Cobalt NASRaQ™

User Manual

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Important Safeguards

For your protection, please read all these instructions regarding your Cobalt NASRaQ™ and retain for future reference.

Read Instructions

All the safety and operating instructions should be read and understood before the appliance is operated.

Ventilation

The Cobalt NASRaQ 's vents (on the front) and the fan opening (on the back panel) are provided for ventilation and reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. This product should not be placed in a built-in installation unless proper ventilation is provided.

Lithium Battery

The lithium battery on the system board provides power for the real-time clock and CMOS RAM. The battery has an estimated useful life expectancy of 5 to 10 years. If your system no longer keeps accurate time and date settings, it may be time to change the battery. Contact Cobalt for service information. No operator serviceable parts inside.

English

Warning: There is a danger of explosion if the battery is incorrectly replaced or replaced with the wrong type of battery. Replace only with the same or equivalent type recommended by the equipment manufacturer. Dispose of used batteries according to manufacturer's instructions.

French

Attention: Il y a danger d'explosion s'il a remplacement incorrect de la betterie. Remplacer uniquement avec une batterie du meme type ou d'un type equivalent recommande par le constructeur. Mettre au rebut les batteries usagées conformement aux instructions du fabricant.

German

Achtung: Explosionsgefahr wenn die Battery in umgekehrter Polaritat eingesetzt wird. Nur mit einem gleichen oder ahnlichen, vom Hersteller empfohlenen Typ, ersetzen. Verbrauchte Batterien mussen per den Instructionen des Herstellers verwertet werden.

Power Cord

English

Caution: The power supply cord is used as the main disconnect device. Ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

French

Attention: Le cordon d'alimentation est utilisé comme interrupteur général. La prise de courant doit etre située or installée a proximité du matérial et etre facile d'accés.

German

Achtung: Zur sicheren Trennung des Gerates vom Netz ist der Netzstecker zu ziehen. Vergewissern Sie sich, daß die Steckdose leicht zuganglich ist.

Electrical Shock

To reduce the risk of electrical shock, do not disassemble this product. Opening or removing covers may expose you to dangerous voltage and incorrect reassembly can cause electrical shock. This product should be serviced by a qualified technician.

Using Equipment Racks

If you plan to operate the Cobalt NASRaQ in an equipment rack, take the following precautions:

- Verify the ambient temperature around the Cobalt NASRaQ (which may be higher than the room temperature) is within the limits specified in "Physical Data" on page 46.
- Ensure there is sufficient air flow around the unit
- Check that electrical circuits are not overloaded — consider the nameplate ratings of all the connected equipment, and make sure there is over current protection.
- Check that equipment is properly grounded — particularly any equipment connected to a power strip.
- Do not place any objects on top of the Cobalt NASRaQ.

Browsers

When using a web browser to interact with your Cobalt NASRaQ, you may experience a browser failure. Some releases of Netscape Navigator® and Microsoft® Internet Explorer may contain errors that can cause intermittent, unexplained failures. These failures, however, should not adversely affect the NASRaQ's data. For reliability, Cobalt recommends using the latest released version of a web browser. The Cobalt NASRaQ has been tested with both Netscape Navigator and Microsoft Internet Explorer, version 4.

Regulations and Information

NOTE: This equipment has been tested and found to comply with the limits for a Class B 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 equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment 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.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

This equipment is in compliance with Underwriters Laboratories (UL) and is UL listed.

Contents

Introduction

The Cobalt NASRaQ™ delivers high capacity storage, cross-platform file sharing services, and remote administration capabilities all packaged in a single rack unit height, industry standard enclosure.

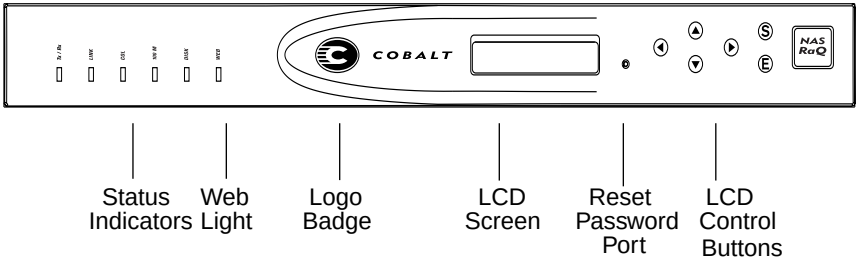
These services include:

- Microsoft, Macintosh and UNIX compatible file services
- RAID 0 (striping) and RAID 1 (mirroring) support
- Integration into an existing NT domain
- User, group and share based security
- Network-based backup (Legato compatible)
- SNMP management support
- Advanced management using Telnet
- Web-based performance and usage reporting

Overview

The following diagrams show the NASRaQ front and rear views including controls, indicators, and connectors.

Front View



- The **Status Indicators** signal Ethernet, hard drive, and Web activities:

  Tx/Rx (Transmit/Receive) blinks with network traffic

  Link solid light indicates the network connection

  Col blinks when collisions are detected on the network

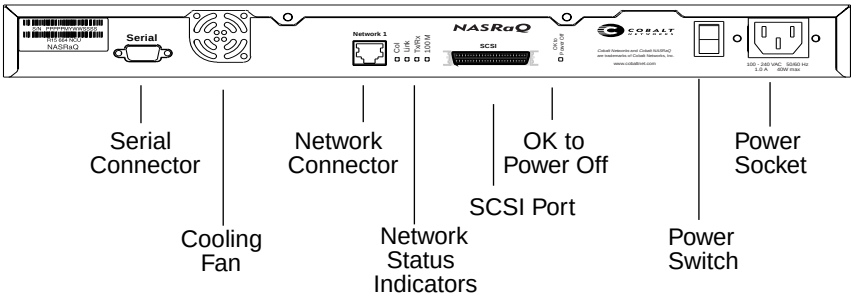
  100 M solid light indicate that 100 Mbit Ethernet is being used

  Disk indicates hard disk activity

  Web light indicates web activity

- The **Logo Badge** glows when the NASRaQ is powered on
- The **LCD Screen** displays messages and entered values when you use the LCD control buttons for network configuration, shutting down, and rebooting
- Use the **Reset Password** port if you forget the NASRaQ administrator password. (See "Resetting the Admin Password" on page 47.)
- The **LCD Control Buttons** allow you to enter network configuration information, shut down, and reboot.

Back View



- The **Serial Connector** allows for serial port console connection.
- The **Cooling Fan** maintains proper thermal parameters.
- The **Network Connector** accepts a 10/100 Base-T network cable.
- The **Network Status Indicators** signal network activity and information.
- The **SCSI Port** enables connection to external SCSI devices.
- The **OK to Power Off** light indicates when the NASRaQ is ready to be powered down.
- The **Power Switch** toggles the power on or off.
- The **Power Socket** is where you attach the AC cord that is provided.

Requirements

To use the NASRaQ, you need the following:

- A 10 Base T, 10/100 Base-T, or 100 Base-T, TCP/IP-based local area network.
- A personal computer (attached to the network) that uses a Web browser (Netscape Navigator or Microsoft Internet Explorer, versions 4.0 or later).
- Network parameters, which you can obtain from your system or network administrator, or from a DHCP server — these include the NASRaQ's assigned IP address, the subnet mask of your network, and a gateway/router address (if communicating with other networks).

Who Uses the NASRaQ

Users include the system administrator and general users. For security reasons, the administrator sets up and maintains the NASRaQ.

General users can attach to the NASRaQ as they would any other shared volume(s) via their desktop computers to store or access data.

How This Guide is Organized

This guide is organized:

Chapter 1	"Introduction" on page 1 discusses the NASRaQ's function and features.
Chapter 2	"Setting Up the NASRaQ" on page 7, describes the hardware setup of the NASRaQ and the network integration process.
Chapter 3	"NASRaQ Administration" on page 25, describes the NASRaQ administrator's functions.
Appendix A	"Using the LCD Console" on page 41, describes the LCD console functions — configuring the NASRaQ's network settings, rebooting, and powering down.
Appendix B	"Product Specifications" on page 45, contains the NASRaQ's technical specifications.
Appendix C	"Advanced Information" on page 47 provides information on development tools, configuration files, and the directory structure of the NASRaQ disk.
Appendix D	"Licenses" on page 49 provides licensing information.
Appendix E	"Glossary" on page 55 provides definitions for NASRaQ-related terminology.

Customer Service and Technical Support

For Cobalt product information, visit the support section of the Cobalt Web site at *http://www.cobaltnet.com/support/*. The site includes a list of Frequently Asked Questions (FAQs) that provide additional information.

For General Cobalt Information

In the U.S.A., call (888) 70-COBALT or (888) 702-6225, or send e-mail to info@cobaltnet.com.

Outside the U.S.A., call +1 650 930-2500, or send e-mail to info@cobaltnet.com.

In Europe, call +31 70 517 6375, or send e-mail to info-europe@cobaltnet.com.

In Japan, send e-mail to info-japan@cobaltnet.com.

For Cobalt Technical Support and Service

In the U.S.A., call (888) 70-COBALT or (888) 702-6225, or send e-mail to support@cobaltnet.com.

Outside the U.S.A., call +1 650 930-2500, or send e-mail to support@cobaltnet.com.

In Europe, send e-mail to support-europe@cobaltnet.com.

In Japan, send e-mail to support-japan@cobaltnet.com.

Setting Up the NASRaQ

This chapter is intended for the NASRaQ administrator and describes connecting and configuring the NASRaQ for your network.

If the NASRaQ has been previously configured for a different network, refer to "Changing Network Configuration" on page 42.

The setup process includes the following steps:

- "Establishing a Connection" on page 7 discusses the physical setup and connection of the NASRaQ to a power source and the network.
- "Setting Up With the Web Browser" on page 14 covers the network integration process and allows the administrator to select services and create users and groups using any browser-enabled computer.

Establishing a Connection

Connecting the NASRaQ includes the following procedures:

- Installing the NASRaQ
- Connecting to the network
- Connecting the power cord
- Powering on the NASRaQ
- Configuring DHCP and manual network settings

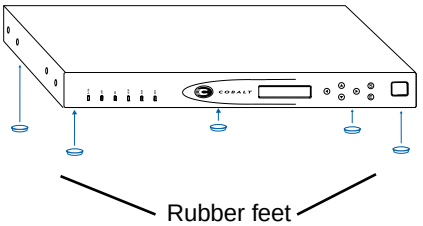
Installing the NASRaQ

The NASRaQ can either be placed on a flat surface — for example, a desk, shelf, or table top — or it can be installed in an equipment rack.

Caution: If you operate the NASRaQ in an equipment rack, see the precautions described in “Using Equipment Racks” on page iv.

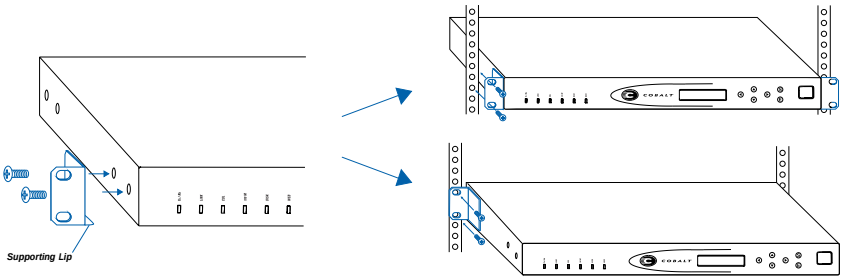
If you plan to use the NASRaQ on a flat surface, attach the rubber feet to the five indentations in the bottom of the case.

Figure 1 Attaching rubber feet



If you plan to operate the NASRaQ in an equipment rack, first connect the mounting ears to the sides of the NASRaQ (as shown in Figure 2) near either the front or the rear of the case. Ensure the supporting lip is placed under the unit to provide additional support and attach the ears to the equipment rack.

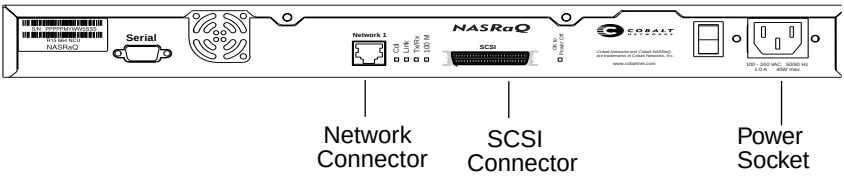
Figure 2 Installing NASRaQ into a standard rack



Connecting to the Network

Connect one end of a Category 5 Ethernet cable to the 10/100 Base-T network connector on the back of the NASRaQ (see Figure 3). Connect the other end to an existing network socket.

Figure 3 NASRaQ Rear View



Connecting the Power Cord

Connect the power supply cord to an electrical outlet (100-240 volts AC, 50/60 Hz, as listed in "Product Specifications" on page 45).

Powering On the NASRaQ

Turn on the power by pressing the **On/Off** switch on the back of the NASRaQ.

The hard disk starts up, the fan turns on, and the LCD screen lights up and displays the message `Starting Up`.

Status messages are displayed on the LCD screen as the NASRaQ completes its boot process.

Caution: It's important to follow the proper power-down procedure before turning off the NASRaQ. Refer to "Powering Down" on page 43.

Configuring the Network

Now that you've made the network and power connections, you're ready to configure the network settings.

The NASRaQ requires specific network information to properly function. The information can be entered automatically or manually.

Depending on the network environment, the NASRaQ may be able to obtain the necessary information from a DHCP server on your network. If so, it will attempt an automatic configuration. If not, you need to enter the necessary information manually, using the LCD console on the front panel. See "Using the LCD Console to Configure the Network" on page 11 for more information.

Automatic Configuration using a DHCP Server

When the NASRaQ is powered on, it checks to see whether a DHCP server is present on the network. If there's a functioning DHCP server that's set up to serve leased IP addresses, the NASRaQ configures itself automatically.

If the network information can be configured automatically, the LCD displays the NASRaQ's assigned IP Address upon completion of the boot process.

IMPORTANT: To function properly over long periods of time, the NASRaQ's IP address must remain the same, i.e., the DHCP server must not assign it to a different machine at a later date. Unfortunately, some DHCP servers do not honor requests for permanent IP addresses. As a result, the system or network administrator may need to assign a different (and permanent) IP address to the NASRaQ. If so, change the network configuration information. You should coordinate any changes to the IP address, subnet mask, or gateway address with your network administrator.

Manual Configuration using Control Buttons

If the NASRaQ doesn't find a DHCP server on the network, the following prompt appears on the LCD display:

```
ENTER IP ADDR:
000.000.000.000
```

If this prompt appears, you need to enter the required network information using the LCD control buttons. See "Using the LCD Console" on page 41.

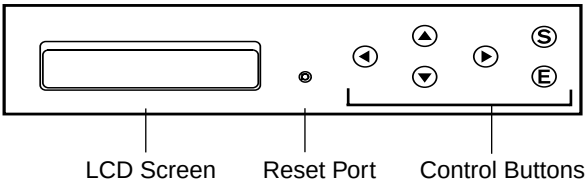
Before you proceed, make sure you have the following information:

- The NASRaQ's assigned IP address
- The subnet mask of your network
- The gateway/router address (necessary only if communicating with other networks or the Internet.) Enter the NASRaQ IP address in the URL field of your browser, for example, *http://192.168.25.77*.

Using the LCD Console to Configure the Network

The NASRaQ's LCD screen displays two lines of text (see Figure 4). The top LCD line provides instructions on data to enter. The bottom line displays the data already entered. Use the control buttons to the right of the LCD screen to enter the required network information.

Figure 4 Control buttons



Here's how the control buttons work:

The reset port is used to reset the NASRaQ.

The **Left** button moves the cursor left.

The **Right** button moves the cursor right.

The **Up** button increments the digit located at the cursor position.

The **Down** button decrements the digit located at the cursor position.

The **S** button ("select") selects the next option.

The **E** button ("enter") accepts the information.

"Using the LCD Console" on page 41 gives additional information about using the LCD Console.

To Manually Configure NASRaQ

During setup, the LCD console is used to enter network configuration information on the NASRaQ.

Follow these steps to configure the network manually:

1. When you see the prompt

```
ENTER IP ADDR:
000.000.000.000
```

Enter the IP address assigned to the NASRaQ using the LCD control buttons.

2. Press ⓔ.

   If the IP address is valid, the prompt appears:

   ```
   ENTER NETMASK:
   255.000.000.000
   ```

3. Enter the netmask of your network, if the number shown is not correct.

4. Press ⓔ.

   If the netmask is valid, the following prompt appears:

   ```
   ENTER GATEWAY:
   000.000.000.000
   ```

5. Enter the IP address of the gateway for your network.

   If your network doesn't have a gateway, don't enter any number — leave the default value, "000.000.000.000."

6. Press ⓔ.

   The LCD displays:

   ```
   [S]AVE [C]ANCEL
   ```

7. To save the configuration information, use the Left and Right buttons to select [S]ave, and then press ⓔ. You'll see:

   ```
   VERIFYING AND SAVING
   ```

   Note: Selecting [C]ancel cancels the configuration, and the LCD screen displays `ENTER IP ADDR:` again. The NASRaQ goes through the entry process again.

   After verifying and saving, the NASRaQ completes the boot process, and the LCD screen shows several messages before displaying the IP address assigned to the NASRaQ.

   Configuration is complete when the LCD screen displays the NASRaQ's assigned IP address, for example:

   ```
   IP Address:
   127.162.05.18
   ```

Setting Up With the Web Browser

You need to perform the remainder of the setup process through a web browser from any network computer. Use a standard browser such as Netscape Navigator or Microsoft Internet Explorer (versions 4.0 or later) to do this. After the setup process is complete, the NASRaQ can be managed from any browser-enabled computer on the network.

Active Assist – Online Help

Active Assist provides real-time context-sensitive help that you can access at any time by placing the cursor over the icon beside any item. More information about the item appears at the bottom of the browser page.

Accessing the NASRaQ

1. Start any standard web browser on any computer connected to the network.
2. To access the NASRaQ, either enter the host name (if one has been assigned using DHCP) or enter the IP address, found on the NASRaQ's LCD screen, in the URL field of your browser. For example:

3. Press **Return** (or **Enter**) on your keyboard.

When you have successfully configured the NASRaQ, the setup wizard introduction is displayed (see Figure 5).

Figure 5 NASRaQ Welcome Screen

4. Click the **Start** button to proceed.

Configuring the NASRaQ with the Setup Wizard

The setup wizard is a step-by-step configuration process that guides you through the setup process. After completing each step, click on the **NEXT** button to apply the changes and go to the next step. The NASRaQ performs automatic checks on the information entered and alerts you when an unacceptable value or problem is encountered.

At any point, you can click the back arrow to change a previous setting.

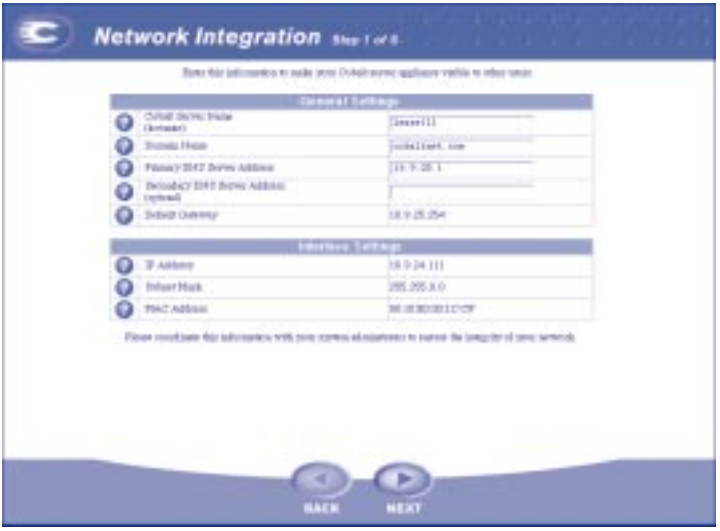
When the information is correctly entered at each stage, the NASRaQ enters the changes in its configuration files before proceeding to the next step. Changes may take several seconds to complete.

Note: To obtain additional help, click on the Active Assist icon adjacent to the topic.

1. Network Setup

The first wizard setup screen appears in Figure 6.

Figure 6 Network Setup Wizard



From the Network Setup screen, you can:

- Assign a hostname to the NASRaQ (for example, nasraq1)
- Enter your domain name (the official name that is registered with InterNIC, for example, cobaltnet.com)
- Enter the IP address of your domain name server. The IP address of your Domain Name Server is necessary for the NASRaQ to convert between IP addresses and names.

The hostname and domain name must be coordinated with your network administrator to access the NASRaQ by its name and not just its IP address.

Click the **NEXT** button.

2. Administrator Setup

The second wizard setup screen appears in Figure 7 on page 17.

The NASRaQ's administrator has two primary responsibilities. The first is setting up the users, groups, shares, and services on the NASRaQ. The second is responding to e-mail alerts from the NASRaQ to prevent potential problems.

To complete Administrator setup, fill in the fields for:

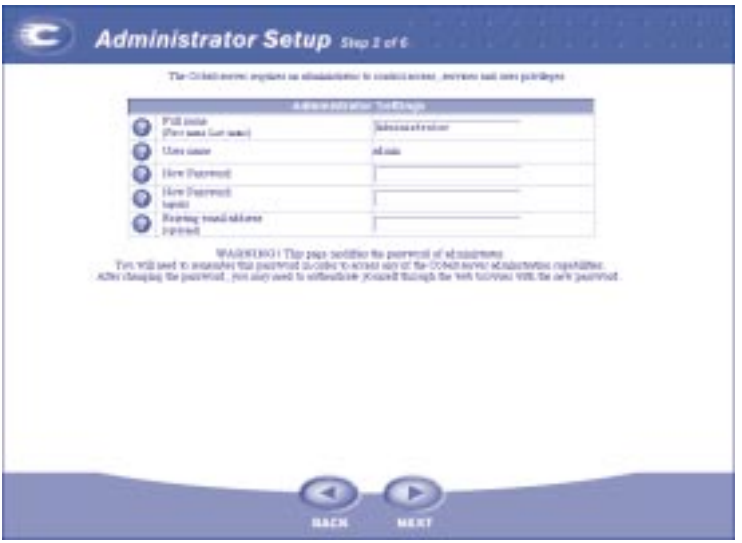
- Full name

  Name of the person serving as administrator.

- Password

  Enter a password twice to verify accuracy. The password can be an alphanumeric string limited to eight characters. The password allows you to access NASRaQ administration features.

Figure 7 Administrator Setup Wizard



- The administrator's name may be substituted for "Administrator."
- Existing e-mail address

  The administrator receives NASRaQ system messages at this address.

  If you want to change the password, refer to "Changing the Admin Password from the Browser" on page 48.

If you forget or want to reset the password, refer to “Resetting the Admin Password” on page 47.

Click the **NEXT** button.

3. Services Setup

The third wizard setup screen appears in Figure 8.

Figure 8 Services Setup Wizard

Choose the services you would like to be active on the NASRaQ from the list.

You can configure work groups and the WINS server by clicking **Parameters...**

On the “Workgroup or NT Domain” field, enter the name of the workgroup or NT domain where you want the NASRaQ to appear as part of the Network Neighborhood. In the WINS Server Address” field, enter the IP address of your WINS servers. If you do not have a WINS server, leave this field blank.

For an explanation of services, refer to “Services” on page 32.

Click the **NEXT** button.

4. Time Setup

The fourth wizard setup screen appears in Figure 9.

Figure 9 Time Setup Wizard

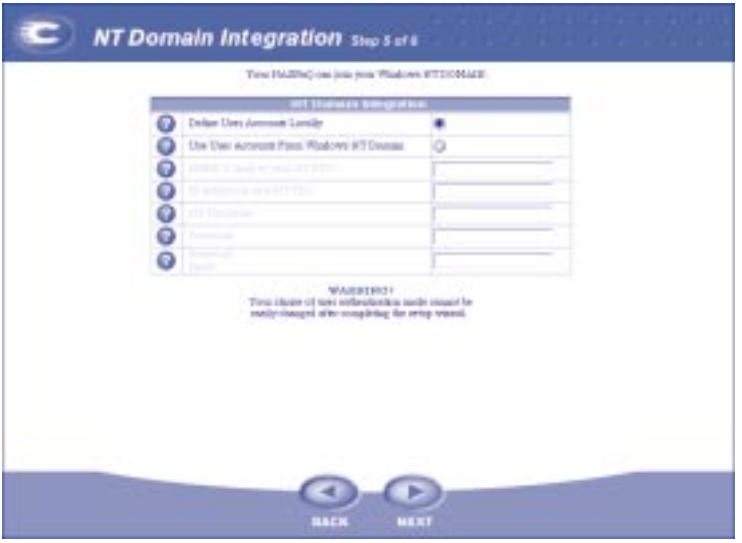
Enter the current date, time, and time zone on the NASRaQ. Or specify the address of an NTP server that you want to synchronize the NASRaQ.

Click the **NEXT** button.

5. NT Domain Integration

The fifth wizard setup screen appears in Figure 10.

Figure 10 NT Domain Integration



This screen includes two options. You can:

- Define user accounts locally. Choose to add users locally which creates user accounts directly on the NASRaQ.
- Use user accounts from Windows NT domain integration from a NT PDC. Set up your NASRaQ to appear to join a Windows NT domain using the NT domain integration capability.

Warning:This choice can not be changed later. Decide carefully between the two options.

The NASRaQ appears and behaves as if it joined an NT domain, but it actually doesn't join the NT domain. The NASRaQ accomplishes this by obtaining a list of all users and groups in a NT domain from your NT Primary (PDC) or Backup Domain Controller (BDC).

The NASRaQ then redirects authentication requests to your PDC or BDC when a user tries to log in. The result is to eliminate the need to maintain user account information on the NASRaQ. All changes to user accounts on your NT Primary Domain Controller will be reflected on your NASRaQ when the NASRaQ synchronizes with the PDC.

If enabling NT domain integration, you need the machine name and IP Address of the PDC or BDC and a valid NT user with the associated NT password.

To obtain a list of users and groups from your NT domain, the NASRaQ needs the name and password of one user in the NT domain. If you change this users's password, you must set the new password on the NASRaQ or the user list may become unsynchronized.

Cobalt recommends creating a user with a non-expiring password specifically for the NASRaQ to use to obtain this information.

For security reasons, do not use the same NT administrator password for the NASRaQ.

Click the **NEXT** button.

6. RAID Setup

The sixth wizard setup screen appears in Figure 11.

Figure 11 RAID Wizard Setup

Note: RAID setup is a one-time process that may take up to an hour to complete.

Caution: Choosing a RAID mode is a choice that cannot be changed later. Choose the RAID mode carefully.

Figure 11 on page 22 includes two options:

1. Striped

   RAID 0 mode, data is stored in a striped fashion — the server spreads the data across both of the two internal disks. This provides twice as much storage space as RAID 1. See "Striping" on page 58 for additional information.

2. Mirrored

   In RAID 1 mode, all the data is redundantly stored on both of the internal disks (they mirror one another). The NASRaQ's software-based RAID mirroring system provides an added

level of data security. Data is always written to both disks so there are always two copies of the data. This protects the data in case of catastrophic disk failure. See "Mirroring" on page 57 for additional information.

> Note: RAID 1 mode provides redundancy, which increases the reliability. However, the NASRaQ's RAID 1 system does not provide for zero downtime as hardware-based RAID systems do. If a disk fails, the NASRaQ may be inaccessible until the system is rebooted.

Click the **NEXT** button.

Product Registration

The product registration screen appears in Figure 12.

Figure 12 Product Registration

Register the NASRaQ by completing the online registration and click **the Finish** button.

Alternatively, fill out the card that came with the product and mail it to:

Cobalt Networks, Inc.
555 Ellis Street
Mountain View, CA 94043

Completing Configuration With the Setup Wizard

When you've entered the information in the setup wizard, click **FINISH**. Once the NASRaQ has been configured, the Public Site appears (see Figure 13 on page 24).

This page also appears whenever you go to the URL http://*IP address*/cobalt/.

Once you have completed the setup wizard, the NASRaQ begins to configure your choices. If you go to the **administrator site**, the NASRaQ displays a status screen while RAID is being configured. Depending on your system, RAID setup will take several minutes to complete. See "RAID" on page 38 for additional information.

The wizard requests that you verify configuration settings before returning to the main page shown in Figure 13.

Figure 13 NASRaQ Public Site

NASRaQ Administration

This chapter describes NASRaQ administrator functions and capabilities. To access the NASRaQ's Administrator Site, you can either:

- Click the **Administrator Site** button on the Public Site (see Figure 13 on page 24)
- Enter the URL http://*hostname.domainname*/admin/ from your browser.

When you select the Administrator button, the screen in Figure 14 is displayed.

You are prompted for the administrator user name and password.

Figure 14 Administration Site Screen

NT Domain Versus Local Authentication

The NASRaQ authenticates users in either local or an integrated NT Domain mode. The local authentication mode uses a locally stored password database. Each user's account exists on the NASRaQ independent from other server accounts the user may have. Using the local mode, user accounts must be created and managed by the administrator.

The integrated NT Domain authentication mode means that all user and group accounts are added from an existing NT Domain. When a user accesses the NASRaQ, the password is verified by checking with a specified Windows NT Primary or Backup Domain controller. Users and groups are automatically moved to the NASRaQ. The users screen allows user modification for disk quota only.

Users

In the Users section, you can manage user settings and administrator settings. To access this section, click the **Users** button on the left side of the screen.

Figure 15 Users Administration Screen

Click **User Management** at the top of the screen to see the full name of each NASRaQ user (for example, Jessica Smith) and the name used to log in to the NASRaQ (for example, jsmith). This is called the “user identity” or “userID.”

From User Management page:

- Click **Add User** to add a user if in local user authentication mode. This does not appear in NT domain integration mode.
- To remove a user, click the corresponding trash icon.
- Click a pencil icon to modify the corresponding user's full name and password, and adjust the total disk space allowed for files.

To simplify the process of adding multiple users to the NASRaQ, click **Set User Defaults** to specify a default disk space limit and a user naming convention for every new user added thereafter.

To modify the administrator settings, click **Administrator** at the top of the screen. You can modify the administrator's full name, password, and e-mail address. Remember your password — otherwise, you might lock yourself out and need to reset the password.

User Management

If your NASRaQ is not integrated with an NT domain, then you must locally create an account for each NASRaQ user. Only four parameters can be set for each user:

1. User name
2. Full name
3. Password
4. Disk space limit (quota)

If your NASRaQ is part of an NT domain, then the user list is obtained from your Windows NT Primary Domain Controller. You can not add or delete users directly on the NASRaQ. To add or delete a user, make the change on your Windows NT Primary Domain Controller (PDC). The NASRaQ will sync users and groups with the NT PDC when they are added or deleted.

You can edit the disk space limit associated with a user and set the default disk quota the users are granted when they're first added.

The user list is updated from your NT PDC every 15 minutes. If you want to update the list sooner, go to the NT Domain control panel and choose **Save Settings**.

Group Management

The NASRaQ enables you to manage access rights by groups. You can set up the NASRaQ for management by departmental or organizational units.

If your NASRaQ is not part of an NT Domain, you can add groups to the NASRaQ by clicking **Add Groups**. New users can be added easily, and existing users can be removed easily from a group's membership — by turning their checkboxes on or off through **Modify Groups**.

When the NASRaQ is part of an NT domain, you can't directly modify any group memberships. The list of groups and their members is obtained automatically from the NT Primary Domain Controller.

Groups

Click **Groups** to access the Groups administration screen, where you can manage group settings (see Figure 16 on page 29). This screen allows for local group authentication.

By clicking **Add Groups**, you can add groups to the NASRaQ. New users can be added, and existing users can be removed from a group's membership by clicking the user's checkboxes on or off.

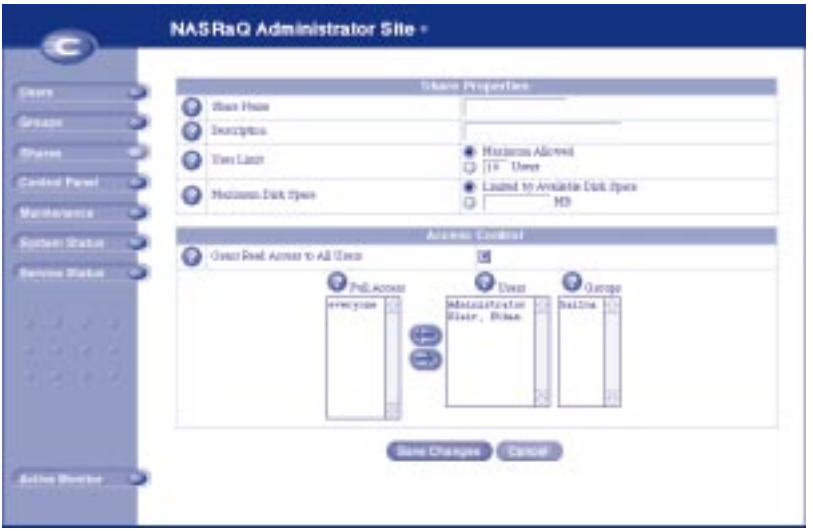
If you are not in NT authentication mode, only the groups that you create on the NASRaQ are displayed.

Figure 16 Groups Administration Screen

Shares

A “share” is a shared directory that’s accessible via the network. Each share on the NASRaQ is simultaneously accessible to both Windows and Macintosh clients if enabled via SMB and AppleShare. Each share can have a unique set of access controls.

Figure 17 Shares Administration Screen



Select **Shares** to access the Shares section which contains a list of all the defined shares. You can click **Add Share** to define a new share. Clicking the trash can icon for a share permanently deletes the share and its contents and frees up share space. Clicking the pencil icon for a share lets you to edit the properties of that share:

- Share name. This is the name of the share as it appears in the Windows Network Neighborhood or the Apple Chooser. There is a 12 character limit.
- Description. This description appears next to the share in the browser list visible in the Network Neighborhood (for Windows clients).
- User limit. This is the number of simultaneous user connections allowed from Microsoft Windows clients. There is no maximum users control for Apple Macintosh clients.

- Maximum Disk Space. This is the maximum portion of disk space granted to the share. The administrator receives warnings via e-mail if the limit has been approached or exceeded.

Note: It may appear that the total amount of disk space granted to all shares can exceed the total available disk space. However, the actual space used by all shares cannot exceed the total disk space. The disk space limit is either a share's limit or the disk's physical space limit.

- Full Access. This is the list of users and groups that have both read and write access to the share.
- Users on the NASRaQ.
- Groups on the NASRaQ.

Control Panel

Click **Control Panel** to change or view the settings for services, network, access rights, time, SNMP (NT Domain) and RAID. These functions are documented with the "Active Assist" online help facility. Enabling access to the backup share is only allowed for groups.

Figure 18 Control Panel Administration Screen

Services

To manage settings for the NASRaQ services, click the **Services** button at the top of the screen. To turn on any of the services listed in the Service Settings table, click its check box. The services are described in the following sections.

Microsoft Windows File Sharing (SMB)

Windows-based machines use a file sharing protocol called SMB (Server Message Block). Once SMB is set up, the NASRaQ appears in your Network Neighborhood under the specified work group with the *hostname*, which is the name that the administrator assigned in the Setup Wizard or on the Control Panel screen). The name also appears in the LCD display as:

hostname.domainname

To set the SMB parameters, go to the Administrator Site, click **Control Panel**, click **Services**, make sure the box is checked next to "Windows file sharing (SMB)." Click on **Save Changes**.

Under the parameters link, in the "Workgroup or NT Domain" field, enter the name of the workgroup or NT domain for which you want the NASRaQ to appear as part of the Network Neighborhood. In the "WINS Server Address" field, enter the IP address of your WINS servers, if you have one. Otherwise, leave this field blank.

> Note: A Windows Internet Name Service (WINS) is used to resolve NetBIOS host names, which is used by Windows Networking to identify server and Internet IP addresses. You are not required to use a WINS server unless your network spans more than one TCP/IP subnet. Without a WINS server your client machines will not be able to access your NASRaQ if it is located on a different TCP/IP subnet. Contact your network administrator to locate your WINS server address and to identify the network topology for your NASRaQ.

Debugging the Network Neighborhood:

If the NASRaQ does not appear in the Network Neighborhood check that these settings are correct:

- *Workgroup:* The NASRaQ must be in the same workgroup you are viewing in the Network Neighborhood.

- *Subnet Mask:* Many NASRaQ functions may appear to be working even if you have entered an incorrect subnet mask. However, the NASRaQ does not appear in the Network Neighborhood if you have entered an incorrect subnet mask during the initial setup. If you need to change your subnet mask, you need to reset the network from the front LCD panel. See "Using the LCD Console to Configure the Network" on page 11 for instructions.

Note: It may take up to 15 minutes for the Network Neighborhood to display a new NASRaQ added to the network.

Apple Macintosh File Sharing (AppleShare)

AppleShare® is the Macintosh file sharing protocol. The NASRaQ offers AppleShareIP which provides higher performance and accessibility over the Internet.

Legato File Backup

This option enables the Legato NetWorker® client software to support backup and restore needs. You must have the Legato server for this service.

Simple Network Management Protocol (SNMP) Agent

Once you've turned on this option in the Service Settings table, you can click **Parameters** (next to SNMP in the table) to specify the SNMP communities that can have read-only and read-and-write access to this SNMP agent. The default read-access community is "public."

Network

Click the **Network** button at the top of the Control Panel section to enter or change network configuration information. These settings make the NASRaQ visible to other computers. If you change the IP address, the system will reboot so that the system will be recognized under the new IP address.

From the Network screen, you can change the NASRaQ's hostname and domain name (the official name that is registered with InterNIC, for example, cobaltnet.com) and the IP address of the Domain Name Server (DNS).

The IP address of your DNS is necessary for the NASRaQ to be able to convert between IP addresses and names. The hostname and domain name must be coordinated with your network administrator to access the NASRaQ by its name and not just its IP address.

Access Rights

This screen is for controlling telnet access. You can choose to either make telnet available to only the root user (the system administrator) or turn it off.

> Note: Telnet access should be used only by advanced users — people who are proficient in the internal workings of the Linux operating system. It is possible to adversely affect the performance of your NASRaQ if you modify system configuration files.

Time

Click the **Time** button at the top of the Control Panel section to enter the correct time, date and time zone. You can also specify the name of the server (NTP server) with which the NASRaQ will synchronize its internal clock.

Simple Network Management Protocol (SNMP)

After you've turned on this option in the Service Settings table, you can click **Parameters** (next to SNMP in the table) to specify the SNMP communities that can have read-only and read-and-write access to this SNMP agent. The default read-access community is "public."

NT Domain

If the system is set up in NT Authentication mode, you can adjust settings including:

- PDC name
- User name used for synchronizing NASRaQ
- Password

If the system is not in NT Domain mode, this control does not apply.

RAID

The RAID mode is determined during initial wizard setup. After the mode has been set, you cannot change the RAID mode.

Maintenance

The Maintenance section provides several web-based utilities that facilitate the day-to-day operations of the NASRaQ. To access these utilities, click **Maintenance** on the Administrator Site, then click the button that corresponds to the utility you want to use (each utility is described later in this chapter).

Figure 19 Maintenance Administration Screen

Backup

The NASRaQ's system configuration data, stored in a file called config.tar, is available in a built-in share called BACKUP.

This data can be backup up regularly to a tape drive or simply copied onto the hard drive of a different computer. The config.tar file contains enough information to recover the system configuration in the event of a catastrophic failure.

Restore

After restoring the data to the BACKUP share, one file, config.tar, is created. Click the restore configuration option to restore the entire contents of the BACKUP share.

To restore the system's configuration:

1. Copy your backup copy of config.tar onto the BACKUP share.
2. Click the **Restore Configuration** button on the Restore Configuration screen.
3. You are prompted to reboot the NASRaQ. Restoration takes effect after rebooting.

Install Software

The **Install Software** button allows you to update the NASRaQ software with any patches or new releases.

Reboot

The "Active Monitor" software provides a recommendation when a reboot is necessary. Rebooting resets the system.

To reboot using your browser, go to the Administrator Site, click **Maintenance**, then click **Reboot**. In the table that appears, click the **Reboot** button.

Alternatively, you can reboot by using the LCD console. See "Rebooting" on page 42 for additional information.

Rebooting takes several minutes and is complete when the reboot table and button appears. You should not attempt to operate the NASRaQ while the system is rebooting.

Shutdown

The NASRaQ can only be shut down from the LCD display and buttons located on the front of the unit. Refer to "Powering Down" on page 43. Powering down may take a few minutes.

Note: Turning off the Power switch before the NASRaQ tells you to do so may result in lost data.

System Status

Use the System Status section of the NASRaQ's Administrator interface to monitor CPU, memory, disk, and RAID status. In all cases, the NASRaQ monitors subsystem performance and displays a colored LED beside each item.

Figure 20 System Status Administration Screen

The various LED colors indicate:

- Green-- the subsystem is performing well
- Amber -- a potential problem exists
- Red -- a problem exists
- Grey -- no information is available.

Clicking on the LED provides further explanation of the problem.

Disk Usage

Disk Usage describes the total disk space occupied by system files, by users, and by shares/volumes, the amount of free disk space left, and the total available disk size of the NASRaQ's disks. This space is determined by the RAID mode selected.

RAID

RAID status page describes four values relating to your RAID disk configuration.

- **RAID Mode** - the RAID mode you decided to use when you set the machine up in the setup wizard.
- **Boot Disk**- NASRaQ can boot from either of its internal disks. This field indicates the disk that the NASRaQ used to boot from most recently.

The last two fields describe the operational status of each hard disk.

If a disk has failed or has been removed from the system, the ball next to the disk is red. The administrator also receives mail from Active Monitor describing the problem.

Memory

Memory Status indicates if memory swapping is high. If you see a red light, you may want to add more memory to the NASRaQ.

CPU

CPU Usage provides a real-time update of CPU load. It indicates the number of tasks waiting to be executed. This chart helps you evaluate whether the NASRaQ's CPU is being used heavily or lightly.

Service Status

The Service Status section allows you to monitor file services and SNMP. It follows the same LED conventions as "System Status."

Figure 21 Service Status Administration Screen

File Services

File Services displays the status of the Windows File Sharing (SMB) service and the AppleShare service if either is enabled.

SNMP

SNMP (Simple Network Management Protocol) displays the status of the SNMP server's operation.

Active Monitor

The NASRaQ uses Active Monitor software, which is constantly evaluating the system components and services in the background. The Active Monitor reports on potential problems.

To access the Active Monitor section, click **Active Monitor** on the Administrator screen.

Figure 22 Active Monitor Administration Screen

If you see a blinking red light next to any of the components or services listed in this section, the Active Monitor is signaling that a serious condition exists on the server.

Click the light to examine the component or service which is producing the error.

Using the LCD Console

During startup, the LCD screen displays status information about the boot process itself.

During setup, the LCD console is used to enter NASRaQ network configuration information.

Once the NASRaQ is running, the LCD console also serves multiple purposes. You can use it to:

- Change network configuration information, which is useful if the NASRaQ's location has changed.
- Reboot, which restarts the entire system.
- Power down in a way that allows the NASRaQ to close all open files and minimizes startup time the next time the NASRaQ is powered on.

IMPORTANT: Before turning off the NASRaQ, be sure to follow the proper power-down procedure (see"Powering Down" on page 43).

To access each of these functions, hold down the **(S)elect** button on the LCD console for approximately two seconds. This causes the LCD screen to enter its function mode. Press the **Select** button until the function you want appears on the LCD screen. To cancel the LCD's function mode, select the EXIT function (when it appears on the screen), then press the **Enter** button, then select YES.

See "Using the LCD Console to Configure the Network" on page 11 for information on using the LCD console controls.

Changing Network Configuration

To reset the IP address or change the network configuration of the Primary Network interface from the LCD console:

1. From the LCD console, hold down the **Select** button for approximately 2 seconds.

   The LCD screen displays:

   ```
   SELECT:
   SETUP  NETWORK
   ```

2. Press the **Enter** button.
3. Enter the IP address of the Primary Network Interface, and then press the **Enter** button.
4. Enter the netmask of the Primary Network Interface, and then press the **Enter** button.
5. Enter the Gateway, and press the **Enter** button.
6. Toggle the cursor to [S]ave or [C]ancel and press the **Enter** button.

If you select the Save option, the NASRaQ will restart using the new network configuration. If you select Cancel, you return to step 1 of this procedure.

Note: Alternatively, you can change the NASRaQ's network configuration via the browser. To do this, go to the Administrator Site, click **Control Panel**, then click **Network** (at the top of the screen). You can edit the network settings in the table that appears. This can cause the NASRaQ to reboot.

Rebooting

To reboot NASRaQ:

1. From the LCD console, hold down the **Select** button for approximately 2 seconds.

   The LCD screen displays:

   ```
   SELECT:
      SETUP  NETWORK
   ```

2. Press the **Select** button once until `REBOOT` appears in the LCD display:

```
SELECT:
   REBOOT
```

3. Press the **Enter** button.
4. Use the cursor control keys to toggle the cursor between [Y] and [N]. Select [Y] to reboot the system and then Enter.

Note: You can also reboot via the browser. To do this, go to the Server Management screen, click **Maintenance**, and then click **Reboot** (at the top of the screen). In the table that appears, click **Reboot**.

Powering Down

Caution: To prevent the potential loss of data, it is important to follow the proper power-down procedure (described below) before turning off the NASRaQ.

To select the power-down application:

1. From the LCD console, press and hold down the **Select** button for approximately 2 seconds.

   The LCD screen displays:

```
SELECT:
   SETUP NETWORK
```

2. Press the **Select** button twice until `POWER DOWN` appears in the LCD display:

```
SELECT:
   POWER DOWN
```

3. Press the **Enter** button.
4. Use the cursor control keys to toggle the cursor between [Y] and [N]. Select [Y] to power down the system.

The LCD screen displays:

```
PLEASE SWITCH
   POWER OFF NOW
```

5. Press the **On/Off** switch to turn off the NASRaQ.

Resetting Network Configuration

The "Reset Network" function resets:

- The hostname
- IP address
- Netmask
- Gateway
- DNS information for both network interfaces (Primary and Secondary)

Resetting the NASRaQ returns it to its factory default settings. This function may be useful if you're moving the NASRaQ to a new network.

To reset the NASRaQ's network state:

1. From the LCD console, hold down the **Select** button for approximately 2 seconds.

   The LCD screen displays:

   ```
   SELECT:
      SETUP NETWORK
   ```

2. Press the **Select** button three times until `RESET NETWORK` appears in the LCD display:

   ```
   SELECT:
      RESET NETWORK
   ```

3. Press the **Enter** button.
4. Use the LCD control buttons to toggle the cursor between [Y] and [N]. Select [Y] to reset the network configuration.
5. After resetting, the NASRaQ powers down and the LCD displays:

   ```
   PLEASE SWITCH
   POWER OFF NOW
   ```

Product Specifications

Technical Data for the Cobalt NASRaQ

Hardware Specifications

64-bit superscalar processor

32-MB to 64-MB 3.3V DRAM EDO SIMMs (2 slots)

Internal Ultra ATA hard drive

10/100 Base-T Ethernet network interface

LCD panel for easy set-up and administration

External SCSI port (50 pin, Ultra)

Serial console interface

Software Specifications

Software features:

Microsoft (SMB), Macintosh (Appleshare, AppleshareIP) and UNIX (NFS) compatible file services

RAID 0 (striping) and RAID 1 (mirroring) support

Integration into existing NT domain

User, group and share based security

Network-based backup (Legato compatible)

Linux 2.0 multitasking operating system

Apache 1.3.3 web server, HTTP/1.1-compliant

DHCP client for IP assignment

System management:

SNMP management support

Browser-based setup wizard

Browser-based server management

Online ActiveAssist real-time help

ActiveMonitor maintenance agents

Advanced management using Telnet

Web-based performance and usage reporting

Browser-based software upgrade

Physical Data

Dimensions: 17.00 in. x 12.50 in. x 1.75 in. (43.2 cm x 31.8 cm x 4.5 cm. Fits in standard 19" rack).

Weight: 11 lbs (5 kg)

Power requirements: Input rating 100-240 V, 50/60 Hz

Operating environment: 32° to 108°F (0°to 40°C), 10% to 90% humidity (non-condensing)

Non-operating environment: 14° to 122°F (-10°to 50°C), 5% to 93% humidity (non-condensing)

LEDs: Power, Transmit/Receive, Link, Collision, 100 Mbit Operation, Disk Activity, Web Activity

Regulatory approval: FCC Class B, VCCI-B, UL, C-UL, TUV, CE

Requirements:

10 Base-T or 10/100 Base-TX Ethernet Network

TCP/IP

Netscape Navigator or Microsoft Internet Explorer, Version 4.0 or later

Advanced Information

Resetting the Admin Password

If you forget the NASRaQ administrator password, you can clear it by following these steps:

1. Push and hold a paper clip in the Reset Password port (on the front of the NASRaQ). Hold the button in for approximately 2 seconds.

   The LCD screen displays:

   ```
   RESETTING ADMIN
      PASSWORD
   ```

Caution: After you clear the password, enter a new one as soon as possible, to protect the security of the NASRaQ — otherwise, at this point, anyone on the network can assign the administrator password. Follow the steps below to enter a new password.

2. In your Web browser, enter the URL http://*IP address*/admin/ to access the Administrator Site.
3. If a prompt appears asking for a username or password, enter "admin" as the username, and enter any name or word as the password.
4. Click **Users** on the left side of the screen.
5. Click **Administrator** at the top of the screen.
6. In the Administrator Settings table, enter a new password (twice).
7. Click **Save Changes**.

Changing the Admin Password from the Browser

If you know the administrator password and want to change it, follow these steps:

1. Go to the Administrator Site.
2. Click the **Users** button on the left side of the screen.
3. Click the **Administrator** button at the top of the screen.
4. Enter the new password.
5. Click **Save Changes**.

Telnet Access

Telnet access is available and should be used by advanced users only. It is possible to adversely affect the performance of your NASRaQ if you modify your system's configuration files.

Note: Only the "root" user can telnet into the NASRaQ.

The Access Rights section under the control panel gives you two options for controlling telnet access. The first option allows you to disallow telnet access. This is the most secure and safest option for the NASRaQ. The second option limits telnet access to the "root" user only. This option poses security risks, but it allows the system administrator to configure options supported by the Linux operating system that cannot be configured through the web-based administration user interface.

If you plan to use telnet access, Cobalt recommends that you use the control panel to grant telnet access when you are using it and then disable access when you have finished.

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The Cobalt NASRaQ includes software developed by the Apache Group for use in the Apache HTTP server project (http://www.apache.org/).

Glossary

10/100 Base-TX
Refers to running Ethernet on twisted pair cables, with a throughput of 10 or 100 Mbps.

AppleShare
File-sharing protocol used on Macintosh computers.

Backup Domain Controllers (BDC)
The BDC operates in a Windows NT Server domain. The BDC is a computer running the Windows NT Server that receives a copy of the NT domain's users and groups database, which contains all account and security policy information for the domain. The copy is synchronized periodically and automatically with the master copy on the primary domain controller (PDC). BDCs also authenticate user logons and can be promoted to function as PDCs as needed. Multiple BDCs can exist on an NT domain.

Domain name
The InterNIC name of an organization or other entity on the Internet. For example: *www.cobaltnet.com* locates an Internet address for *cobaltnet.com* at a particular IP address and a particular host server named *www.*

Domain Name Service (DNS)
The Internet service responsible for translating and associating text-based hostnames such as cobaltnet.com into numeric IP addresses (192.168.25.77) for TCP/IP communications.

Ethernet
The most widely used local area network technology. Standard Ethernet runs at 10-100 million bits per second (100 Mbps) and balances speed, price, ease of installation, and availability.

File sharing
The public or private sharing of computer data or space in a network with various levels of access privileges.

Gateway

A network device that acts as an entrance to another network. A gateway may also be any device that passes packets from one network to another network across the Internet.

HTML

HyperText Markup Language (HTML) is the set of “markup” tags, symbols, or codes inserted in a text file intended for display on a world wide web browser. The markup tells the web browser how to display a web page's content, words, and images.

HTTP

The HyperText Transfer Protocol (HTTP) is a set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the world wide web.

Internet domain

An Internet domain is a host naming convention used to ensure that no two individual hosts on the global Internet have the same hostname. An Internet domain should not be confused with an NT Domain. See NT Domain.

InterNIC

The organization responsible for registering and maintaining the com, edu, gov, net, and org domain names on the world wide web.

IP address

A 32-bit number that identifies each sender or receiver of information that is sent in packets across the Internet such as (192.168.25.77).

Leased IP addresses

IP addresses assigned by DHCP to unrecognized computing devices. This method involves setting up a leased pool of IP addresses that are allocated when new devices are booted and recognized on the network.

MAC address

The media access control (MAC) address is your computer's unique hardware number.

Mirroring

RAID level 1, or mirroring provides redundancy by writing identical data to each member disk of the array, leaving a "mirrored" copy on each disk. Mirroring remains popular because of its simplicity and high level of data availability. Level 1 operates with two or more disks that may use parallel access for high data-transfer rates when reading, but more commonly operate independently to provide high I/O transaction rates. Level 1 provides very good data reliability and improves performance for read-intensive applications but at relatively high cost.

NT domain

An NT domain is an administrative grouping of hosts on a WIndows Network which supports a centralized administration of user accounts.

NT domain integration

The process on the NASRaQ where user accounts are kept in sync with an NT PDC.

Packet

The unit of data that is routed between an origin and a destination on the Internet or any other packet-switched network.

Primary Domain Controller (PDC)

In a Windows NT Server domain, the PDC is the computer running Windows NT Server that authenticates NT domain logons and maintains the directory database of users and groups for an NT domain. The PDC tracks changes made to accounts of all computers on a domain. It is the only computer to receive these changes directly. A NT domain has only one PDC. The PDC may keep multiple BDC's and NASRaQ's synchronized.

RAID

Redundant Array of Independent Disks (RAID) technology satisfies mass storage and high availability requirements for general purpose data processing, database and file server applications. See also striping (RAID level 0) and mirroring (RAID level 1).

Server

A system program that awaits and services requests from client programs across a network.

Share

A *share* is a shared directory that's accessible via the network. Each share on the NASRaQ is simultaneously accessible to both Windows and Macintosh clients if enabled. Each share can have a unique set of access controls.

SMB

The Server Message Block (SMB) protocol enables client applications in a computer to read and write to files on a computer network and to request services from server programs in a computer network for systems running Windows.

Striping

RAID level 0, often time called "striping", is a performance-oriented striped data mapping technique. That means the data being written to the array is broken down into strips and striped across the member disks of the array. This provides high I/O performance at low inherent cost but provides no redundancy.

Subnet mask (netmask)

A number that, in conjunction with an IP address, defines the set of IP addresses that are considered "local." For example, if your IP address is 192.168.25.77 and your subnet mask is 255.255.255.0, then addresses between 192.168.25.1 and 192.168.25.255 are considered local.

Swap file

A space on a hard disk used as the virtual memory extension of a computer's real memory (RAM). Having a swap file allows your computer's operating system to pretend that you have more RAM than you actually do. The least-recently-used files in RAM can be "swapped out" to your hard disk until they are needed later so that new program segments or data can be "swapped in" to RAM.

TCP/IP

The Transmission Control Protocol/Internet Protocol (TCP/IP) is software that enables computers and networks to connect to an intranet or Internet.

Virtual (or logical) memory

A concept that allows programmers to use a large range of memory or storage addresses, more than physically exists on the system, for stored data.

WINS Server

WINS (Windows Internet Naming Service) manages the association of workstation names and locations with Internet Protocol addresses (IP addresses) without the user or an administrator having to be involved in each configuration change. WINS automatically creates a computer name-IP address mapping entry in a table, ensuring that the name is unique and not a duplicate of another computer name in the same network.

When a computer is moved to another geographic location, the subnet part of the IP address is likely to change. Using WINS, the new subnet information will be updated automatically in the WINS table. WINS complements the NT Server's Dynamic Host Configuration Protocol (DHCP), which negotiates an IP address for any computer (such as your workstation) when it is first defined to the network. If you're a computer user on a network connected to a Windows NT Server, you may find WINS mentioned in some of your network-related programs or system messages.

Microsoft provides a detailed explanation of WINS and DHCP on its web site in a white paper named, “Windows NT Server: Dynamic Host Configuration Protocol and Windows Internet Naming Service.”

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