJ45 Ethernet cables:

a. Connect from the MGMT Ethernet connector on the appliance front panel to the network supporting your management systems.

b. Connect from the LAN1 Ethernet connector on the appliance front panel to an available Ethernet connection on the network that Network Automation will be analyzing.

c. Optionally, connect from the LAN2 Ethernet connector on the appliance front panel to an available Ethernet connection on the network that Network Automation will be analyzing.

**Note:** The Network Automation NT-2200 appliance supports 10/100/1000Mbps network connections.

2. After connecting the network cables, plug the NT-2200 appliance into an AC power source.

3. Verify that the Link LED is steady amber or steady green on the RJ45 port, indicating a good connection to the network. If possible, verify that the link indicator is lit on the network hub or switch port to which the appliance connects.

*Figure 13 Cabling the NT-2200 Appliance to the Network*

When cabling a single Infoblox appliance to the network, connect an Ethernet cable from the MGMT port on the appliance to a switch or router.

**Note:** By default, the Infoblox appliance automatically negotiates the optimal connection speed and transmission type (full or half duplex) on the physical links between its LAN1 and MGMT ports and the Ethernet ports on neighboring devices.

4. Use the Infoblox GUI to access the appliance from a management system. Through the Infoblox GUI, you can set up and administer the appliance. For management system requirements and access instructions, see *Initial Network Automation Appliance Configuration.*
Initial Network Automation Appliance Configuration

The management system is the computer from which you configure and monitor the Infoblox Network Automation appliance. You can access the appliance from the management system remotely across an Ethernet network or directly through a serial cable.

**Note:** The computer used as the management system must support a minimum screen resolution of 1280x800.

After completing the steps in *Cabling the Appliance to a Network*, you can make an HTTPS connection to the appliance and access the Infoblox Network Automation GUI using one of the supported Internet Web browsers listed in the Release Notes for the software release installed in your system.

For command-line operation, you can make a terminal console connection through an SSHv2 client. You can also access the CLI by connecting a serial cable directly from the console port of a management system to the console port on the appliance, and then using a terminal emulation program.

**Note:** If you wish to configure the Network Automation appliance for IPv6 connectivity, see the later section, *Configuring a Network Automation Appliance for IPv4 and IPv6*.

Network Automation equally supports IPv4 and IPv6 networks, and reports and manages all devices running IPv4 and/or IPv6 protocols.

Configuring the Management System

The Network Automation appliance listens on the private IP address 169.254.1.1/24, which can be used at any time to configure the system. The easiest way to access the appliance on that address is to temporarily configure your workstation to use an address on the same subnet, such as 169.254.1.5/24 (or any other address on the same subnet not occupied by another device).

Depending on the operating system, the procedure to configure your workstation can be slightly different. The following procedure is for systems running Windows 7:

1. From the **Start** menu, select **Control Panel**.
2. In the **Control Panel** dialog box, click **Network and Sharing Center**.
3. In the **Network Connections** dialog box, click **Change Adapter Settings**.
4. Right-click the icon for the Ethernet interface you wish to change (Local Area Connection, for example), and choose **Properties** from the shortcut menu.
5. In the **Local Area Connection Properties** dialog box, select **Internet Protocol Version 4 (TCP/IPv4)** in the Network Components list, and then click **Properties**.
6. In the **Internet Protocol (TCP/IP) Properties** dialog box, select **Use the following IP address**, and then fill in the **IP address** and **Subnet mask** fields using the IP address and subnet mask 169.254.1.5 and subnet mask 255.255.255.0.
7. Click **OK** in the **Internet Protocol (TCP/IP) Properties and Local Area Connection Properties** dialog boxes. (Depending on your operating system, you might need to reboot your computer.)

**Note:** This address change is necessary only for the initial setup of Network Automation. Once the setup is complete, return your workstation to its prior configuration.

8. Click Close in the **Local Area Connections Status** dialog box.
9. Temporarily disconnect the Network Automation appliance from the network by unplugging the Ethernet cable from the MGMT port of the appliance.
10. Obtain an Ethernet cross-over cable and connect your computer to the MGMT port using the cross-over cable.
11. Use an SSH client to access Network Automation at the IP address 169.254.1.1.
12. Log in with user name **admin** and password **admin**.
13. Continue the configuration by following the instructions described in *Configuring a Network Automation Appliance for IPv4 and IPv6*.

**Notes on Windows IPv6 Configuration**

Of course, users can manage Network Automation on an IPv6 network. The Network Automation Management port has its own factory default link-local IPv6 address that is unique on its connected subnet. The default IPv6 address derives from the Ethernet MAC address of the Management interface (MGMT).

You must use a Windows 7 system to configure Network Automation to run on an IPv6 network, because Windows 7 natively supports IPv6.

To configure a new Infoblox Network Automation appliance to be managed through IPv6, do the following:
1. Reboot Windows 7, ensure that it is enabled for IPv6 networking, and connect it to the management (MGMT) port of the Network Automation appliance, using a standard Ethernet cable.

2. On the Windows 7 system, open a DOS command line window and run `ipconfig`. Check the listing in the Local Area Connection section of the ipconfig listing, and make a note of the interface number associated with the PC's IPv6 Link Local address. The IPv6 value will have an fe80: prefix and end with a %* designator, such as `fe80:505:ac3b:49b7:d c38%15`. The value 15 in this example is the interface number, which will vary with each client.

3. In a Windows command line, run the following command:
   ```
   netsh interface ipv6 show neighbor
   ```

4. Find the Interface *: Local Area Connection section (the * corresponds to the interface number for your PC system's IPv6 address). No entry should be present in this category for any address starting with the fe80: prefix.

5. In the Windows PC's command line, run a multicast IPv6 ping to all nodes on the subnet where the Management port is running. This executes a multicast IPv6 ping to the Network Automation management port connected to the PC.

   ```
   ping -6 -n 5 ff02::1
   ```

   Allow the command to complete whether or not responses occur.

6. In the Windows PC's command line, run the following command a second time:

   ```
   netsh interface ipv6 show neighbor
   ```

   The MGMT port IPv6 link-local address should now appear in the neighbor table under the Interface xx: Local Area Connection section, similar to the following:

   ```
   fe80::230:48ff:febc:97da          00-30-48-bc-97-da          Reachable
   ```

   This is the link-local address of the Network Automation appliance management port (MGMT).

7. Open an SSH client session to the Network Automation CLI at the IPv6 address shown in Step 6 along with the interface number. Log in with the factory default username/password admin/admin.

8. Proceed with appliance configuration as described in Configuring a Network Automation Appliance for IPv4 and IPv6.

Configuring a Network Automation Appliance for IPv4 and IPv6

If Network Automation uses DHCP, make a note of the IP address assigned to Network Automation, and then use the Setup Wizard as described in Configuring Network Automation Using the Setup Wizard in the Network Automation Administrator's Guide.

Note: The Network Automation appliance supports dual-stack connectivity for reachability on both IPv4 and IPv6 networks. You can use either or both.

Otherwise, configure IP addresses as follows:

1. At the CLI (command line interface) command prompt, enter `configure server`, and specify the following:

2. Enter the new Database Name and press Enter.

   Database Name is a descriptive name for this deployment. It is used in reports, titles, headers, etc.

   Recommended: Begin name with uppercase letter.

   Database Name []: Corp100_west

3. For the first-time installation, you can choose to generate a new HTTPS certificate.

   Do you want to generate a new HTTPS Certificate? (y/n) [n]: y

4. Enter the local domain name in which the controller resides. This value is used for truncating device names in Network Automation data sets throughout the system.

   Domain Name 1 (e.g., example.com) []: corp100.com

   Domain Name 2 (optional) []:

5. Enter the time server IP address if one is available or is necessary:

   Time Server [us.pool.ntp.org]:

6. Enter the time zone region by typing in the suggested numeric value from the list.

   Enter choice (0-47) [0]: 45

7. Enter the time zone location by typing in the suggested numeric value from the list:
Choose a location within your time zone.

|-----------|------------|-----------|------------|

Enter choice (0-11) [0]: 10

8. Follow the steps for configuring the management port IP settings:

+++ Configuring Management Port Settings

You must configure an IPv4 or IPv6 address/mask on the management port.

Network Automation can perform analysis from the management port or a separate scan port.

- **IP Address (optional)** [ ]: 10.120.25.212
- **Subnet Mask (optional)** [ ]: 255.255.255.0
- **IPv6 Address (optional)** [ ]:
- **IPv6 Prefix (optional)**:

You must provide either an IPv4 gateway, an IPv6 gateway, or both.

- **IPv4 Default Gateway (optional)** [ ]: 10.120.25.1
- **IPv6 Default Gateway (optional)** [ ]:

**Note**: You must provide either an IPv4 or IPv6 gateway address, or both, depending on the Network Automation IP address.

The configure server command then requests configuration of the Scan port if you are running two-port configuration:

Do you want to configure the Scan Port? <y/n> [n]:

Entering N instructs the configure server command to skip IP configuration for the Scan port.

**Note**: The Network Automation appliance uses active Ethernet ports labeled MGMT, LAN1 and LAN2. The LAN1 port corresponds to the SCAN port referred to in the configure server command. When you define the SCAN port settings in configure server, it is the LAN1 port IP connectivity you are defining for the appliance. In two-port configurations, this interface is used to connect to the networks being scanned and managed by Network Automation. You can also configure the LAN2 port as another scan interface through the Network Automation UI.

9. Enter **n** to continue. This enforces single-port appliance configuration, and displays the appliance DNS Server settings:

DNS Servers are used to map hostnames to IP addresses.

You may enter up to 2 name servers below.

- **DNS Server 1 (IP)** [ ]: 10.102.3.50
- **DNS Server 2 (optional)** [ ]: 10.102.3.10

DNS server 1 and DNS Server 2:

10. Enter the IP addresses of the DNS servers that Network Automation will use.

- In the Current settings listing, review your entries.

Current settings:

- **Database Name**: rgraceDev
- **Server Name**: rgrace-dev
- **Domain Name 1**: inca.infoblox.com
- **Domain Name 2**: inmd.infoblox.com
- **Time Server**: us.pool.ntp.org
- **Time Region**: US
- **Time Location**: Pacific
- **Mgmt Port IP Address**: 10.120.25.212
- **Mgmt Port Subnet Mask**: 255.255.255.0
- **Mgmt Port IPv6 Address**:
- **Mgmt Port IPv6 Prefix**:
Mgmt Port IPv4 Default Gateway: 10.120.25.1
Mgmt Port IPv6 Default Gateway:
Scan Port IP Address:
Scan Port Subnet Mask:
Scan Port IPv6 Address:
Scan Port IPv6 Prefix:
Scan Port IPv4 Default Gateway:
Scan Port IPv6 Default Gateway:

DNS Server 1: 10.102.3.50
DNS Server 2: 10.102.3.10

— Edit these settings? <y/n> [n]:
11. If you accept the settings, enter n.
— Configure the system with these settings? <y/n> [y]:
12. Enter y to configure the server with the settings you entered. Wait while Network Automation configures the network and sets the web interface to use the new IP address.
13. Network Automation automatically reboots if you change its default time zone. Otherwise, a reboot is not necessary.
14. Enter exit to log out.
15. Shut down the Network Automation unit and physically install it in the global network. The unit is now reachable on its global static IP address for further CLI configuration and UI access.

Infoblox Network Automation CLI

The Infoblox CLI allows you to configure and monitor the appliance using a small set of Infoblox commands. There are some tasks, such as resetting the appliance, that you can only do through the CLI. You can access the Infoblox CLI through a direct console connection from your management system to the Infoblox appliance. You can also enable remote console access — that is, SSHv1/v2 client access — through the Infoblox GUI, and then access the CLI from a remote location using an SSHv2 client (Settings icon –> Network Automation Settings -> Security –> SSH Settings tab).

Using Network Automation CLI Help

You can display a list of available Network Automation CLI commands by typing ? at the command prompt.

admin64-212.customer.com> ?
Available Commands:

cmd help ping provisiondisk repair ssh-key

cmd acl ftp md5sum register set

cmd autoupdate grep more remotecopy setup

cmd clear halt netstat removedsb show

cmd configure installdsbs provisiondisk repair ssh-key

cmd debug installhelpfiles quit reset supportbundle

cmd deregister installmib rdtdclient restore telnet

cmd diagnostic license reboot rm tftpsync

cmd exit ls recalculate-spm route top

cmd export maintenance refreshgroups sandbox traceroute

To view an in-depth explanation of a CLI command and its syntax, type command ? after the command prompt.

For example:
Show Commands:

<table>
<thead>
<tr>
<th>acl</th>
<th>disk</th>
<th>io</th>
<th>servers</th>
<th>updatelog</th>
</tr>
</thead>
<tbody>
<tr>
<td>certificate</td>
<td>dsb</td>
<td>license</td>
<td>settings</td>
<td>version</td>
</tr>
<tr>
<td>date</td>
<td>ethernet</td>
<td>load</td>
<td>stats</td>
<td>virtual</td>
</tr>
<tr>
<td>dbprocs</td>
<td>id</td>
<td>memory</td>
<td>tech</td>
<td></td>
</tr>
<tr>
<td>diagnosticlog</td>
<td>idmethods</td>
<td>process</td>
<td>tunclient</td>
<td></td>
</tr>
<tr>
<td>discovery</td>
<td>interfaces</td>
<td>route</td>
<td>updatehistory</td>
<td></td>
</tr>
</tbody>
</table>

The two main groups of Infoblox CLI commands are `set` and `show`. To see the complete list of the set commands, enter `help set` after the command prompt. Likewise, to see a complete list of the `show` commands, enter `show ?`. For information about the CLI commands, refer to the Infoblox Network Automation Administrator Guide.

System Device Replacement

The Network Automation NT-2200 appliance provides several replaceable units in the system:

- Hard disk drive
- Fan modules
- AC power supplies

All replaceable units must be replaced with parts of the same specifications as described in this section. You can also order some of these parts as local spares. For information about compatible parts and their part numbers, see Table 4.

Managing the Disk Subsystem

The Network Automation NT-2200 uses a RAID (Redundant Array of Independent Disks) 10 array to provide the optimum mix of high database performance and redundant data storage with recovery features in the event of disk failures. The disk array is completely self-managed. No maintenance or special procedures are required to service the disk subsystem. RAID 10 (sometimes called RAID 1+0) uses a minimum of four disk drives to create a RAID 0 array from two RAID 1 arrays, as shown in Figure 14. It uses mirroring and striping to form a stripe of mirrored subsets. The array combines—or stripes—multiple disk drives, creating a single logical volume (RAID 0). RAID 10 combines the high performance of RAID 0 and the high fault tolerance of RAID 1. Striping disk drives improves database write performance over a single disk drive for large databases. The disks are also mirrored (RAID 1); each disk in the logical volume is fully redundant.

Figure 14 RAID 10 Array Configuration

Evaluating the Status of the Disk Subsystem

You can monitor the disk subsystem through the Infoblox GUI, the scrolling front panel LCD display, and the front panel LEDs next to the disk drives. In addition, you can monitor the disk status by using the CLI command `show hardware_status`. To see a detailed status report, log in to the Network Automation GUI and from the **Grid -> Grid Manager** tab, select the appliance, and then click the Detailed Status icon. (For more information on the Detailed Status panel, refer to the Infoblox Administrator Guide.) The color of the RAID icon indicates the status of the RAID array on the Network Automation NT-2200.

<table>
<thead>
<tr>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>The RAID array is in an optimal state.</td>
</tr>
</tbody>
</table>
A new disk was inserted and the RAID array is rebuilding.

The RAID array is degraded. At least one disk is not functioning properly. The GUI lists the disks that are online. Replace only the disks that are offline.

The Infoblox GUI also displays detailed status of the RAID array. In the event of a disk failure, you must replace the failed disk with one that is qualified and shipped from Infoblox and has the same disk type as the rest of the disks in the array. The appliance displays information about mismatched disks in the Detailed Status panel.

Note that all disk drives in the array must have the same disk type (IB-Type5) for the array to function properly. When you have a mismatched disk in the array, you must promptly replace the disk with a replacement disk from Infoblox to avoid operational issues.

### Appliance Front Panel

The disk drives are located on the left side of the appliance front panel. To the right of each drive there are two LEDs that displays the connection and activity status of each drive.

<table>
<thead>
<tr>
<th>LED Color</th>
<th>Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Disk is connected and operating normally</td>
<td>None</td>
</tr>
<tr>
<td>Dark</td>
<td>Disk has failed or not inserted</td>
<td>Verify the failure in the Infoblox GUI or CLI. Remove the disk and replace with a functional disk drive. Note that the drive rebuilds with its twin.</td>
</tr>
</tbody>
</table>

### Hard Disk Drive Replacement

The Network Automation NT-2200 ships with four hot-swappable hard disk drives configured in a RAID (Redundant Array of Independent Disks) 10 array. The appliances are designed to provide continuous operation in the event of a failed disk. Hot-swapping a disk drive is a straightforward process that does not require issuing commands or a GUI operation.

When you replace a failed disk, you must replace it with an Infoblox supplied disk. To ensure that you receive the correct replacement disk, report the disk type or part number of the failed disk. For field replaceable unit part numbers, see **Table 4**. The appliance also displays the disk type in the Detailed Status panel of the Infoblox GUI. Installing disks that are not qualified and shipped from Infoblox could cause failures in the appliance.

You can access the disk drives from the front of the appliance. Each disk drive weighs about 2 pounds (.90 kg).

You can remove or replace a defective drive without interrupting appliance operations or network services. To remove a disk drive, do the following:

1. Identify and verify the failed drive through the Infoblox GUI, the front panel LCD, or the CLI.
2. If the activity light is green or blinking green, that you have identified the correct drive. There are conditions where a drive could be in the process of failing and still be green.

**Caution:** Never remove a correctly functioning drive. If a disk drive fails, remove the failed disk only. NEVER remove two or more disks at once. Removing more than one disk at a time can cause a complete failure of the appliance and require an RMA (Return Material Authorization). All replacement drives must complete the rebuilding process before you can remove another drive. Log in to the Infoblox GUI and check the status of the disk drives. For additional information about managing and monitoring the disk drives, see **Managing the Disk Subsystem**.

3. Press the release button to release the catch-release lever.
4. Use the catch-release lever to pull the disk about two cm (one inch) to disengage contact, as indicated in **Figure 15**.

**Figure 15 Pull the catch-release lever to remove hard drive**
5. Remove the disk, extract it from its carrier and handle it with care. Do not drop the disk or ship it loosely in a carton.

6. Securely mount the replacement disk in the drive carrier and replace the carrier in the system.

7. Push the lever down to lock the disk drive in place. The LED next to the disk drive lights up.

8. The disk drive automatically goes into rebuild mode.

**Note:** IP settings and basic network configurations, such as the gateway address, netmask, and the Network Automation database are saved and restored when you replace a failed disk drive.

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**Disk Array Guidelines**

Infoblox designs the disk array to be completely self managed. No maintenance procedures are required for a normally functioning disk array. Mishandling the disk array can cause an unrecoverable error and result in a failed appliance. Infoblox highly recommends that you observe the following guidelines:

- Remove only one disk at a time. Do not remove two or more disks from the appliance at the same time. Removing two or more disks at the same time might result in an appliance failure and require an RMA of the appliance. This rule applies to both powered and powered down appliances.
- If the status of the array is degraded, remove the failed or failing disk drive only. Do not remove an optimally functioning drive.
- If your acceptance procedure requires a test of the RAID hot swap feature, remove only one disk drive at a time. You can remove a second disk only after you replace the first disk and the array completes its rebuilding process.
- Do not remove a disk drive if the array is rebuilding. This could result in an appliance failure. Verify the status of the array before removing a disk drive.
- Use the following procedure to remove a spinning disk:
  1. Unlatch and pull the disk about two cm (one inch) to disengage contact.
  2. Wait about 30 seconds for the disk to completely stop spinning.
  3. Remove the disk and handle it with care. Do not drop the disk or ship it loosely in a carton.
- You can hot swap a drive while the appliance remains in production.
- There are some conditions that may require powering down the appliance to replace a failed unit. This normally happens if the RAID controller detects an error that could damage the array. If you insert a replacement drive into a live array and the controller doesn't recognize the drive, power down the appliance.
- If you inadvertently remove the wrong disk drive, do not immediately remove the disk drive that you originally intended to remove. Verify the status of the array and replace the disk drive that you removed earlier before removing another drive. Removing a second drive could render the appliance inoperable.
- All disks in the RAID array should have the same disk type for the array to function properly.
- In the unlikely event that two disk drives fail simultaneously and the appliance is still operational, remove and replace the failed disk drives one at a time.
- Rebuild time can vary. The rebuild process takes approximately two hours on an idle appliance. On very busy appliances (over 90% utilization), the disk rebuild process can take as long as 40 hours. On a grid master serving a very large grid, expect the rebuild process to take at least 24 hours.
- Replace a failed or mismatched disk only with a replacement disk shipped from Infoblox. When you request a replacement disk, report the disk type displayed in the *Detailed Status* panel of the Infoblox GUI or the Infoblox part number on the disk.
Changing Fan Modules

The Network Automation NT-2200 appliance ships with five hot-swappable fan modules, to replace a fan module without interrupting appliance operations. Each fan has an air vent that allows warm air to flow out of the appliance.

If a fan stops operating due to removal or a failure, the appliance continues to run, but generates an SNMP trap. You can also monitor the status of the fan modules by logging in to the Infoblox GUI.

You can access the fan modules from the rear panel. To replace a fan module:

1. Identify the replacement fan.
2. Press the catch-release lever upward, grip the handle, and pull the fan module straight out, as described in Removing a Fan Module.
3. Position the new fan module in the bay, and push it forward until it is fully seated against the back plane.

Changing AC Power Supplies

**Note:** Before changing the power supply, make sure that it is securely cabled. An apparently failed power supply may simply be improperly connected to its power source.

**Caution:** Never remove a correctly functioning power supply in a live system. Removing the power supply from a correctly operating Infoblox appliance can cause a complete failure of the appliance and require an RMA (Return Material Authorization).

The Network Automation NT-2200 ships with two AC power supplies in a redundant 1+1 configuration. In a 1+1 configuration, when a power supply fails for any reason, the other assumes the full load automatically and the Infoblox GUI displays a power supply alarm. The appliance can also be configured to send an email notification and to report an SNMP trap when such events occur in a 1+1 configuration. This configuration minimizes the chance of system failure due to failure of an individual power supply.

**Figure 17** illustrates the process of replacing an AC power supply.

Each power supply weighs about one pound (0.454 kg). The faceplate of each power supply contains a power LED and a dedicated power outlet.

To replace the Network Automation NT-2200 AC power supply, do the following:

1. Disconnect the AC power cable from the power outlet.
2. Turn the thumbscrew counter-clockwise to release the power supply.
3. Gently press the catch-release lever toward the thumbscrew, grip the power supply handle, and pull the power supply unit out of the chassis as illustrated in **Figure 17**.
4. Place the replacement power supply into the bay and push it forward until it is fully seated in the chassis. The catch-release lever will
gently click into place.
5. Reconnect the power cable.
6. If the power supply is fully seated, powered on, and operating properly, the LED glows steady green.

*Figure 17 Removing a Network Automation NT-2200 AC Power Supply*

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**Network Automation NT-2200 FRUs**

*Table 4* lists field replaceable units and orderable parts for the Network Automation NT-2200 appliance. Contact your Infoblox field representative or Infoblox Technical Support for more information.

<table>
<thead>
<tr>
<th>Field-Replaceable Unit</th>
<th>Part Number</th>
<th>Type</th>
<th>NT-2200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Automation NT-2200 Series AC PSU</td>
<td>IB-2200-R2-PSU-AC</td>
<td>FRU and Orderable option</td>
<td>Y</td>
</tr>
<tr>
<td>Network Automation NT-2200 Series single hard disk, 500 GB</td>
<td>IB-2200-MRI-R2-DISK-HDD500</td>
<td>FRU only</td>
<td>Y</td>
</tr>
<tr>
<td>Network Automation NT-2200 Series fan module</td>
<td>IB-2200-R2-FAN</td>
<td>FRU only</td>
<td>Y</td>
</tr>
<tr>
<td>Rack rail kit for 2-post or 4-post racks up to 600mm deep (rack ears excluded)</td>
<td>T-2200-RAIL-2-4-600MM</td>
<td>FRU only</td>
<td>Y</td>
</tr>
<tr>
<td>Rack rail kit for 4-post racks 600-900 mm deep, adjustable</td>
<td>T-800-1400-2200-RAIL-4-600-9 00</td>
<td>FRU only</td>
<td>Y</td>
</tr>
</tbody>
</table>