Cobalt RaQ™ 3

User Manual

COBALT
NETWORKS

Important Safeguards

For your protection, please read all these instructions regarding your Cobalt RaQ™ 3 and retain for future reference.

1. Read Instructions

Read and understand all the safety and operating instructions before operating the appliance.

2. Ventilation

The Cobalt RaQ 3's vents (on the front) and the fan opening(s) (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.

3. 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. There are 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.

Français

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la pile. Remplacer uniquement avec une pile du même type ou d'un type equivalent recommandé par le fabricant. Mettre au rebut les piles usagées conformement aux instructions du fabricant.

Deutsch

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

4. Power Cord

English

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

Français

Attention: Le cordon d'alimentation sert d'interrupteur général. La prise de courant doit être située or installée à proximité du matériel et offrir un accès facile.

Deutsch

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

5. Electrical Shock

To reduce the risk of electrical shock, do not disassemble this product. Take it to a qualified service person when service or repair work is required. Opening or removing covers may expose you to dangerous voltage or other risks. Incorrect reassembly can cause electric shock when this product is subsequently used.

6. Operating the unit in an equipment rack

If you plan to install the Cobalt RaQ 3 in an equipment rack, take the following precautions:

(a) Ensure the ambient temperature around the Cobalt RaQ 3 (which may be higher than the room temperature) is within the limits specified in Appendix B. See "Physical data" on page 137.

(b) Ensure there is sufficient air flow around the unit.

(c) Ensure electrical circuits are not overloaded; consider the nameplate ratings of all the connected equipment and ensure you have overcurrent protection.

(d) Ensure the equipment is properly grounded, particularly any equipment connected to a power strip.

(e) Do not place any objects on top of the Cobalt RaQ 3.

7. Browsers

Both Netscape Navigator® and Microsoft® Internet Explorer have bugs that can cause intermittent, unexplained failures. When using a Web browser to interact with your Cobalt RaQ 3, you may occasionally experience a browser failure. Released product versions of the browsers are usually more reliable than beta versions, and later versions work the most reliably. A browser program failure, although annoying, does not adversely affect your Cobalt RaQ 3's data. The Cobalt RaQ 3 has been tested with both Netscape Navigator and Microsoft Internet Explorer, versions 4 or higher.

Regulations and Information

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 can void the user's authority to operate this equipment.

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

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Introduction

The Cobalt RaQ™ 3 is a third-generation server appliance that provides a dedicated web-hosting platform and offers new capabilities for high-traffic, complex web sites and e-commerce applications.

The RaQ 3 server appliance offers a full suite of Internet services with remote administration capabilities, pre-packaged in a single rack-unit (1RU) industry-standard enclosure. The RaQ 3 is pre-configured with Apache web server, Sendmail, File Transfer Protocol (FTP) server, Domain Name System (DNS), the Linux operating system and FrontPage Server extensions. The RaQ 3 further enhances the service suite by offering bandwidth management, pre-packaged Secure Sockets Layer (SSL), enhanced backup support and comprehensive site usage reporting.

The RaQ 3 provides tight integration with partner products. The RaQ 3 also offers several hardware enhancements over its predecessor: a Peripheral Component Interconnect (PCI) expansion slot, support for an uninterruptible power supply (UPS), a faster Small Computer System Interface (SCSI), a faster central processing unit (CPU) and more headroom for an extra hard disk and RAM.

The RaQ 3 provides a complete solution for virtual site hosting, Web publishing, file transfer, email and third-party applications:

- Access to a broad range of Web and file transfer protocol (FTP) publishing capabilities. The RaQ 3 supports the common gateway interface (CGI) using Perl scripting (or the language of your choice) for creating interactive applications on the Web.

- Support for multiple Internet or intranet sites. You can host one or several distinct sites for separate clients or projects. The RaQ 3 provides comprehensive support for the three most popular Internet services — Web, FTP and email.

- Internal and external communication through email to individuals and groups. In addition to standard individual email, the RaQ 3 email services include automatic response to messages when a user is on vacation and automatic forwarding to another email address.

- Flexible platform for the development of solutions, including the development of third-party applications.

All of these services can be used within an extranet or an intranet environment, or across the Internet.

General

Figure 1 and Figure 2 show all the RaQ 3 controls, indicators and connectors.

Front view of the RaQ 3

Figure 1   RaQ 3 front view
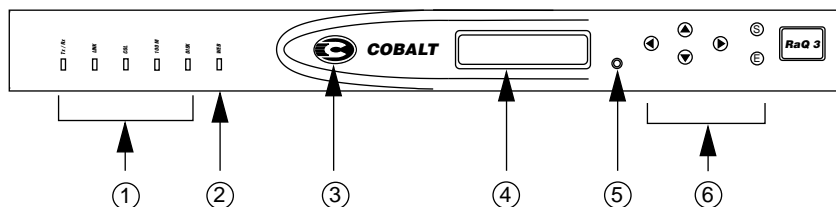
1.   The **Status Indicators** signal Ethernet and hard drive activity:

> **Tx/Rx** (Transmit/Receive) blinks when there is network traffic on the primary interface.
>
> **Link** indicates an active network connection on the primary interface.
>
> **Col** blinks when a collision is detected on the primary interface.
>
> **100 M** indicates that 100 BaseT Ethernet is being used on the primary interface.
>
> **Disk** indicates hard disk activity on the primary hard disk drive.

2.   The **Web** indicator blinks to indicate Web activity.

3.   The **Logo Badge** glows when the RaQ 3 is powered on.

4.   The **LCD screen** displays messages and values entered. Use the arrow buttons to toggle between choices or to enter values. (See "Using the LCD console to configure the network" on page 20.)

5.   You can use the recessed **Reset Password** button if you forget the RaQ 3 Administrator password. (See "Resetting the RaQ 3 Administrator password" on page 46.)

6.   The **LCD arrow buttons** allow you to enter network configuration information, configure a UPS unit, reboot the RaQ 3 and power down the RaQ 3.

Rear view of the RaQ 3

Figure 2   RaQ 3 rear view
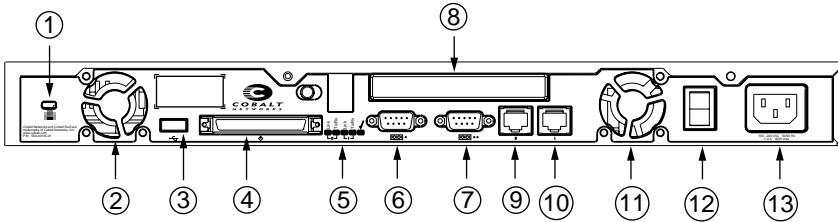
1.   The **Security lock hole** is used to lock the unit to a secure location.

2.   The **Cooling fans** maintain proper operating temperature. Ensure that the ventilation holes are not blocked.

3.   The **USB port** provides a Universal Serial Bus connection (optional)

4.   The **SCSI connector** enables a Small Computer System Interface (SCSI) connection for connecting such devices as hard drives. The SCSI connector is optional.

5.   The **Network status indicators/OK to Power Off** signal network activity and information. The **OK to Power Off** light flashes when it is safe to turn the power off.

6.   The **Serial console port** allows you to connect serial devices.

7.   The **Serial connector** allows you to connect a UPS to the serial port for Smart UPS support.

8.   The **PCI expansion slot** provides space for adding a PCI card.

9.   The **Network connectors** enable Ethernet network connections and accept the 10/100 BaseT network cables.

     Network connection 2 (optional)

10. **Network connection 1**

11. **Cooling fan**.

12. The **Power switch** toggles the power on or off.

13. The **Power socket** receives the AC cord that is provided.

RaQ 3 requirements

To use the RaQ 3, you need:

• A 10BaseT, 10/100BaseTX or 100BaseTX Transmission Control Protocol/Internet Protocol (TCP/IP) -based local area network (LAN).

• A personal computer (attached to the network) that uses a Web browser (Netscape Navigator or Microsoft Internet Explorer, versions 4.0 or later). To manage the RaQ 3 from the user interface (UI), your browser must have Java and Javascript enabled.

• Network parameters, which you can obtain from your system or network administrator; these include the RaQ 3's assigned IP address, the subnet mask of your network and a gateway/router address (if communicating with other networks).

Target audience for the RaQ 3

The user manual is for RaQ 3 Administrators who use the RaQ 3 to develop and host Web sites. RaQ 3 Administrators should be familiar with Microsoft® Windows™, Macintosh® or other operating systems, and Netscape Navigator®, Microsoft® Internet Explorer or other Web browsers.

Developers can contact the Business Development group at Cobalt Networks (bd@cobalt.com) for information about developing solutions on the RaQ 3.

A RaQ 3 can host multiple Internet or intranet sites, which can provide Web content, email and FTP services. It can be used by three different kinds of users:

- The *RaQ 3 Administrator* is the person who controls and runs the RaQ 3. This person sets up and maintains the RaQ 3, sets up virtual sites and sets access privileges and provides services for the Site Administrators and site users. The RaQ 3 Administrator can also act as the Site Administrator for any virtual site.

> **Note:** Whereas industry uses the term "virtual host", Cobalt Networks uses the term "virtual site". In Cobalt's definition, a virtual site consists of a Domain Name System (DNS) domain with web, ftp and email services. Each virtual site contains its own list of site user accounts. Each site user account has its own web, email spool and any number of email aliases. The fully qualified domain name of a virtual site is unique to that site, while its IP address can be shared by many sites. For more information, see "Definition of a virtual site" on page 34.

- The *Site Administrator* manages a virtual site, located on the RaQ 3, that can provide Web publishing, email and FTP services for the users of the site. The Site Administrator sets up user accounts and access privileges, maintains mailing lists, controls the settings for the virtual site and its FTP service, has access to users email settings, can generate reports about the virtual site's disk and Web usage, and can back up and restore files residing on the site.

- *Site users* can send and receive email through the site, upload and download files using the FTP service provided by the site, publish Web pages on the site and back up and restore their home directories.

Organization of the user manual

The user manual is organized according to the user interface (UI). Chapter 3, "RaQ 3 Server Management," is based on the **Server Management** screen with the brown border on the left side. See Figure 3.

Chapter 4, "Site Management," is based on the **Site Management** screen with the green border on the left side. See Figure 4.

Chapter 5, "Using Services on a Site," is based on the **Personal Profile** screen with the blue border on the left side. See Figure 5.

Figure 3   Server Management screen
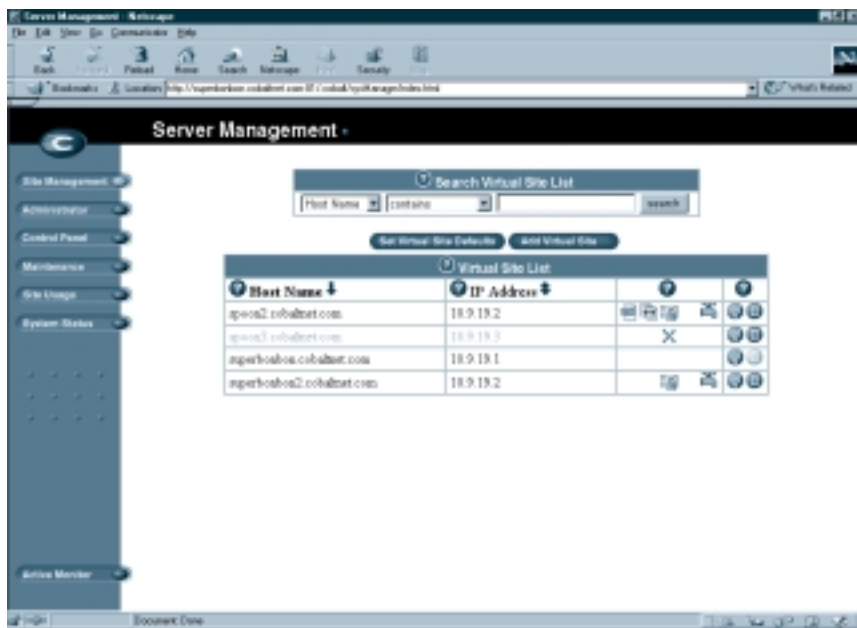
Figure 4   Site Management screen

Figure 5   Personal Profile screen
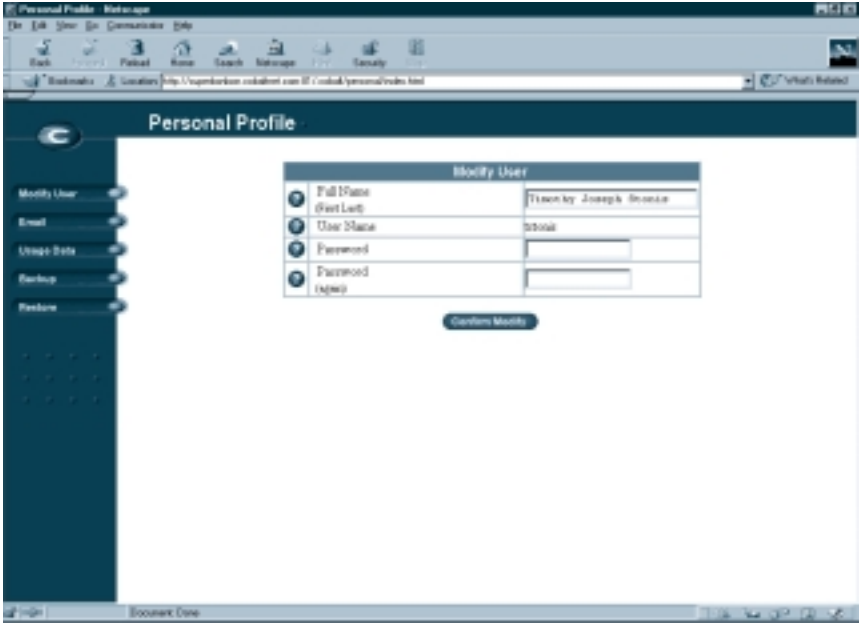
List of chapters and appendices

The manual has the following chapters and appendices.

Icons used on the UI and in the manual

Table 1 describes the icons used on the browser-based User
Interface (UI) and in this manual. If you pass the mouse pointer over an
icon, a short help message appears.

Table 1   Icons used in the manual and UI

Icon	Description
	WebServer Only in the Service Settings table of Control Panel on the **Management Screen**. WebServer is always on.
	Simple Network Management Protocol (SNMP) Only in the Service Settings table of Control Panel on the **Management Screen**.
	Legato/Arkeia file backup Only in the Service Settings table of Control Panel on the **Management Screen**.
	Domain Name System (DNS) Only in the Service Settings table of Control Panel on the **Management Screen**.
	FrontPage Server extensions In the Virtual Sites List on the **Server Management** screen; indicates that FrontPage server extensions are enabled on the virtual site.
	Telnet In the Virtual Sites List on the **Server Management** screen; indicates that telnet is enabled on the virtual site.
	Bandwidth limit In the Virtual Sites List on the **Server Management** screen; indicates that a bandwidth limit is enabled on the virtual site.
	Secure POP3 (APOP) In the Virtual Sites List on the **Server Management** screen; indicates that Secure POP3 is enabled on the virtual site.
	Secure Sockets Layer (SSL) In the Virtual Sites List on the **Server Management** screen; indicates that SSL is enabled on the virtual site.
	Anonymous file transfer protocol (FTP) In the Virtual Sites List on the **Server Management** screen; indicates that Anonymous FTP is enabled on the virtual site.

Icon	Description
	Modify In the Virtual Sites List on the **Server Management** screen; used to modify the settings for a virtual site.
	Modify In the Users List on the **Site Management** screen; used to modify the settings for a site user.
	Delete In the Virtual Sites List on the **Server Management** screen; used to delete a virtual site from a RaQ 3. In the Users List on the **Site Management** screen; used to delete a site user from a virtual site.
	Email In the Users List on the **Site Management** screen; used to modify the email settings for a site user.
	Site Administrator In the Users List on the **Site Management** screen; indicates that the user is the Site Administrator for the virtual site.
	Suspension In the Virtual Sites List on the **Server Management** screen; indicates that a virtual site has been suspended by the RaQ 3 Administrator. In the Users List on the **Site Management** screen; indicates that a user has been suspended by the Site Administrator.

Customer Service and Technical Support

For Cobalt product information, visit the support section of the Cobalt Web site at http://www.cobalt.com/support/. The site includes a Knowledge Base that customers can query; a list of Frequently Asked Questions (FAQs) that provide additional information is also available through the Knowledge Base.

General Cobalt information

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

Outside the U.S.A., call +1 650 623-2500, or send email to info@cobalt.com.

In Europe, call +31 70 517 6375, or send email to info-europe@cobalt.com.

In Japan, send email to info-japan@cobalt.com.

Cobalt Technical Support and Service

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

Outside the U.S.A., call +1 650 623-2679, or send email to support@cobalt.com.

In Europe, send email to support-europe@cobalt.com.

In Japan, send email to support-japan@cobalt.com.

Further information

Cobalt also offers other information resources.

Discussion Groups Cobalt has made available a user's list discussion group for users to share information. To subscribe to the user list, send a message to **majordomo@cobalt.com** with
"subscribe cobalt-users <your email address>" in the body of the message.

The Knowledge Base Cobalt offers access to its online database of common installation and configuration problems and solutions. You can access the site at http://kb.cobalt.com/ .

Online technical papers For customers looking for more in-depth technical information, there are a number of technical papers available on Cobalt Networks' web site at http://www.cobalt.com/support/ . The technical papers cover, among others, such topics as:

- disaster recovery for a RaQ 3 system

- hardware and software information gestalt that tells you about hardware elements and software features.

- Java support for Java Run-time Environment version 1.2 from Sun Microsystems (ported to the x86 architecture by the Java-Linux Porting Team at http://www.blackdown.org)

Solutions For customers looking for business-case information concerning Cobalt products, there are also a number of white papers available on Cobalt's Web site at http://www.cobalt.com/solutions/ .

Developers If you are a software or hardware developer, look for information at http://www.cobalt.com/partners/ .

Before contacting Cobalt Networks Technical Support

First, make an effort to resolve the problem on your own. Take note of all actions you perform and any error messages so that, if necessary, you can describe them to a member of the Technical Support team.

Refer to the user manual and to the Web-based resources such as Cobalt's Knowledge Base, the online technical papers and the Solutions page, as described above.

To speed up your support call

When contacting Cobalt Networks Technical Support, the more information you can provide, the better. Before you call or email, have the following information ready.

- any additional software installed on your system

- the serial number, located on the back panel, or the MAC address, accessible through the user interface, of your RaQ 3 (this is optional).

- any peripherals connected to your system

- a hard copy of any error messages you have received and the time when they occurred

- what process you were running or what changes you had made when the error occurred

- what steps you have taken to resolve the problem

Support tools feature

The Support Tools feature is a Web page that assists Technical Support in diagnosing problems on a RaQ 3 unit.

On the **Server Diagnostics** screen, the RaQ 3 Administrator can create and download a data dump of the configuration files on the RaQ 3. This data dump can then be emailed to diagnostics@cobalt.com. A member of the Technical Support team can evaluate the condition of your RaQ 3 before providing you with corrective action, either by telephone or email.

If the RaQ 3 Administrator is familiar with Linux, he or she can look through this file in an effort to determine the problem with the RaQ 3. The file is a standard gzip file.

For more information on the Support Tools feature, see "Support tools" on page 70.

Chapter 1

Setting up the RaQ 3

This chapter guides you through the process of connecting and configuring the RaQ 3 for your network. A typical setup process takes less than 15 minutes, after which you can begin setting up web sites and using other RaQ 3 services.

If the RaQ 3 has been previously configured for a different network, refer to "Changing network configuration" in Appendix A.

The setup process consists of two phases.

- "Phase 1: Making the connection" covers the physical setup and connection of the RaQ 3 to a power source and the network.

- "Phase 2: Setting up with the Web browser" covers the network integration process and allows the administrator to select services and create users and groups, using any browser-enabled computer.

Phase 1: Making the connection

Installing the RaQ 3

The RaQ 3 can either be placed on a flat surface — for example, a desk, shelf or table top — or it can be connected to a standard 19-inch equipment rack.

Caution: If you operate the RaQ 3 in an equipment rack, see the precautions described in "6. Operating the unit in an equipment rack" on page iv.

If you plan to use the RaQ 3 on a flat surface, attach the rubber feet to the five indentations in the bottom of the case; see Figure 6.

Figure 6   Rubber feet for the RaQ 3.
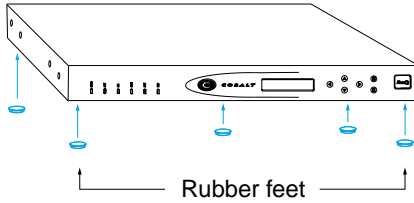
If you plan to operate the RaQ 3 in an equipment rack, first connect the mounting ears to the sides of the RaQ 3 (see Figure 7), near either the front or the rear of the case. Attach the ears to the equipment rack.

Figure 7   Mounting ears for the RaQ 3.
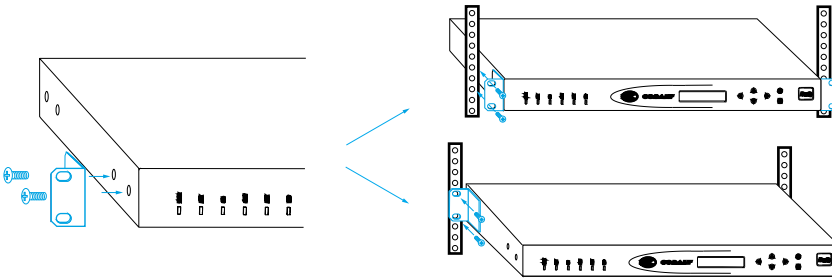
Connecting to the network

Connect one end of a Category 5 Ethernet cable to the
10/100 Base-T Network 1 connector on the RaQ 3; see Figure 8.
Connect the other end of the cable to an existing network socket.

Figure 8   Network connectors

Network connection 2 (optional)

Network connection 1
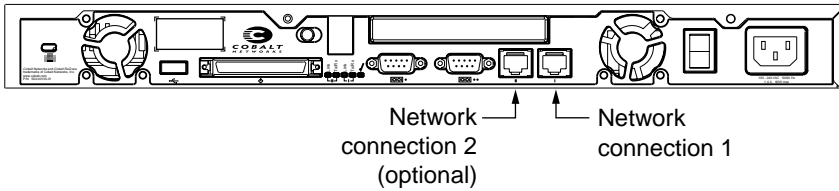
Connecting the power cord

Connect the power supply cord to the RaQ 3 and to an electrical outlet
(100-240 volts AC, 50/60 Hz, as listed in "Product Specifications" on
page 135).

Powering on the RaQ 3

Turn on the power by pressing the **On/Off** switch on the back of the
RaQ 3.

The hard disk spins up, the fan turns on, and the LCD screen lights up.
The Cobalt logo and the Cobalt Networks name scroll across the screen.

A number of status messages are displayed on the LCD screen as the
RaQ 3 completes its boot process.

> ⚠
>
> **Caution:**   It's important to follow the proper power-down
> procedure before turning off the RaQ 3. Refer to "Powering
> Down" in Appendix A.

Configuring the RaQ 3 for the network

Now that you have made the network and power connections, you can configure the network settings.

The RaQ 3 requires specific network information to function properly. You must enter the necessary information using the LCD console on the front panel.

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

- The IP address assigned to the RaQ 3

- The subnet mask of your network

- The gateway/router address (necessary only if communicating with other networks)

Using the LCD console to configure the network

Figure 9 shows the LCD console for the RaQ 3.

The LCD screen on the front of the RaQ 3 displays two lines of text. The top line of the LCD presents instructions on data to enter; the bottom line displays the data already entered. Use the arrow buttons to the right of the LCD screen to enter the required network information manually

Appendix A, "Using the LCD Console" on page 129, provides more information about the LCD console.

Figure 9   LCD console

LCD screen   LCD arrow buttons
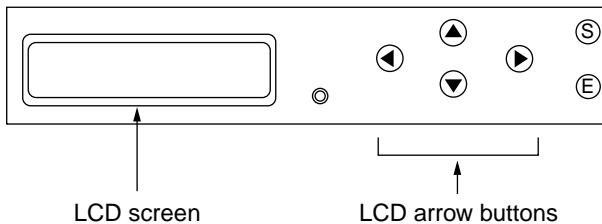
The arrow buttons function as follows:

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

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

The **Up** arrow button increases the digit located at the cursor position.

The **Down** arrow button decreases the digit located at the cursor position.

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

The **E** button ("enter") accepts the information entered or the option displayed.

Setting the configuration

During setup, the LCD console is used to enter network configuration information on the RaQ 3.

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 RaQ 3 using the arrow buttons on the LCD console.

2. Press (E).

    If the IP address is valid, the next prompt appears:

    ```
    ENTER NETMASK:
    255.000.000.000
    ```

3. Enter the netmask of your network.

4. Press (E).

    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 does not have a gateway, do not enter a number —
   leave the default value, "000.000.000.000."

6. Press (E).

   The LCD displays:

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

7. To save the configuration information, use the left and right arrow
   buttons to select [S]ave, and then press (E). You'll see:

   ```
   VERIFYING AND SAVING
   ```

   Note: Selecting [C]ancel cancels the configuration and the
   LCD screen displays `ENTER IP ADDR:` again. You must go
   through the entry process again.

After verifying and saving, the RaQ 3 completes the boot process. The
LCD screen shows several messages before displaying the IP address
assigned to the RaQ 3.

Configuration is complete when the LCD screen displays the IP address
assigned to the RaQ 3, for example:

```
IP ADDRESS:
192.168.25.77
```

Phase 2: Setting up with the Web browser

The remainder of the setup process is performed through a Web browser
on any computer on your network. Use one of the standard browsers
available (for example, Netscape Navigator or Microsoft Internet
Explorer, versions 4.0 or later) to do this. Once the setup process is
complete, the RaQ 3 can be managed from any computer on the network
that has a browser.

To use a browser to set up the RaQ 3, follow these steps:

1. Launch a standard Web browser on any computer connected to the
   network.

2. Enter the IP address of the RaQ 3 (shown on the LCD screen on the
   front panel) into the URL field of your browser — for example:

   Location: http://192.168.25.77

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

If the RaQ 3's network settings were configured successfully, then the Cobalt welcome screen appears; see Figure 10.

Click the **Start** button to begin using the Setup Wizard.

Figure 10   RaQ 3 Welcome screen
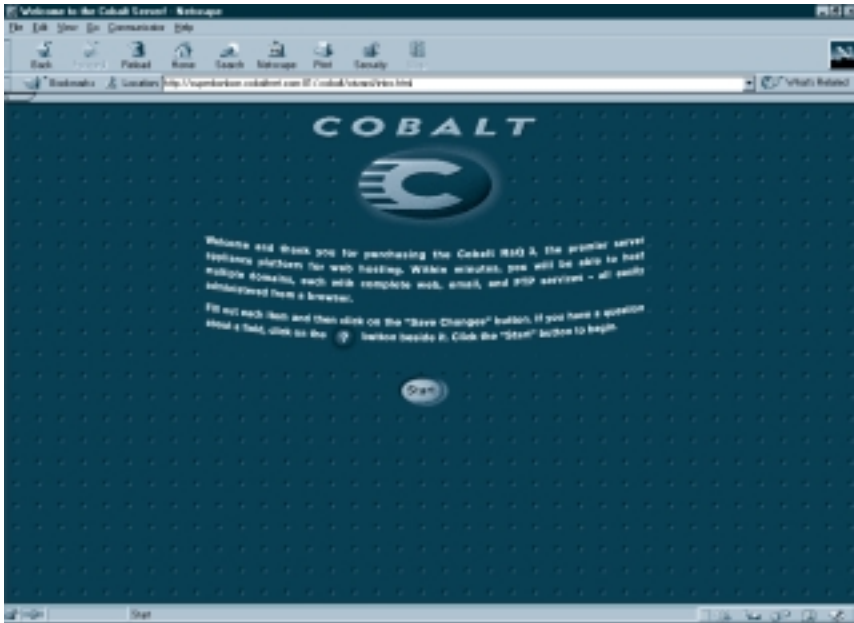
Configuring the RaQ 3 with the Setup Wizard

To configure the RaQ 3, enter information into the fields on the **Setup Wizard** screen (see Figure 11). These fields are described in the sections that follow.

> **Note:** For help with a particular field in the Setup Wizard, move the pointer over the Active Assist ⬛ icon adjacent to the field and help text is displayed at the bottom of the screen.

Figure 11   Setup Wizard (part 1 of 2)

Entering the network settings

Cobalt server name (host name). This is a name you assign to the RaQ 3 — for example, raq1.

Domain name. This is the official name that is registered with InterNIC — for example, yourdomain.com. The host name and domain name must be coordinated by the network administrator in order for you to access the RaQ 3 by its name and not just by its IP address.

Primary DNS Server Address. This is the IP address of your primary domain name system (DNS) server. A primary DNS server maintains a list of computer names and their IP addresses. The RaQ 3 needs access to this list on the primary DNS server in order to convert between IP addresses and names. This conversion is essential for sending and receiving email external to the RaQ 3.

Secondary DNS Server Address. This is the IP address of your secondary DNS server. A secondary DNS server can provide redundant DNS service to your computers. If the primary DNS server is turned off, then your RaQ 3 can use the secondary DNS server with no loss of performance.

For informational purposes, this table also displays the IP address of the RaQ 3, the subnet mask of your network, your configured gateway and the Media Access Control (MAC) address that uniquely identifies this RaQ 3. These settings, with the exception of the MAC address, can be changed later (through the browser) from the Control Panel section of the **Server Management** screen.

Entering the administrator settings

In the Administrator Settings table, enter the information about the RaQ 3 Administrator. The RaQ 3 Administrator has several responsibilities:

1. Setting up and maintaining the RaQ 3, virtual sites, virtual Site Administrators, site users and services

2. Responding to RaQ 3 email alerts to prevent potential problems

To set up the RaQ 3 Administrator, you must enter a password in the Administrator Password field and then enter the same value again in the second Administrator Password field. Use the following guidelines when choosing a password:

1. Use more than five alphanumeric characters.

2. Use both upper- and lower-case letters.

> **Note:** A password is case-sensitive.

3. Do not use a proper name.

4. Do not use a word found in a dictionary.

5. Do not use a date.

6. Do not use a command word.

7. Do not use a string of consecutive keys on a keyboard (for example, "qwerty").

Be sure to remember this password to access the RaQ 3's management administration features in the future. If you forget or want to reset the password, see "Resetting the RaQ 3 Administrator password" on page 46.

Entering the service settings

You turn the RaQ 3 services on or off through the Service Settings table. See Figure 12. The default settings for these services are suitable for most users. These services include:

- Email server (default is On)

- File transfer protocol (FTP) server (default is On)

- Telnet server (default is On)

- Simple Network Management Protocol (SNMP) agent (default is Off)

- Domain Name System (DNS) server (default is Off)

Figure 12   Setup Wizard (Part 2 of 2))
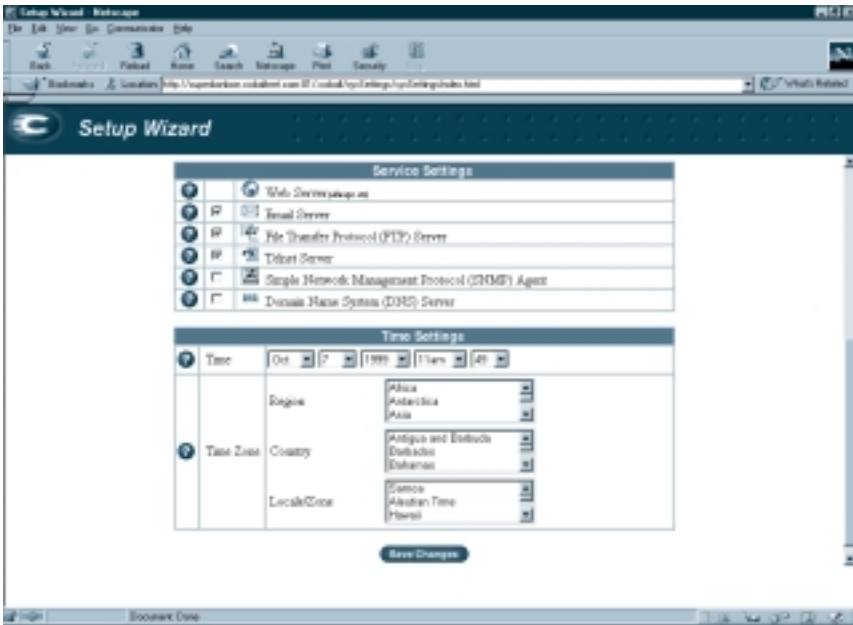
After setup has been completed, the Services page in the Control Panel has a "Parameters" column which enables further configuration. Refer to "Services" on page 75 for additional information.

Entering the time settings

In the Time Settings table, select the time and date with the pull-down menus. See Figure 12.

Select the correct time zone by clicking in the Region, Country and Locale/Zone fields.

Completing configuration with the Setup Wizard

When you have entered the information in the Setup Wizard, click **Save Changes**.

The RaQ 3 performs automatic checks on the information entered and alerts you if an illegal value or a problem is encountered. If the information is correct, the RaQ 3 enters the information in its configuration files.

Registering the RaQ 3 online

The RaQ 3 displays an online product registration page; see Figure 13.

> **Note:** If you are not connected to the Internet, you cannot register online.

> **IMPORTANT:** If you leave blank both the DNS and the Gateway fields in the Setup Wizard, you cannot register the RaQ 3 online because you will not be able to send email. In this case, if you attempt to register the RaQ 3 online, you receive an error message, stating that you cannot register online because you did not fill in the DNS and Gateway fields.

Figure 13   Online registration page
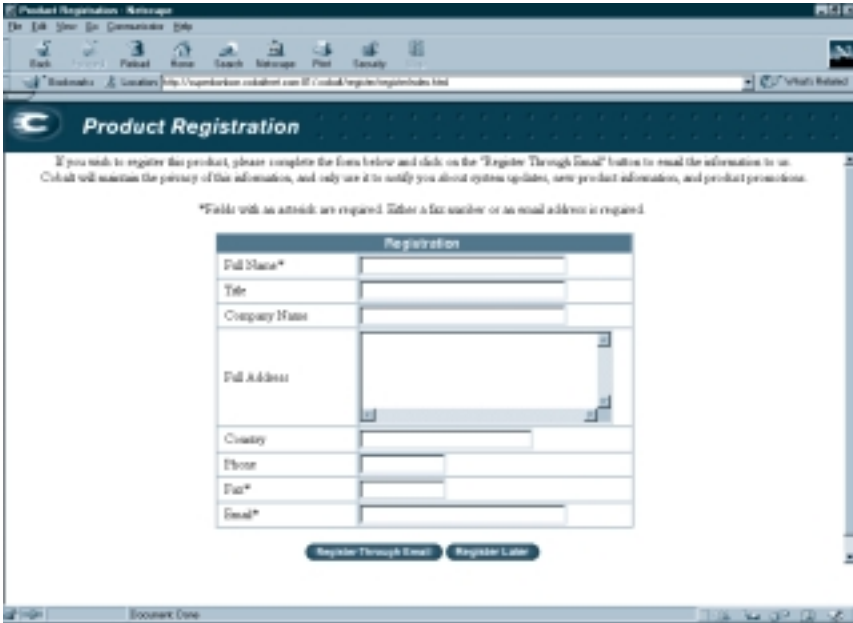
To register the RaQ 3 online:

1.   Enter your **Full Name**. This field must be filled in.

2.   As an option, you can enter your title, the company name, the company address, the country and the phone number.

3.   Enter either a **Fax** number or **Email** address.   One of these two fields must be filled in. If you choose email, enter your complete email address in the form xxx@yyyyy.zzz .

4.   Click **Register through Email** to submit the information.

If you do not want to register online, click **Register Later** to proceed to the RaQ 3 default home page.

Once you have registered the RaQ 3 online, you cannot register again. You receive an error window stating that the RaQ 3 has already been registered.

Registering online at a later time

If you want to register online at a later time:

1. Click the Cobalt logo in the top left corner of the screen. The Server Configuration Information table appears.

2. Click the **About The Product** link. The default home page for the RaQ 3 appears.

3. In the bottom right corner, click the link under **Product Registration**. The **Product Registration** screen appears.

4. Follow the steps in the previous procedure to register online.

The default home page for the RaQ 3 appears; see Figure 14 .

Figure 14   Default RaQ 3 home page

The default RaQ 3 home page is stored internally under index.html in the Linux directory `/home/sites/home/web`. This page appears when a user goes to the URL http://<IP address>/.

When the RaQ 3 Administrator changes the index.html file to create a new home page, the default RaQ 3 home page is replaced.

Registering the RaQ 3

If you did not register the RaQ 3 online, fill out the registration card included in the packaging materials and return it to Cobalt Networks, Inc. By doing so, you will receive notifications of system and security upgrades and new product information.

If you did not register online throught the Setup Wizard and would like to do so, see "Registering online at a later time" on page 29.

RaQ 3 Server Management

This chapter describes the functions that the RaQ 3 Administrator normally performs. The RaQ 3 administrator accesses these functions on the **Server Management** screen on the RaQ 3. The **Server Management** screen has a brown strip on the left side.

The RaQ 3 Administrator can also perform site-related tasks and user tasks described in Chapters 4 and 5. See "Site Management" on page 77 and "Using Services on a Site" on page 113.

Table 2 briefly summarizes the three types of RaQ 3 users:

Table 2   Levels of user

User	Description
RaQ 3 Admin	The RaQ 3 owner with the username "admin" has full control of the RaQ 3 and is a member of the main site (which uses the IP address shown on the LCD screen of the RaQ 3). The RaQ 3 can have several Site Administrators, but only one RaQ 3 Administrator.
Site Admin	The Site Administrator is designated by the RaQ 3 Administrator. The Site Administrator is a user who runs a virtual site located on the RaQ 3; the virtual site can provide Web publishing, email and FTP services for the users of the site. The Site Administrator has control only over this virtual site.
Site User	Site Users are added to a virtual site by the RaQ 3 Administrator or a Site Administrator. Site Users can send and receive email through the virtual site, upload and download files using the FTP service provided by the site, publish Web pages on the site, and back up and restore their home directories. The Site User has control only over the files located in his or her home directory on the RaQ 3.

Approaches to RaQ 3 administration

The RaQ 3 Administrator can decide how many of the server functions he or she wants to manage directly and how much to delegate.

- **Full control**. If the RaQ 3 Administrator wants to control all the functions on the RaQ 3, he or she can create virtual sites without assigning any virtual Site Administrators. The RaQ 3 Administrator is responsible for managing the main site and all the virtual sites. (See "Definition of a virtual site" on page 34.)

- **Hybrid control**. If the RaQ 3 Administrator wants to control some of the RaQ 3 functions and delegate others, he or she can assign some of the virtual sites to virtual Site Administrators (for the sites that have a user capable of acting as a Site Administrator), and retain control of virtual sites. The RaQ 3 Administrator is responsible for managing only the sites that do not have a Site Administrator.

- **Distributed control**. If the RaQ 3 Administrator wants to delegate responsibility for all the virtual sites, he or she can create Site Administrators for all the virtual sites. In this case, the RaQ 3 Administrator is responsible for managing only server settings and virtual site services. The Site Administrators are responsible for managing the virtual sites.

The RaQ 3 Administrator can manage the RaQ 3 using any standard browser. Access the **Server Management** screen by typing either http://<IP address> /admin/ or http://<host name> /admin/ into your browser. These web pages are password-protected — you must enter the RaQ 3 Administrator password.

When you access the RaQ 3 Administrator site for the RaQ 3, the **Server Management** screen appears (see Figure 15). This screen is used for the RaQ 3 management tasks that are performed only by the RaQ 3 Administrator:

1. Setting up and maintaining the RaQ 3.

2. Creating virtual sites.

3. Creating access privileges and providing services for the Site Administrators and site users.

The RaQ 3 Administrator functions available on the **Server Management** screen are described in the sections that follow.

Definition of a virtual site

Whereas industry uses the term "virtual host", Cobalt Networks uses the term "virtual site".

In Cobalt's definition, a virtual site consists of a Domain Name System (DNS) domain with web, ftp and email services. Each virtual site contains its own list of site user accounts. Each site user account has its own web, email spool and any number of email aliases. The fully qualified domain name of a virtual site is unique to that site, while its IP address can be shared by many sites.

With the advent of name-based virtual hosting, it is no longer necessary to dedicate an IP address to a virtual site. Apache can now differentiate among target virtual sites according to the name requested. Many virtual sites on the RaQ 3 can share one IP. Not all services are compatible with name-based virtual hosting. SSL encryption for Web data and an anonymous FTP account can only be enabled on one name-based virtual site per IP address hosted by the RaQ 3.

The IP address of the RaQ 3 can be shared by many virtual sites or it can be unique to one virtual site.

The RaQ 3 has one main site (which by default cannot be deleted) and virtual sites. The main site uses the IP address assigned to the RaQ 3 using the LCD console.

On the Server Management screen, the main site is listed in the Virtual Sites List table; the trashcan icon in the fourth column for the main site is grayed-out (disabled), as this site cannot be deleted from the list of virtual sites. The options and features available on a virtual site can also be configured for the main site.

Site management

The RaQ 3 is designed to host multiple virtual sites. A virtual site is an individual location on the Internet, such as www.abc.com or www.xyz.com. Each virtual site can have a unique set of users who can send and receive email, publish Web pages, or upload and download files through FTP. A virtual site can also provide anonymous FTP access.

> **Note:** A virtual site can be name-based or IP-based. If there are several name-based virtual sites on an IP address, only one name-based virtual site can use anonymous FTP.

The number of virtual sites that you can configure on a RaQ 3 depends on the size of the hard disk in the RaQ 3 and on the amount of disk space allocated to each virtual site.

There is a limit of 250 IP-based virtual sites.

In the Site Management section of the **Server Management** screen, the RaQ 3 Administrator can create and manage virtual sites hosted by the RaQ 3. A table displays the virtual sites (if there are any) on the RaQ 3. See Figure 15.

Figure 15   List of virtual sites in the Site Management section
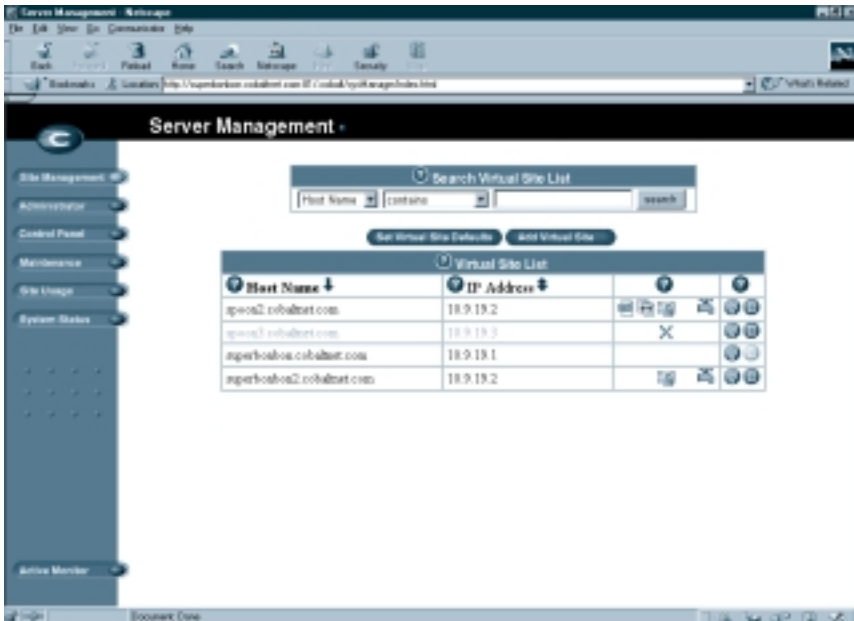
In the Site Management section, the Virtual Site List displays the virtual sites by host name in ascending order.

The Virtual Site List has four columns which display information about the site, and allow the RaQ 3 Administrator to manage or remove a site.

- The first column displays the host name of the virtual site.

- The second column displays the IP address of the virtual site.

- The third column displays icons to indicate which services (FrontPage Server extensions, Anonymous FTP, Secure POP3 [APOP], SSL or Bandwidth Limit) are enabled on a site, or to indicate that a site is suspended.

- The fourth column displays icons to manage a site or to remove a site.

> **Note:** The trashcan icon for the main site on the RaQ 3 is grayed-out (disabled), as this site cannot be deleted from the list of virtual sites.

For an explanation of the icons, see "Icons used on the UI and in the manual" on page 10.

Search and sort functions

The Virtual Site List table offers a search function and a sort function. See Figure 15. These functions are useful if you have a large number of virtual sites on your RaQ 3 and you want to restrict the display to certain virtual sites.

You can search the list of virtual sites according to the following criteria:

- by host name or IP address

- whether the host name or IP address is equal to the search string, is contained in the search string or is not contained in the search string

The screen regenerates and the results of the search are displayed in a table with the same four columns. The heading of the table now states "Search Results (<x> Virtual Sites found). To return to the full list of virtual sites, click **Site Management** on the left.

> **Note:** Suspended sites are listed in the search results.

You can sort the list of virtual sites according to the following criteria:

• by host name, in ascending or descending order

• by IP address, in ascending or descending order

Ascending order means from lowest value to the highest value (a–z or 1–9). Descending order means from highest value to the lowest value (z–a or 9–1). By default, the Virtual Site List table is sorted by host name in ascending order.

The screen regenerates and the results are displayed in a table with the same four columns. In the heading of the column which has been sorted, a blue arrow icon points up (ascending order) or down (descending order). In the heading of the column which has not been sorted, a double-ended arrow indicates that the order for the column is random.

You can use the search and sort functions together to produce the display that you need. For example, you can search the list for all virtual sites with "test" in the host name, and sort the results of that search by IP address in ascending order.

To search the list of virtual sites:

1. In the first field of the Search Virtual Site List window, select "Host Name" or "IP Address" from the pull-down menu.

2. In the second field, select "is", "contains" or "does not contain" from the pull-down menu.

3. In the third field, enter the string of characters for which you want to search.

4. Click **Search**. The screen regenerates and displays the results in a table with the same four columns.

To sort the list of virtual sites:

1. To sort according to Host Name, click on the blue arrow icon in the heading of the Host Name column. To sort according to IP Address, click on the blue arrow icon in the heading of the IP Address column.

2. To sort in ascending (up arrow icon) or descending order (down arrown icon), click on the blue arrow icon so that it points in the correct direction.

3. The screen regenerates and displays the results in a table with the same four columns.

Overview of virtual sites

The RaQ 3 supports both name-based and IP-based virtual hosting.

The RaQ 3 Administrator sets up the virtual sites, as described in "Adding a virtual site" on page 43. The following list of information is helpful when creating a site.

*   **IP Address** To use the RaQ 3, the RaQ 3 Administrator requires an IP address or range of IP addresses.

    > **Note:** The RaQ 3 supports name-based virtual sites allowing many sites to share a single IP address. For example, the RaQ 3 administrator can create many virtual sites using the same IP address (192.168.25.77) with a different host name for each site (for example, both www.abc.com and www.xyz.com can use 192.168.25.77 as their IP address).

*   **Host name** Each virtual site requires a host name (for example, www or ftp). If the site is connected to the Internet, the RaQ 3 Administrator must know which IP address the host name uses.

*   **Domain name** Each virtual site also requires a domain name (for example, abc.com or xyz.com). The RaQ 3 Administrator must also register the domain name with InterNIC.

    > **Note:** The RaQ 3 can serve as the DNS server and provide the host name.

*   **Bandwidth Limit** The RaQ 3 allows you to set an output bandwidth limit for each IP address assigned to a RaQ 3. The virtual site must have an IP address associated in order to specify a bandwidth limit. This feature does not regulate input traffic. See "Output bandwidth management" on page 40.

- **Accept Email for Domain** The RaQ 3 Administrator can configure the user email addresses to both the fully qualified virtual domain name (user@www.domain.com) and the domain name alone (user@domain.com).

- **Web Access by Domain** The RaQ 3 Administrator can configure the web server to respond to both http://host.domain.com and http://domain.com.

- **Maximum allowed disk space (MB)** The RaQ 3 Administrator can set the amount of disk space a site can use, and can change this value at any time. The value is in Megabytes and must be a whole number greater than zero.

- **Maximum Number of Users** The RaQ 3 Administrator can limit the number of users that a Site Administrator can create. The RaQ 3 Administrator can change this value at any time.

- **Enable Shell Accounts** The users of the virtual site being created can telnet to the RaQ 3 and run commands from a Linux shell. If this feature is enabled, Site Administrators can grant shell access on a user-by-user basis.

  > **Note:** Granting shell access can greatly compromise the security of your RaQ 3.

- **Enable common gateway interface (CGI) scripts** The RaQ 3 Administrator can enable this virtual site and all the site users to have CGI-based dynamic Web content on the RaQ 3. CGI allows a user to have a Web site run programs that dynamically generate hypertext markup language (HTML) pages in response to specific user inputs. CGI scripts can be created on a user's desktop computer and then transferred to the RaQ 3 with a file transfer protocol (FTP) application (see "Publishing Web pages using FTP" on page 121).

- **Enable SSL** The RaQ 3 provides an optional secure sockets layer (SSL) for web access. See "SSL settings" on page 96.

- **Enable Server Side Includes** The RaQ 3 can correctly display server-parsed Web pages (.shtml).

- **Enable FrontPage Server Extensions** Users of this virtual site can enable Microsoft FrontPage™ Server Extensions for their Web page development. A root web for the site is automatically created when FrontPage Extensions are enabled. Site Administrators can create and delete user FrontPage webs individually.

- **Enable Secure POP3 (APOP)** The RaQ 3 administrator can enable the Authentication Post Office Protocol (APOP) for a virtual site. APOP is a challenge-response authentication scheme built on top of the standard POP protocol. APOP is designed in a way that protects your password when being sent across the network.

  > **Note:** If you enable APOP for users, the users can check their email only through an APOP client; a regular POP3 client will not work.

- **Anonymous FTP** Users without passwords can download and upload files through FTP up to the specified disk-space limit. The RaQ 3 Administrator can enable the anonymous FTP server for any virtual site. The administrator can also limit the amount of data that can be uploaded anonymously and the total number of anonymous users who can access the virtual site simultaneously.

  > **Note:** A virtual site can be name-based or IP-based. If there are several name-based virtual sites on an IP address, only one name-based virtual site can use anonymous FTP.

Output bandwidth management

The RaQ 3 allows you to set an output bandwidth limit for each IP address you assign to a RaQ 3. This feature is available when you create a virtual site from the **Server Management** screen or when you modify the settings of a virtual site. The virtual site must have an IP address associated in order to specify a bandwidth limit.

The limit is specified in kilobits per second (Kb/s), and the RaQ 3 enforces a minimum bandwidth limit of 10 Kb/s.

The bandwidth limit applies to all outgoing Transmission Control Protocol (TCP) traffic on a particular IP address. This includes Web, FTP, POP and telnet traffic, as well any other TCP-based application.

If multiple users are accessing a bandwidth-limited IP address, the system divides the bandwidth evenly among the users.

If multiple named-based virtual sites belong to one IP address, the bandwidth assigned to the IP address is divided evenly among the total number of users on those name-based virtual sites.

This feature does not regulate input traffic.

To enable the bandwidth management feature:

1. In the **Server Management** screen, click **Site Management** on the left.

2. Click the wrench icon next to the virtual site on which you want to enable the bandwidth management feature.

3. Click **Site Settings** on the left.

4. Click the checkbox next to Bandwidth Limit in the table.

5. The value of the bandwidth limit is in Kb/s. The minimum bandwidth limit is 10 Kb/s.

   Enter the value of the bandwidth limit in the field.

6. Click **Save Changes**.

Setting defaults for a virtual site

There are many advantages for setting defaults for the virtual sites. For example, since multiple sites can now share an IP address, a default IP address can be set for all new virtual sites added. Also, since it is common for many sites to share a common domain name, it can be desirable to set a default domain name for your virtual sites.

The same is true of all the options for a virtual site; it is best for you to decide the needs of your typical virtual site before assigning these values.

Site defaults and site settings can only be configured by the RaQ 3 Administrator. If the RaQ 3 Administrator enables either the FrontPage Server Extensions service or the Shell Accounts service, the Site Administrators can enable or disable FrontPage user webs, and enable or disable individual (per-user) shell access.

Figure 16 shows the screen for configuring the default settings of a virtual site.

Figure 16   Default settings for a virtual site
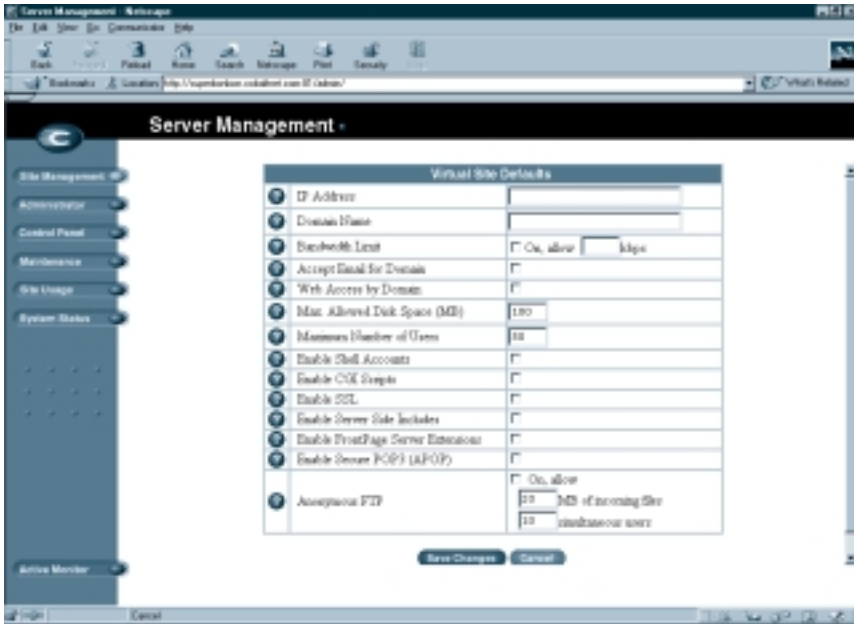
To edit the default settings for a virtual site:

1. On the **Server Management** screen, click **Site Management**.

2. Click **Set Virtual Site Defaults**.

3. Enter the information for the site.

    See the descriptions in "Overview of virtual sites" on page 38.

4. Click **Save Changes**.

Once you have configured the default settings, you can modify the settings for each virtual site that you add.

Adding a virtual site

Figure 17 shows the screen for adding a virtual site.

Figure 17   Adding a virtual site
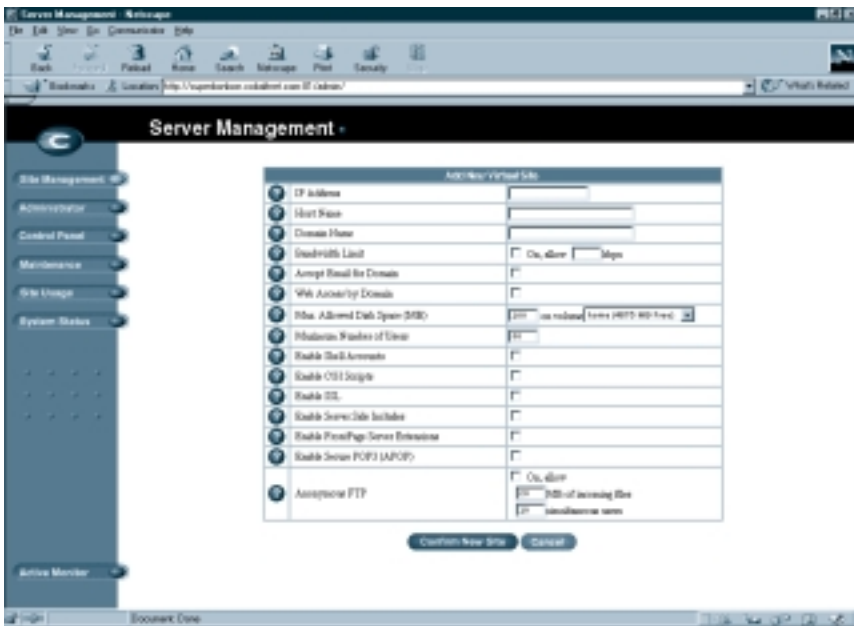
To add a virtual site:

1. On the **Server Management** screen, click **Site Management**.

2. Click **Add Virtual Site**.

3. Enter the information for the site (information from the site defaults page is displayed here).

4. Make changes to the information or complete the necessary information.

5. Verify the settings and click **Confirm New Site**.

Once the virtual site has been created, you can manage it by clicking the modify icon for the site. See "Changing site settings" on page 92.

To assign a Site Administrator to the new virtual site, see "Adding a site user" on page 81.

Removing a virtual site

To remove a virtual site:

1. On the **Server Management** screen, click **Site Management**.

2. In the Virtual Site List table, click the trashcan icon for the virtual site you want to remove.

3. In the confirmation dialog box that appears, click **OK** to delete all the virtual site accounts, site users and contents.

4. The screen refreshes and the virtual site is no longer listed.

Both the Site Administrator and the RaQ 3 Administrator can configure the site user user default settings.   See "Setting defaults for a site user" on page 79.

After creating a virtual site, you can add or remove users for that site, and assign a Site Administrator. See "Adding a site user" on page 81.

For information on changing the settings for a particular virtual site, see "Changing site settings" on page 92.

For information on removing a site user from a particular virtual site, see "Removing a site user" on page 84.

RaQ 3 Administrator

!

Caution: Be sure to remember the password you enter here — otherwise, you will need to reset it (See "Resetting the RaQ 3 Administrator password" on page 46).

In the Administrator section of the **Server Management** screen, you enter information about the RaQ 3 Administrator — including user name, password and, optionally, an email address where system alerts for failed services are sent.

To enter the information for the RaQ 3 Administrator:

1. On the **Server Management** screen, click **Administrator** on the left. The Administrator Settings table appears.

2. Enter the first name and last name of the administrator.

3. Enter the password twice to ensure that you have entered it as intended. For guidelines on choosing a password, see "Entering the administrator settings" on page 25.

4. As an option, enter an email address that will receive system alerts for failed services.

5. Click **Save Changes**.

Changing the RaQ 3 Administrator password

To change the password for the RaQ 3 Administrator:

1. On the **Server Management** screen, click **Administrator** on the left. The Administrator Settings table appears.

2. Enter the new password twice to ensure that you have entered it as intended. For guidelines on choosing a password, see "Entering the administrator settings" on page 25.

3. Click **Save Changes**.

Resetting the RaQ 3 Administrator password

When the RaQ 3 Administrator password is cleared, the root account is not accessible until a new administrator password has been assigned.

> **Caution:** After you clear the password, enter a new one as soon as possible to protect the security of the RaQ 3. At this point, anyone on the network can assign the RaQ 3 Administrator password until you assign a new one.

If you forget the RaQ 3 Administrator password, you can clear it by following these steps.

1. Push and hold the end of a paper clip in the recessed Reset Password button (located between the LCD screen and the LCD arrow buttons, on the front of the RaQ 3). Hold the button in for approximately 2 seconds.

   The LCD screen displays

   ```
   Resetting admin
   password...
   ```

2. Release the button.

3. In your Web browser, enter the URL
   http://<IP Address>/admin/ or http://<host name>/admin/ to access the **Server Management** screen.

4. If a prompt appears asking for a username or password, enter "admin" as the username. DO NOT enter a password. Click **OK**.

5. Click **Administrator** on the left. The Administrator Settings table appears.

6. Enter the password twice to ensure that you have entered it as intended. For guidelines on choosing a password, see "Entering the administrator settings" on page 25.

7. Click **Save Changes**.

Control panel

You can configure the services, network and time settings through the Control Panel section of the **Server Management** screen.

Note: For help with a particular field, move the mouse pointer over the Active Assist ![?] icon adjacent to the field. Help text appears in a window at the bottom of the screen.

Services

Figure 18 shows the Service Settings table of the Services section.

Figure 18   Service Settings table
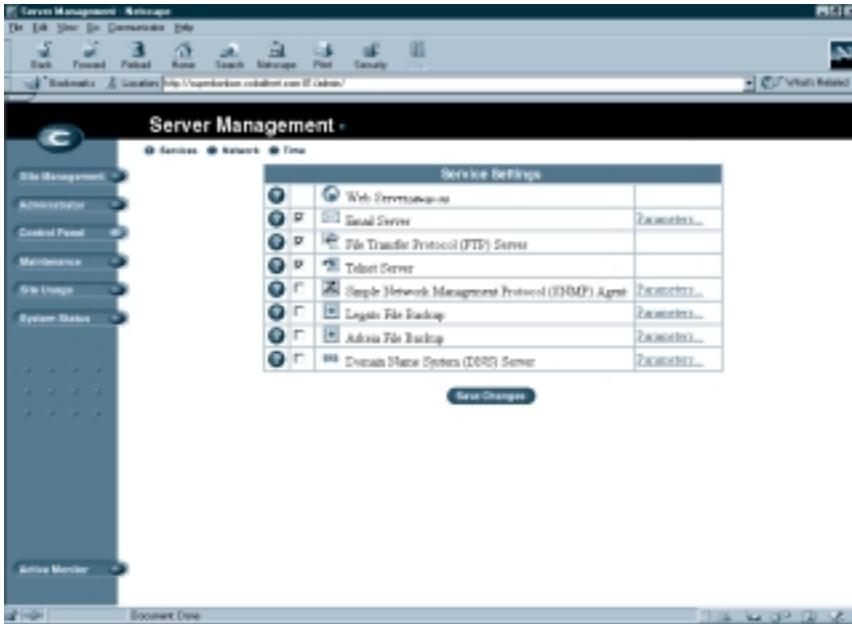
To manage the settings for the RaQ 3 services:

1. On the **Server Management** screen, click **Control Panel** on the left. The Service Settings table appears.

2. To turn on any of the services listed in the Service Settings table (except Web server, which is always on), click the check box next to that service. The services are described in the sections that follow.

3. Click **Save Changes**.

> **Note:** Chapter 5 provides instructions for users on how to use the RaQ 3 services.

Web server

This service is always on. It allows users to access web content, as described in Chapter 5.

Email server

The RaQ 3 supports email for each virtual site on the host. It also supports email for entire domains (for example, www.mydomain.com). By default, each registered user has an email account created on the RaQ 3.

The RaQ 3 supports multiple client and server email protocols but does not implement virtual email users. This means that for the entire RaQ 3, each user must have a unique username, even if the users are on different virtual sites. For more information, see "Email relaying" on page 51.

SMTP server

The RaQ 3 can act as a Simple Mail Transfer Protocol (SMTP) server for sending and receiving Internet email. The RaQ 3 Administrator can configure several parameters that can affect the performance of the SMTP server.

Users created on any virtual site can retrieve their email using the Post Office Protocol 3 (POP3), the Internet Message Access Protocol 4 (IMAP4) and the Authentication Post Office Protocol (APOP). Users can send mail using the Simple Mail Transfer Protocol (SMTP).

For the RaQ 3 to receive email, the network or system administrator must enter a mail server host name in your organization's domain name system (DNS) server. The IP address of the DNS server must be entered in the network settings for the RaQ 3 or the SMTP protocol will not work. For more information, see "Entering the network settings" on page 24.

For more information on DNS, see "Domain Name System (DNS) server" on page 55.

Figure 19 shows the Email Parameters table.

Figure 19   Email Parameters table
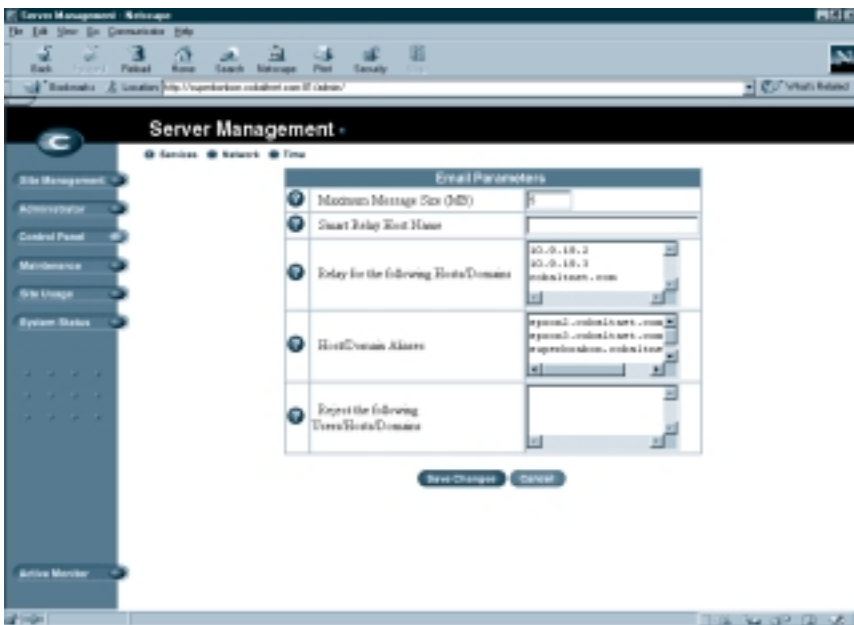
To configure the email parameters:

1. In the Service Settings table, click the Parameters link next to Email Server. The Email Parameters table appears.

2. Fill in the fields in the Email Parameters table. The following paragraphs explain these fields.

3. Click **Save Changes** in the Email Parameters table.

4. Click **Save Changes** in the Service Settings table

You can modify the following parameters:

• **Maximum message size (Mb)** It is important to enter a value here to limit the size of incoming email messages. If this field is blank, you can receive a message that exceeds the available disk space. Such a message would be returned to the sender as "undeliverable." The default value is 5 Mb; the value must be a whole number greater than zero.

• **Smart Relay Host Name** You can enter an optional host name in this field. With this feature, you can configure the RaQ 3 to send Internet email to a specific email server. Enter the host name of the email server through which you want to relay your email.

  This feature is useful if the RaQ 3 does not have direct Internet access (for example, the RaQ 3 is subject to a restrictive firewall), but can communicate with an email server that has direct Internet access.

• **Relay for the following hosts/domains** You can specify a list of hosts for which the SMTP server will relay email messages. For more information, see "Email relaying" on page 51.

• **Hosts/domains aliases** In this field, enter all the IP addresses or domain names of sites on which you receive email. You can only receive email that's addressed to you on the domains specified here. For example, if you want to receive email addressed to you at username@mydomain.com, type domain.com in this field.

• **Reject the following users/hosts/domains** In this field, enter email addresses or domains from which you want to block any email. Anyone trying to send you messages from one of these addresses or domains will receive an error message in return.

Email relaying

Simple Mail Transfer Protocol (SMTP) service is different from Post Office Protocol (POP), telnet and file transfer protocol (FTP) services in that SMTP does not try to authenticate a user when an SMTP connection is made. Every email server on the Internet has to be able to deliver email to you, so the email servers must be able to connect freely to send the email. The Cobalt server accepts email if the recipient has a user account or an alias email account, or if the sending host (your client PC) is trusted to relay outgoing emails to another domain. These trusts are defined by host or domain names, as well as by IP addresses and networks. A network is a range of IP addresses; a network can be as small as one IP address, but that is not very practical.

> **Caution:** Some users advise you to open relay to all com, edu, net and other top-level domain addresses. This is BAD ADVICE. Doing so allows hosts belonging to com, edu, net and others to relay email through your Cobalt server; this relayed mail is known as spam mail.
>
> Spam mail can appear as though it originated from your server and as a result, others may blacklist your server as a known spam site. If your server is blacklisted, many mail servers will not relay your email and your customers will not receive any email messages.

If you have users who access your server through the Internet, ask your Internet Service Provider (ISP) which networks are used by their remote access (dial-up) equipment. If the ISP says the network 209.43.21.5/24 and 209.43.66.5/16, add "209.43.21" and "209.43.66" to the "Relay email from these hosts/domains" field of the Email Parameters menu. If your ISP gives you a list of 30 networks used by 30 points-of-presence (POPs) (which are regional ISP offices) across the country and your clients can dial in from any of them, then you must trust all 30 networks or these users cannot send email through your RaQ 3.

How to enable email relaying

To enable email relaying, add the IP addresses (or domain names, or both) of the machines which use your Cobalt RaQ 3 as the SMTP server.

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the **Parameters** link next to Email Server. The Email Paramters table appears. One field is labeled "Relay for the following hosts/domains". The following paragraphs explain how to fill in this field. .

3. Click **Save Changes** in the Email Parameters table.

4. Click **Save Changes** in the Service Settings table.

The entries you add to this field serve as part of a pattern match against the email that the client is sending. As a result, some handy shortcuts are possible. If you have a number of hosts in the same network block, you can, as a shortcut, simply enter the number of the network block.

For example, specifying a network such as 192.168.1 in the "Relay email from these hosts/domains" field trusts all IP addresses from 192.168.1.1 through 192.168.1.254.

> **Note:** There is no trailing period on the number of the network block and there are only three octects entered in the field. It is important that you do not include a trailing dot after the part of the IP address that you want to match.

If you want to allow connections from a host that ends, for example, in mydomain.com, add the string mydomain.com in the text area.

> **Note:** If you entering a domain name or part of a domain name in the text box, you must have reverse DNS working on your clients.

File transfer protocol (FTP) server

Using the file transfer protocol, site users can upload and download files on the RaQ 3. Users can transfer files with FTP client software such as Fetch or WS-FTP.

The RaQ 3 Administrator can can enable or disable the FTP server.

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the check box next to File Transfer Protocol (FTP) Server to on or off.

3. Click **Save Changes**.

Telnet server

Telnet access is available but only advanced users should use telnet. An advanced user is someone who is proficient in the workings of a Unix®-style operating system. It is possible to adversely affect the performance of your RaQ 3 if you modify system configuration files.

> **Note:** Granting shell access can greatly compromise the security of your RaQ 3.

> **Note:** Disabling the telnet server in the service menu denies telnet access to all users, even if they have been granted "shell" access.

The RaQ 3 Administrator can can enable or disable the telnet server:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the check box next to Telnet Server to on or off.

3. Click **Save Changes**.

Simple Network Management Protocol (SNMP) agent

The RaQ 3 Administrator can can enable or disable the Simple Network Management Protocol (SNMP) agent:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the check box next to Simple Network Management Protocol (SNMP) agent to on or off.

3. If you are disabling the SNMP agent, click **Save Changes**. If you are enabling the SNMP agent, click on the Parameters link next to the option in the Service Settings table.

4. Enter the SNMP communities that can have read-only and read-and-write access to this SNMP agent. The default read-access community is "public". Click **Save Changes** in the SNMP Parameters table.

5. Click **Save Changes** in the Service Settings table.

Legato file backup

You can use the Legato NetWorker® client software to support backup and restore needs on the RaQ 3. To use this feature, you must install the Legato Networker Server software. The software is available at www.legato.com.

To enable or disable the Legato file backup option:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the check box next to Legato File Backup to on or off.

3. If you are disabling the Legato File Backup option, click **Save Changes**. If you are enabling the Legato File Backup option, click on the Parameters link next to the option in the Service Settings table.

4. In the Legato Networker Parameters table, enter the host name and the IP address of the Legato Server in the fields. Click **Save Changes** in the Legato Networker Parameters table.

5. Click **Save Changes** in the Service Settings table.

Arkeia file backup

You can use the Arkeia backup software from Knox Software to support backup and restore needs on the RaQ 3.

There is a client and a server component to the Arkeia backup software. The client-side software is pre-installed on the RaQ 3; the server-side software is installed on the RaQ 3 with a 30-day restricted-use license.

To enable or disable the Arkeia client-side backup software:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings tble appears.

2. Click the check box next to Arkeia File Backup to on or off.

3. If you are disabling the Arkeia File Backup option, click **Save Changes**. If you are enabling the Arkeia File Backup option, click on the Parameters link next to the option in the Service Settings table.

4. In the Arkeia Parameters table, enter the host name or IP address of the server that will back up the RaQ 3. Click **Save Changes** in the Arkeia Parameters table.

5. Click **Save Changes** in the Service Settings table.

To enable the server-side software, you must have an external tape device connected to the SCSI port.

The server-side software is managed through a separate utility; this utility has a Java interface on Windows 95/98 and NT, and an X11 interface on Unix. You can download this utility from Arkeia's web site at http://www.arkeia.com.

Cobalt Networks also provides a technical paper on how to use Arkeia software as a disaster-recovery solution. Go to Cobalt's web site at http://www.cobalt.com/support/ .

Domain Name System (DNS) server

Domain Name System (DNS) is a vital and integral part of the Internet. Setting up DNS correctly on your RaQ 3 is very important. For this reason, we have created an appendix solely for explaining DNS. See "Domain Name System" on page 145.

The appendix covers the following items:

• basic DNS issues

• advanced DNS issues

• a quick start guide detailing a sample setup of DNS for a RaQ 3

• a brief history of the DNS service

Network

The network settings make the RaQ 3 visible to other computers. If you change the IP address, the RaQ 3 reboots.

> ***IMPORTANT:*** Coordinate the network configuration information with your system adminstrator to ensure the integrity of your network. Incorrect network settings can result in a loss of connectivity.

To enter or change the network configuration for the RaQ 3:

1. On the **Server Management** screen, click **Control Panel** on the left. The Service Settings table appears.

2. Click **Network** at the top. The settings tables for the network configuration appear.

3. Enter configuration information for the General Settings, the Interface Settings for Network 1 or the Interface Settings for Network 2.

> **Note:** For help with a particular field, move the mouse pointer over the Active Assist [?] icon adjacent to the field. Help text appears in a window at the bottom of the screen.

4. Click **Save Changes**.

Figure 20 shows the Settings tables of the Network section.

Figure 20   Settings tables in the Network section

Time

The RaQ 3 Administrator can configure the correct time and date and the time zone for the RaQ 3.

1. On the **Server Management** screen, click **Control Panel** on the left. The Service Settings table appears.

2. Click **Time** at the top. The Time Settings table appears.

3. Select the time and date with the pull-down menus.

4. Select the correct time zone by clicking in the Region, Country and Locale/Zone fields.

5. As an option, you can also specify the name of a Network Time Protocol (NTP) server with which the RaQ 3 will synchronize its internal clock every night. Enter the host name or IP address of the NTP server.

    You can find a list of publicly available NTP servers at: http://www.eecis.udel.edu/~mills/ntp/servers.html.

6. Click **Save Changes**.

Maintenance

The Maintenance section of the **Server Management** screen provides several Web-based utilities that facilitate RaQ 3 day-to-day operations.

To access these utilities:

1. On the **Server Management** screen, click **Maintenance** on the left. The File Backup table appears.

2. Choose a utility at the top.   The utitilities are described in the following sections.

Backup

!

Caution: A backup captures data only (for example, email messages or files). It does NOT back up the settings for virtual sites or users.

As the RaQ 3 Administrator, you can perform different types of backups in the user interface. This is a separate function from the Legato and Arkeia backup support features.

!

Caution: Microsoft Internet Explorer 3.0 allows a backup but does not allow a restore. Upgrade your browser or back up your files through a more recent version of the browser on a different machine.

Manual backup

This feature allows administrators to manually back up data stored on the RaQ 3. Figure 21 shows the File Backup table.

Figure 21 File Backup table
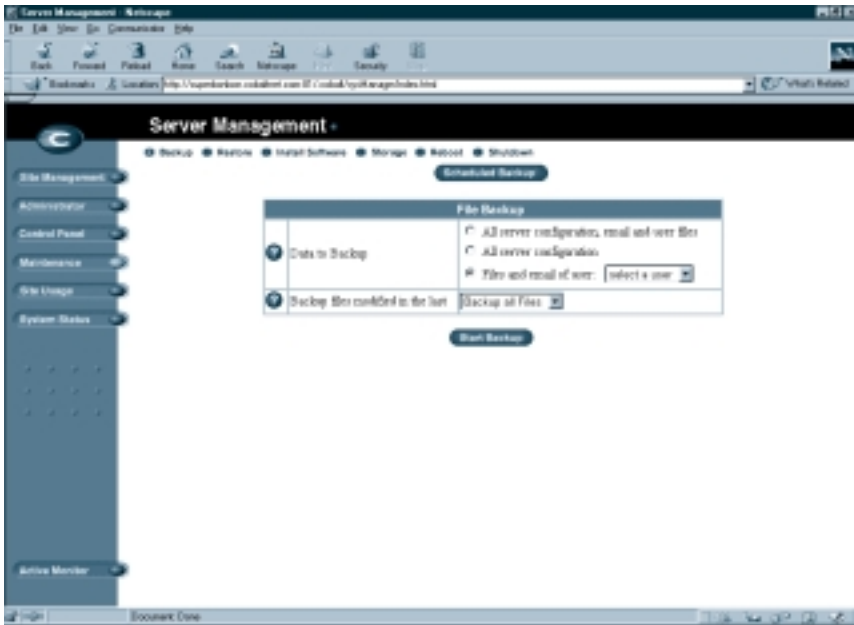
To manually back up data stored on the RaQ 3:

1. On the **Maintenance** screen, click **Backup** at the top.

2. In "Data to Backup," select the type of backup:

    •   **All server configuration, email and user files.** This option
        backs up all the server configuration files for the users and the
        system setup, all users' files, all group files and all email
        in-boxes.

    •   **All server configuration.** This option backs up all the server
        configuration files for the users and the administrator, as well as
        all the system setup information.

    •   **Files and email of user.** This option backs up the files and
        email in-box for a specific user.

3. To back up all files or to back up files changed within a certain time
    frame, choose from the pull-down menu adjacent to "Backup files
    modified in the last."

    You can choose "Backup all Files," 31 days, 14 days, 7 days,
    2 days or 1 day.

4. Click **Start Backup**.

5. Assign a path and a file name on your computer for storing the
    backup data. Click **Save**.

The file transfer takes several seconds to several minutes. Do not
interrupt or cancel the file transfer. If the file transfer fails, delete the
partial back up file from your computer. If you try to restore a partial
back up file, you can corrupt the data on your RaQ 3.

Scheduled backup

This feature allows administrators to schedule regular automatic backups. Figure 22 shows the Scheduled File Backup table.

Figure 22   Scheduled File Backup table
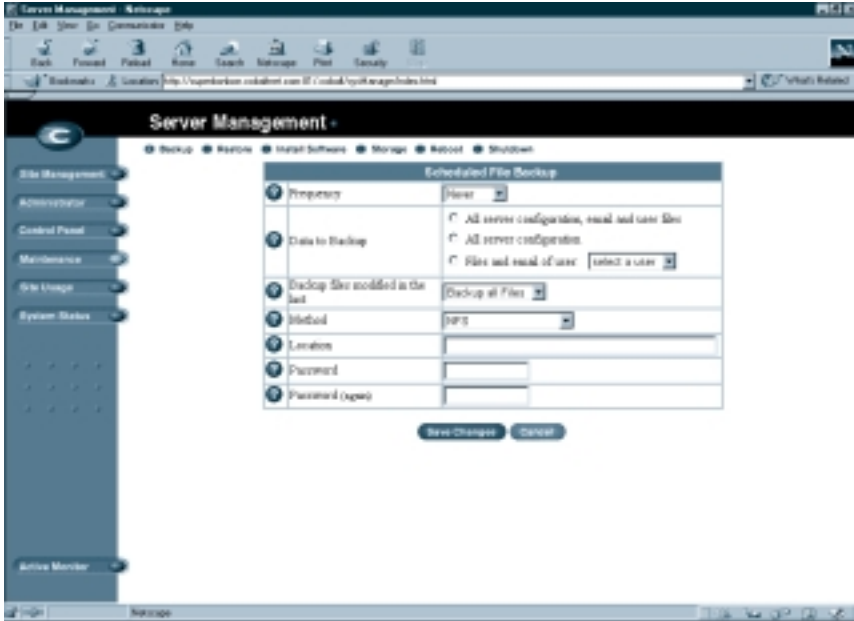
To schedule regular, automatic backups:

1.   On the **Maintenance** screen, click **Backup** at the top.

2.   Click **Scheduled Backup**.

3.   In "Data to Backup," select the type of Backup, as described in step 2 in "Manual backup" on page 58.

4.   To back up all files or to back up files changed within a certain time frame, choose from the pull-down menu adjacent to "Backup files modified in the last."

5.   Choose the frequency of the automatic backup.

   •   **Daily** means each day at 1 a.m.

   •   **Weekly** means every Sunday morning at 1 a.m. (Saturday night going into Sunday morning)

   •   **Monthly** means on the first of every month at 1 a.m.

6.   Choose a backup method.

 • **FTP Server** writes the backup file to an FTP server.

 • **NFS** places the backup file on a mountable NFS resource.

 • **SMB Server** (Windows File Sharing) places the backup file onto a directory shared from a Windows machine.

7.   Enter a location for storing the backup data.

 The location you specify depends in part on the backup method you select in step 6. See "Backup File Locations" below for an explanation of locations you can enter here.

8.   Click **Save Changes**.

Backup file locations

For a backup by **FTP Server**:

• A location of `<username>@ftp.server.com` puts the backup file in the initial login directory.

• A location of `<username>@ftp.server.com/path/to/backups/` puts the backup file in the specified path on the server, using `<username>` to login.

For a backup by **Anonymous FTP**:

• For an anonymous FTP connection, the file must be put in a directory where anonymous FTP users have write access. This is generally the `/incoming/` directory.

• A location of `ftp.server.com/incoming` places the backup file on ftp.server.com under the `/incoming/` directory.

• The "Password" field should contain the password for the specified user or be left blank for anonymous logins.

For a backup by **NFS Server**:

• The location should be `<server>:/<share>`, where `<server>` is the NFS server and <share> is the NFS volume to mount and write to. You must have write privileges to this directory.

• The "Password" is ignored for NFS server backups.

For a backup by **SMB Server** (Windows File Sharing):

- The location should be `<user>@\\windowspc\<share>` . This mounts the volume share on the Windows server, using <user> as the login. The "Password" field must contain the password for <user>.

- For volumes that do not require a user, the location should be `\\windowspc\share` .

For **All Scheduled** backups:

- Ensure the target location is available and has enough disk space to hold the backup archive. Failure to do this may result in zero-length or truncated archives.

Restore

You must restore data from the same machine on which the data was backed up. Users can restore their own personal directory.

Caution: The system restores data only (for example, email messages or files). It does NOT restore virtual sites or site users to a RaQ 3.

Caution: The system does not merge the current and backed up data. When data is restored, any changes made to files on the RaQ 3 since the last backup are lost.

Caution: Microsoft Internet Explorer 3.0 allows a backup but does not allow a restore. Upgrade your browser or back up your files through a more recent version of the browser on a different machine.

Figure 23 shows the File Restore table.

Figure 23   File Restore table
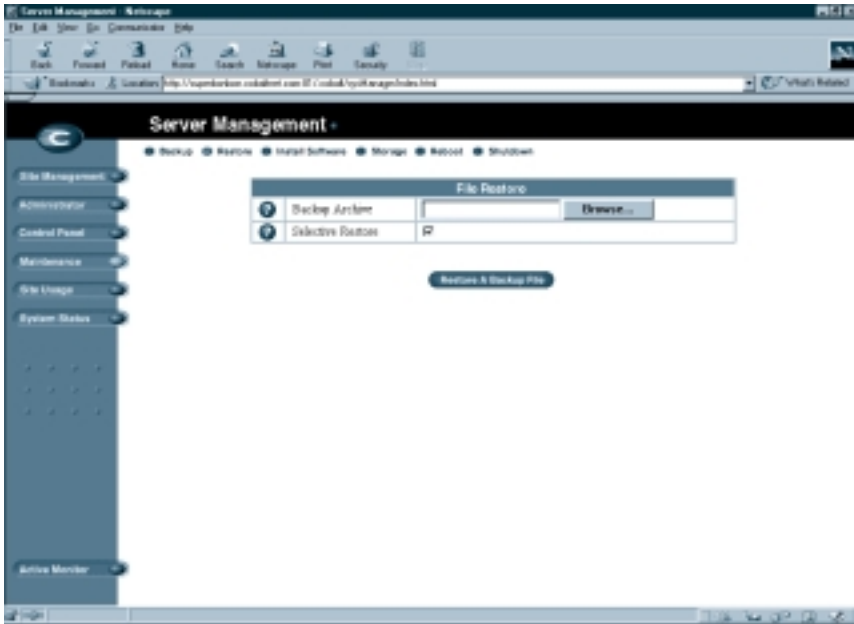
To restore a backup file:

1. On the **Maintenance** screen, click **Restore** at the top. The File Restore table appears.

2. The RaQ 3 saves backed-up data in .raq files. Enter the path and filename of the backup file, or click **Browse** to select the .raq file archived on your computer which you wish to restore to the server.

   Restore times can vary widely. Be careful not to interrupt an archive restore as data could be corrupted.

   > **Note:** If the file does not appear in the list and you are using Netscape 4.x or Internet Explorer 4.x, you may need to change "File Type" in the desktop to "All Files."

3. If you want to restore only some of the files, click **Selective Restore**.

4. Click **Restore A Backup File** below the File Restore table.

   > **Note:** Restoring large backup archives can cause your Web browser to timeout. If you upload the ".raq" archive with FTP to the RaQ 3 Administrator's home directory, it is selectable from a menu on the **Restore** screen.

Do not interrupt an archive restore because this can corrupt data. If the restore process is interrupted, the user can try to restore again.

To restore a user home directory or a virtual site directory, make sure the user or virtual site already exists before restoring the files.

When data is restored, the RaQ 3 and its corresponding parts (virtual site, user, email) are returned to the exact state they were in prior to backup.

Install software

You can add new software to the RaQ 3 from the browser. You can install new software obtained either from the Cobalt Networks Web site or from a CD supplied by Cobalt Networks.

Figure 24 shows the Install Software table.

Figure 24   Install Software table
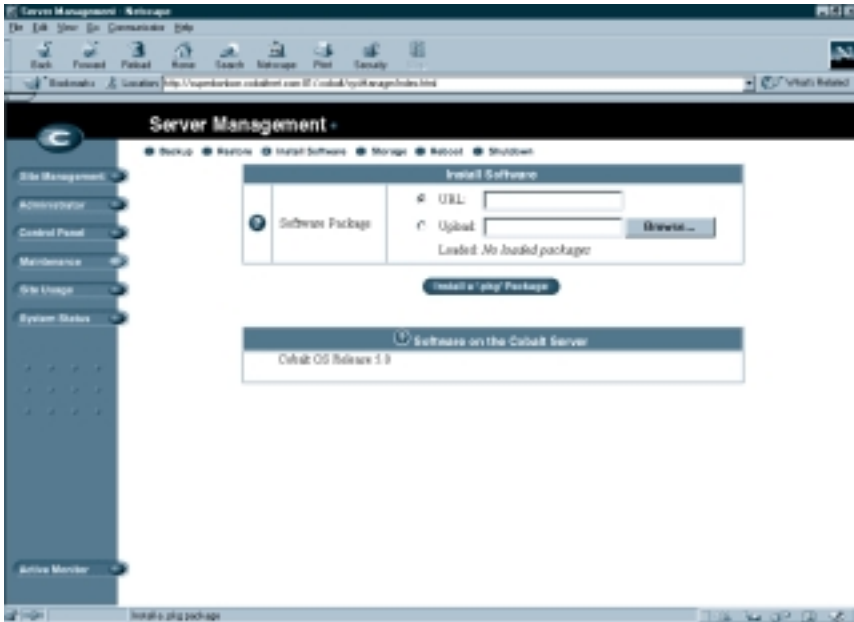
To install or upgrade software from Cobalt's Web site:

1.   Through your Web browser, go to http://www.cobalt.com/support/.

2.   Download the new software to your desktop computer.

3.   On the **Server Management** screen, click **Maintenance** on the left.

4.   Click **Install Software** at the top.

5.   Click **Browse** to locate the package that you downloaded to your computer. Click **Open** to select the package.

6.   Click **Install a .pkg package** to automatically install or upgrade the new software on the RaQ 3.

To install software remotely:

1. On the **Server Management** screen, click **Maintenance** on the left.

2. Click **Install Software** at the top.

3. In the URL field, enter the URL for the package file. This URL directs the browser to the package file on the Cobalt Networks Web site.

4. Click **Install a .pkg package** to automatically install or upgrade the new software on the RaQ 3.

To install software from a CD:

1. Insert the CD into a computer on the same network as the RaQ 3.

2. On the computer that has the CD, go to the **Server Management** screen. Click **Maintenance** on the left.

3. Click **Install Software** at the top.

4. Click **Browse** to locate the package file on the CD. Click **Open** to select the package file.

5. Click **Install a .pkg package** to automatically install or upgrade the new software on the RaQ 3.

Third-party software

Figure 24 also shows the various software packages that have been installed on the RaQ 3, including the version of the Cobalt OS and any the third-party software. To see more information about the software, click the name (shown as a link).

Add-on storage support

On a RaQ 3 equipped with a SCSI connector, the Cobalt UI allows disk devices on the SCSI bus to be used as additional storage for virtual sites. A virtual site cannot span multiple disks and the disk must remain connected to the RaQ 3 for proper operation of the virtual sites stored on the disk. The RaQ 3 does not automatically recognize virtual sites on an external disk transferred from another RaQ 3.

In the Maintenance section of the **Server Management** screen, the administrator can add and format a non-removable disk storage device to the RaQ 3.

> **Note:** You must power down the RaQ 3 before adding or removing an add-on storage device.

Figure 25 shows the Available Storage table.

Figure 25   Available Storage table
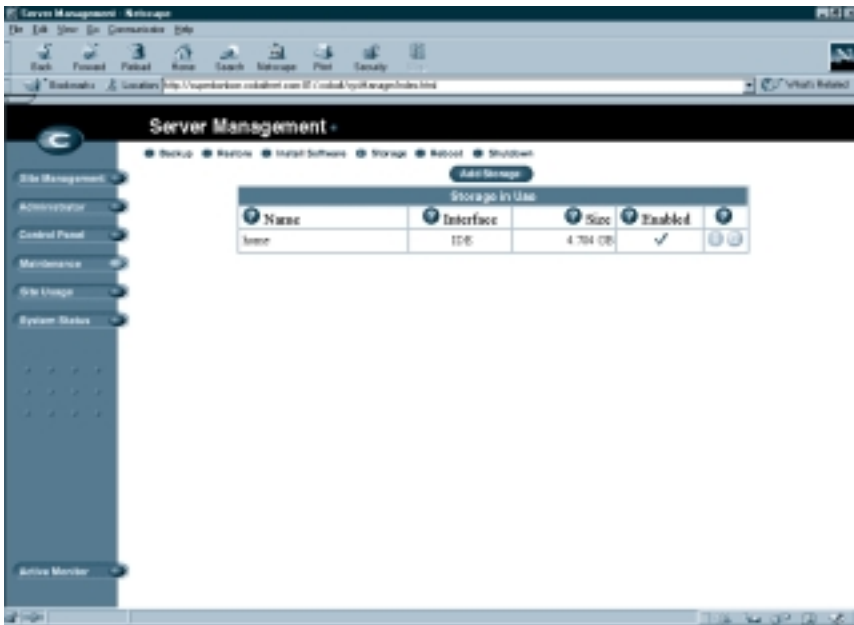
To add a storage device to the RaQ 3:

1. On the **Server Management** screen, click **Maintenance** on the left side.

2. Click **Storage** at the top.

3. Click **Add Storage**.

   A lists of available storage devices appears; see Figure 25. By default, all of the devices are selected to be added. To de-select a storage device, click the box beside that device.

   To add a disk, give the device a unique name. You can use only alphanumeric characters for the name. You cannot use the name "home" as that is the name of the hard disk of the RaQ 3.

   You can choose to check the integrity of the disk when adding a storage device. However, this option significantly increases the time it takes to format a disk. To enable this option, click the box in the Check column beside each storage device.

4. Click **Confirm New Storage** to add the storage to the RaQ 3.

When adding a new virtual site to the RaQ 3, the RaQ 3 Administrator can choose where to store the new site. In the Add New Virtual Site table, next to the Maximum allowed disk space (Mb) parameter, a pull-down menu lists in alphabetical order the available storage devices. The storage device with the most available space is chosen by default.

For more information, see "Adding a virtual site" on page 43.

Suspend a virtual site

There are two ways to suspend a virtual site on the RaQ 3: a hard suspension and a soft suspension.

For more information on soft suspensions, see "Suspend a virtual site" on page 94.

Hard suspension

A hard suspension occurs when a storage device is disabled through the UI or is disconnected from the RaQ 3. In this case, all virtual sites on that storage device are inaccessible. You cannot administer these sites, and users cannot receive email.

To disable an attached storage device:

1. On the **Server Management** screen, click **Maintenance** on the left side.

2. Click **Storage** at the top.

3. Click the pencil icon next to the disk you want to disable.

4. Click the Enable disk checkbox so that it is de-selected.

5. Click **Confirm Modify**.   The browser returns to the previous screen.

Reboot

Rebooting the RaQ 3 sometimes cures problems with certain services. The Active Monitor software recommends when a reboot is necessary.

To reboot the RaQ 3 through your browser:

1. On the **Server Management** screen, click **Maintenance** on the left.

2. Click **Reboot** at the top.

3. In the table that appears, click **Reboot**.

You can also reboot the RaQ 3 through its LCD console; refer to "Rebooting" on page 133 in Appendix A.

Rebooting can take as long as a few minutes.

Shutdown

Turning off the power switch before the RaQ 3 tells you to do so can result in lost or corrupted data.

The RaQ 3 can only be shut down from the LCD console located on the front of the unit. Refer to "Powering down" on page 134 in Appendix A. Shutting down may take as long as a few minutes.

Support tools

The Support Tools feature is a Web page that assists Technical Support in diagnosing problems on a RaQ 3 unit.

On the **Server Diagnostics** screen, the RaQ 3 Administrator can create and download a data dump of the configuration files on the RaQ 3. This data dump can then be emailed to diagnostics@cobalt.com. A member of the Technical Support team can then evaluate the condition of your RaQ 3 before providing you with corrective action, either by telephone or email.

If the RaQ 3 Administrator is familiar with Linux, he or she can look through this file in an effort to determine the problem with the RaQ 3. The file is a standard gzip file.

To access the **Server Diagnostics** screen:

1. From any screen, click the **Cobalt logo** in the top left corner.

    A table listing Server Configuration Information appears. The table lists the amount of random access memory (RAM) and the size of the hard disk drive.

    The table also lists trademark information for Cobalt Networks and for all other products and companies referred to in the UI.

2. In the list of links, click **Server Diagnostics**. The Diagnostic Header Data table appears.

3. Enter the following information:

    - your full name
    - the name of your company or organization (optional)
    - if you are emailing the diagnostics dump to Cobalt Networks, then indicate whether you want to be contacted by email or telephone
    - your complete telephone number, if you want to be contacted by telephone
    - your email address, if you want to be contacted by email
    - a description of the problem you are having

      Note: If the problem is with a particular user or site, **please be specific**.

    The information entered in these fields is incorporated into the header information of the diagnostic dump.

4. Click **Save Changes**.

    This creates the diagnostic dump of your configuration files. A file window appears and prompts you to enter a location on you computer where you want to store the file created.

5. If you are familiar with Linux, you can open this file and look through it to determine the problem. Or you can email the file as an attachment to **diagnostics@cobalt.com**.

6. When Cobalt Networks receives the diagnostic file by email, a problem ticket is created for your case.

Site Usage

The Site Usage feature allows the RaQ 3 Administrator to monitor the amount of bandwidth consumed by Web, email and FTP traffic generated by the virtual sites on a RaQ 3. Report graphs are generated for daily, weekly and monthly traffic.

For the Site Usage feature on the **Site Management** screen, see "Site Usage" on page 103.

The RaQ 3 can generate traffic-based bar graphs for a particular virtual site on an hourly, daily, weekly and monthly traffic. The bars for the relative traffic for Web, email and FTP can be viewed separately side-by-side or stacked on top of each other in a single bar to indicate the total amount of data (Mb).

Figure 26 shows the a sample of a Total Usage summary report.

Figure 26 Sample of a Total Usage summary report
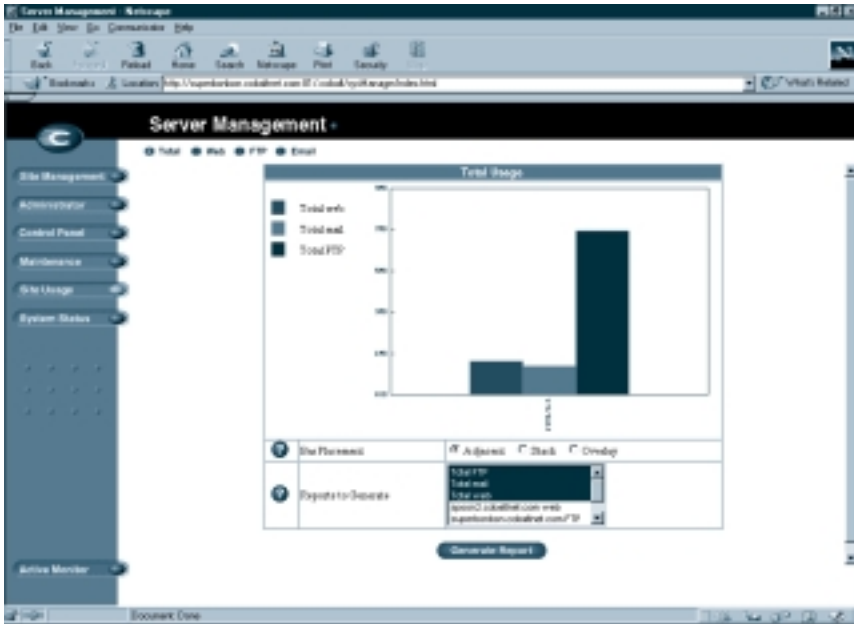
The reports are generated each night at 1:00 a.m. The results are presented in bar graphs and can be viewed according to the following criteria.

1. Hourly reports are generated from the traffic of the previous day.

2. Daily reports are generated from the traffic of the previous seven days.

3. Weekly reports are generated from the traffic of the previous six to eight weeks.

4. Monthly reports are generated from the traffic of the previous 12 months.

To use the Site Usage function:

1. On the **Server Management** screen, click **Site Usage** on the left. A
    screen displays bar graphs according the report criteria you choose,
    such as:

    *   **Total** displays the total usage for Web, email and FTP over the
        entire RaQ 3.
    *   **Web** displays Web usage for each site per month (sitea, siteb
        and so on)
    *   **Email** displays email usage for each site per month (sitea, siteb
        and so on)
    *   **FTP** displays FTP usage for each site per month (sitea, siteb and
        so on)

2. An option at the bottom of the screen allows you to "stack" the bars
    one on top of the other, rather than displaying separate bars next to
    each other. Click the check box to enable this option.

3. You can also download a single-tab-delimited file which indicates
    the use of bandwidth for each site and for each service per month.
    This file can be used for automated billing purposes.

4. Click **Save Changes**. The browser regenerates the **Site Usage**
    screen according to the report criteria chosen.

Statistics are updated once daily for all services.

System Status

The System Status section allows the RaQ 3 Administrator to monitor
the CPU, memory, disk and network status, as well as the services
running on RaQ 3. In all cases, the RaQ 3 monitors the status of each of
the subsystems and displays a green, amber, red or grey circle beside
each item.

The status of the system components and services is monitored by a
Cobalt Networks utility called Active Monitor. For more information,
see "Active Monitor" on page 76.

To view the status of the various system components and services:

1. On the **Server Management** screen, click **System Status** on the left or **Active Monitor** at the bottom left. A table displays the status of the system components and the services.

   - Green indicates correct functioning.
   - Amber indicates a potential problem.
   - Red indicates that a problem exists.
   - Grey indicates that a component or service is inactive or that no information is available yet.

2. Click on the name (shown as a hypertext link) of the system component or service to display more detailed information.

3. Click **Back** to return to the previous screen.

System components

Central processing unit (CPU)

The CPU Usage chart provides a real-time chart of CPU load. It indicates the number of tasks waiting to be executed. This chart helps you evaluate whether the RaQ 3's CPU is being used heavily or lightly.

Memory

The memory status chart tells you whether there is physical memory available. If you see a red light in this chart, you may want to add more memory to the RaQ 3.

Disk

A Disk Usage Summary describes the total disk space occupied by system files, by virtual sites and site users, the amount of free disk space left and the total size of the disk.

Network

The Network Usage chart displays the number of network packets successfully sent and received, the total number of errors when sending or receiving network packets, the number of network packets dropped after failure in sending or receiving, and the number of attempts to send several network packets at the same time (the number of collisions) on the Network 1 interface.

Services

The Service Status section allows you to monitor Web, email, FTP, telnet, DNS and SNMP services. It follows the same LED conventions as the System Status section.

Web server

The Web server status chart displays the status of the Web server (green, amber, red or grey).

Email

The email status chart displays the status of the POP3 server, the IMAP4 server and the SMTP service. This chart indicates whether these servers are operating normally.

File transfer protocol (FTP)

The file transfer protocol (FTP) status chart displays the status of the FTP server's operation (normal or otherwise).

Telnet

The telnet status chart displays the status of the telnet server's operation (normal or otherwise).

Simple Network Management Protocol (SNMP)

The Simple Network Management Protocol (SNMP) status chart displays the status of the SNMP server's operation (normal or otherwise).

Domain Name System

The DNS status chart denotes whether DNS is active and whether it is operating properly. For more information on DNS, see "Domain Name System" on page 145.

Active Monitor

The RaQ 3 uses Active Monitor software. Active Monitor is a Cobalt Networks utility that runs on a RaQ 3 and updates key system information every 15 minutes.

Active Monitor checks:

- the status of the RaQ 3 (functioning, warning of failure, failed or inactive)
- the status of the services on the RaQ

Table 3 explains the colors of the the circles in Active Monitor.

To access Active Monitor, click **Active Monitor** or **System Status** on the **Server Management** screen. To view the details for any of the system component or service, click the name (shown as a hypertext link).

Table 3   Colors and status indicators

Color	Status
Green	Correct functioning
Yellow	Advance warning of potential problems that should be investigated by the RaQ 3 administrator (for example, low disk space)
Red	Failure
Grey	Inactive or information is not yet available.

Site Management

There are three types of users on the RaQ 3: the RaQ 3 Administrator, Site Administrators, and site users.

This chapter describes the functions that the Site Administrator normally performs. The Site Administrator accesses these functions from the **Site Management** screen on the RaQ 3. The **Site Management** screen has a green strip on the left side.

A Site Administrator can add or remove a site user, create a mailing list, manage disk space, back up and restore files and perform other virtual-site-related administrative tasks. (These functions can also be performed by the RaQ 3 Administrator; see "RaQ 3 Server Management" on page 31.)

A Site Administrator can manage a virtual site using any standard Web browser. To access the **Site Management** screen for your site, type the URL http://<sitename>/siteadmin/ into your browser. The RaQ 3 user interface (UI) promps you for your site administrator username and password.

> **Note:** The **Site Management** screen can only be accessed using the fully qualified site name in the Web browser. The **Site Management** screen is not accessible if an incomplete or aliased site host name is specified.

To access the **Site Management** screen, click **Site Management** on the **Server Management** screen. The **Site Management** screen appears. From this screen, you can access the Site Administrator functions; see Figure 27.

The User Management section appears when you first access the **Site Management** screen. The User List displays the site users by user name in ascending order.

The User List has five columns which display information about the each site user, and allow the RaQ 3 Administrator or Site Administrator to manage or remove a site.

- The first column displays the full name of the site user.

- The second column displays the user name of the site user.

- The third column displays the email alias(es) of the site user.

- The fourth column displays icons to indicate which services are enabled (telnet/shell access, FrontPage Server Extensions or Secure POP3 [APOP]), to indicate that a site user is the Site Administrator, or to indicate that a site user is suspended.

- The fifth column displays icons to manage a site user or the email settings for the site user, or to remove a site user.

For an explanation of the icons, see "Icons used on the UI and in the manual" on page 10.

To access a section of the **Site Management** screen, click the section button along the left side of the screen. These functions are described in the following sections.

Figure 27   Site management

User management

The User Management section on the **Site Management** screen allows
you to perform administrative functions related to site users: setting the
site user defaults, adding or removing users; entering and modifying
user names and passwords; managing users' disk space allocations,
telnet access and email aliases.

Setting defaults for a site user

Before assigning the default values for a site user, you must decide on
the needs of your users.

Both the Site Administrator and the RaQ 3 Administrator can configure
the site user default settings.

Figure 28 shows the screen for configuring the default settings of a site
user.

Figure 28   Default settings for a site user
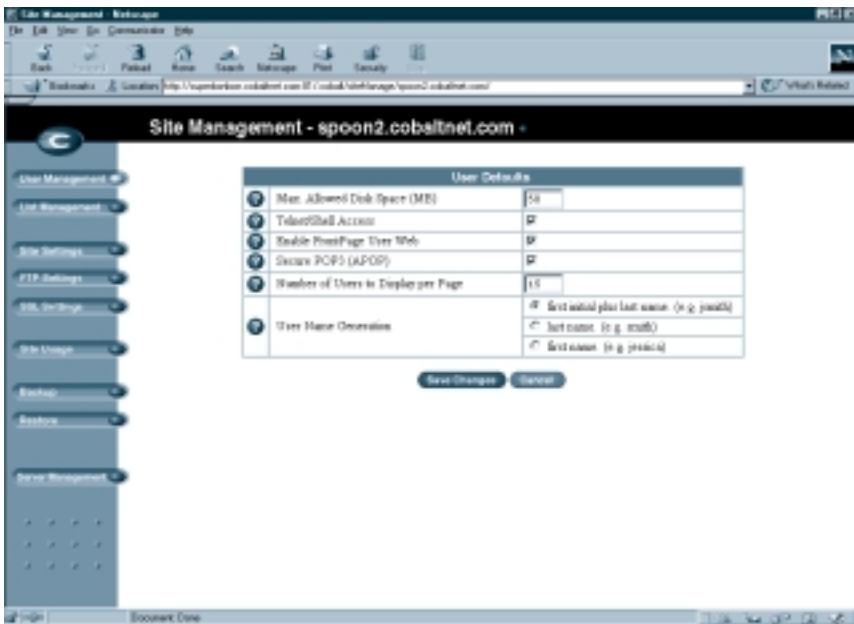
To edit the default settings for a site user:

1. On the **Server Management** screen, click **Site Management**.

2. Click on the wrench icon beside the virtual site for which you want to configure the default settings for the site user.

3. Click **Set User Defaults**.

4. Enter the information for the site. You can set the default value for

   • the maximum allowed disk space (Mb) available to a newly created user for their file storage and Web pages

   • the number of sites users to display at one time in the user list on the screen

   > **Note:** If there are more site users on a virtual site than the value you enter here, navigation buttons for scrolling through the User List table become active at the top of the table.

   • the format for generating user login names
     —initial plus last name
     —last name
     —first name

   You can also enable or disable services for telnet/shell access, FrontPage user Web and Secure POP3 (APOP), if the RaQ 3 Administrator has enabled them for the virtual site.

5. Click **Save Changes**.

Once you have configured the default settings, you can adjust the settings for each site user that you add.

Adding a site user

You can add or remove users for a virtual site, and assign a Site Administrator for the site.

> ⚠️
>
> **Caution:** On the **Site Management** screen for the main site (the main site does not have a trashcan icon next to it, meaning that you cannot delete it), the user settings for the RaQ 3 Administrator can be modified, including name and password. Make sure you remember the RaQ 3 Administrator password. If you forget the password, see "Resetting the RaQ 3 Administrator password" on page 46 for instructions on resetting the password.

Figure 29 shows the screen for adding a site user or Site Administrator.

Figure 29   Adding a site user
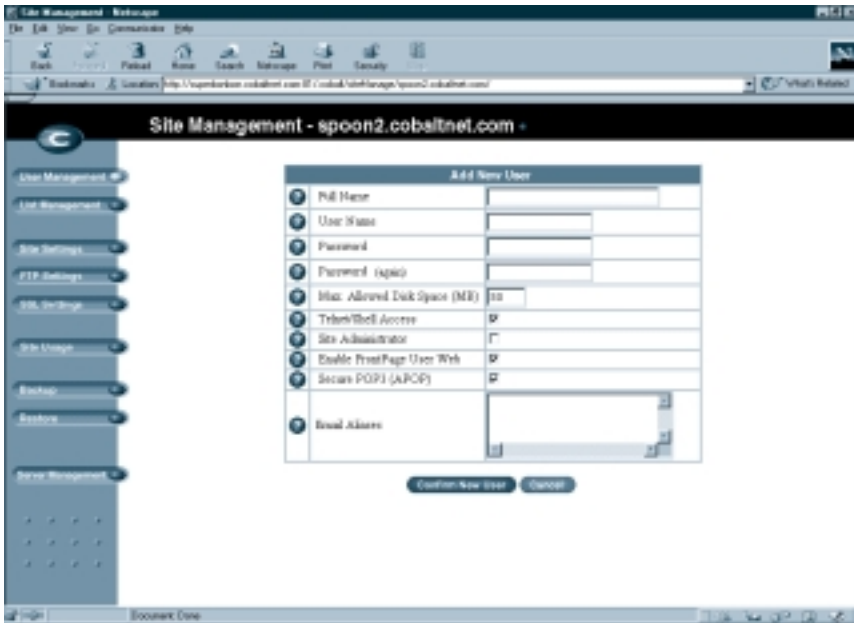
To add a site user or Site Administrator:

1. On the **Server Management** screen, click **Site Management**.

2. Click the green wrench icon next to the site to which you want add a user.

3. Click **Add User**.

4. Enter the information for the site user.

   Enter the site user's name and password, set the allocation of total disk space for the user, enable telnet/shell access (if appropriate), make them a Site Administrator (if appropriate), enable FrontPage user Web (if appropriate) and enable Secure POP3 (APOP) (if appropriate).

   You can also enter email aliases for this user. (For more information, see "Entering user email settings and aliases" on page 84.)

5. Click **Confirm New User**.

Search and sort functions

The User List table offers a search function and a sort function. See Figure 27. These functions are useful if you have a large number of site users on your RaQ 3 and you want to restrict the display to certain site users.

You can search the list of site users according to the following criteria:

• by user name, full name or email alias

• whether the user name, full name or email alias is equal to the search string, is contained in the search string or is not contained in the search string

The screen regenerates and the results of the search are displayed in a table with the same five columns. The heading of the table now states "Search Results (<x> Users found). To return to the full list of site users, click **User Management** on the left.

Note: Suspended users are listed in the search results.

You can sort the list of site users according to the following criteria:

• by full name, in ascending or descending order

• by user name, in ascending or descending order

Ascending order means from lowest value to the highest value (a–z or 1–9). Descending order means from highest value to the lowest value (z–a or 9–1). By default, the User List table is sorted by user name in ascending order.

The screen regenerates and the results are displayed in a table with the same five columns. In the heading of the column which has been sorted, a blue arrow icon points up (ascending order) or down (descending order). In the heading of the column which has not been sorted, a double-ended arrow indicates that the order for the column is random.

You can use the search and sort functions together to produce the display that you need. For example, you can search the list for all site users with "joe" in the full name, and sort the results of that search by email alias in ascending order.

To search the list of site users:

1. In the first field of the Search User List window, select "User Name", "Full Name" or "Email Alias" from the pull-down menu.

2. In the second field, select "is", "contains" or "does not contain" from the pull-down menu.

3. In the third field, enter the string of characters for which you want to search.

4. Click **Search**. The screen regenerates and displays the results in a table with the same five columns.

To sort the list of site users:

1. To sort according to Full Name, click on the blue arrow icon in the heading of the Full Name column. To sort according to User Name, click on the blue arrow icon in the heading of the User Name column.

2. To sort in ascending (up arrow icon) or descending order (down arrown icon), click on the blue arrow icon so that it points in the correct direction.

3. The screen regenerates and displays the results in a table with the same five columns.

Removing a site user

To remove a site user:

1. On the **Server Management** screen, click **Site Management**.

2. Click the green wrench icon next to the virtual site to which the user belongs. The User Management table appears.

3. In the User Management table, locate the site user that you want to remove.

4. Click the brown trashcan icon next to the site user. A confirmation dialog box appears.

5. Click **OK** to delete the site user's account and files.

Entering user email settings and aliases

Mail Forwarding and Vacation Reply

Individual site users can choose to have their RaQ 3 email forwarded to another email account. Site users can also choose to enable a vacation-reply message that is automatically sent to each person who sends the user an email. This feature is useful when users know they will not be reading or responding to incoming email messages for a period of time.

As the Site Administrator, you can enter these email settings for site users (at their request) as described in "Changing user settings" on page 86.

> **Note:** A vacation-reply email is sent only once per week to each sender.

Email aliases

The Email Alias feature allows you to create an arbitrary e-mail addresses without creating a user account on the RaQ 3. An email message addressed to the alias is forwarded to an existing email address. For example, an email alias lets you setup a temporary or permanent alias email address such as sales@mycompany.com and automatically route messages to a specific email user's mailbox.

Each registered user on the RaQ 3 must have a username that is unique across all virtual sites on the RaQ 3. You cannot create two users with the same name on different virtual sites because all users share the same password database file (/etc/passwd). For example, if there is a user with the username <mary> on virtual site abc.com, no other registered user on the RaQ 3 can have the username <mary>.

Usernames can be similar: mary, maryb, mary1, mary2

An email alias is a way to create an account so that more than one user can have the same email name on different virtual sites (<mary> on abc.com and <mary> on xyz.com). However, the underlying username for each person must be unique.

For example, the Site Administrator of abc.com can give Mary Brown the username <mary>; her email address is mary@abc.com. The Site Administrator of xyz.com (on the same RaQ 3) can give Mary Smith the username <marys>; the Site Administrator can then set up an email alias mary@xyz.com for Mary Smith. The alias points her incoming messages to the unique username of <marys> at xyz.com."

A site user can have several email aliases that point to a unique username. For example, John Smith (username <john1>) can have john@abc.com, JS@abc.com, john.smith@abc.com, johnny@abc.com and corvette@abc.com which all point to his username of <john1> at abc.com.

A Site Administrator can also set up aliases such as webmaster@abc.com, info@abc.com, sales@abc.com, comments@abc.com or support@abc.com that point to a specific username.

To enable an email alias:

To enable an alias for a site user:

1. On the **Site Management** screen, click **Site Settings**.

2. Click the check box for "Accept email for domain."

> **Note:** If this option is not selected, a sender must include the host name in the recipient's email address, for example <alias>@www.abc.com.

To add an email alias for a site user:

To add an email alias for a site user, see "Modify email options for a site user" on page 87.

Changing user settings

Modify settings for a site user

To modify the settings for a site user (to change the name, password, disk space allocation or telnet access for an existing user, to enable FrontPage web use or Secure POP3 [APOP], to make an existing user the Site Administrator or to suspend a site user), click the green pencil icon.

1. On the **Site Management** screen, click **User Management** on the left.

2. Click the green pencil icon for the site user. The Modify User table appears.

3. Enter the changes in the Modify User table.

4. Click **Confirm Modify**.

Modify email options for a site user

To set up or modify the email options for a site user (to enter a forwarding email address, email aliases and an automatic vacation reply), click the blue envelope icon. These options are described in "Entering user email settings and aliases" on page 84.

1. On the **Site Management** screen, click **User Management** on the left.

2. Click the blue envelope icon for the site user. The Modify User table appears.

3. Enter the changes in the Modify User table.

    To add an email alias, enter the additional names that the user will receive email as in the Email Aliases field. For example, for user <john1>, enter "john.smith", "johnny" and "corvette".

    DO NOT add the domain name to the additional names. Since the site user is part of the virtual site, he or she automatically inherits the domain name of the virtual site. If you do add the domain name in the Email Aliases field (for example, johnny@abc.com), the software gets confused.

    Enter multiple aliases on new lines or separated by spaces.

4. Click **Save Changes**.

Remove a site user

To remove a site user, click the brown trashcan icon. See "Removing a site user" on page 84.

Mailing list management

In the List Management section of the Site Management screen, you can create and manage mailing lists for the virtual site.

A mailing list allows a discussion by email between a group of people; the email addresses of the people in the group make up the list. The mailing list is given a name, for example AlphaProject. The mailing list can include users on the RaQ 3 as well as external users.

A message addressed to the name of the mailing list is delivered to each person on the list. If one person replies to the message, the reply is also delivered to each person on the list (and not just to the original sender).

To create a mail list in which a person's reply is delivered only to the original sender, you must create a group mail list (a function available in most email clients).

Figure 30 shows the Mailing List table in the List Management section.

Figure 30   Mailing List table
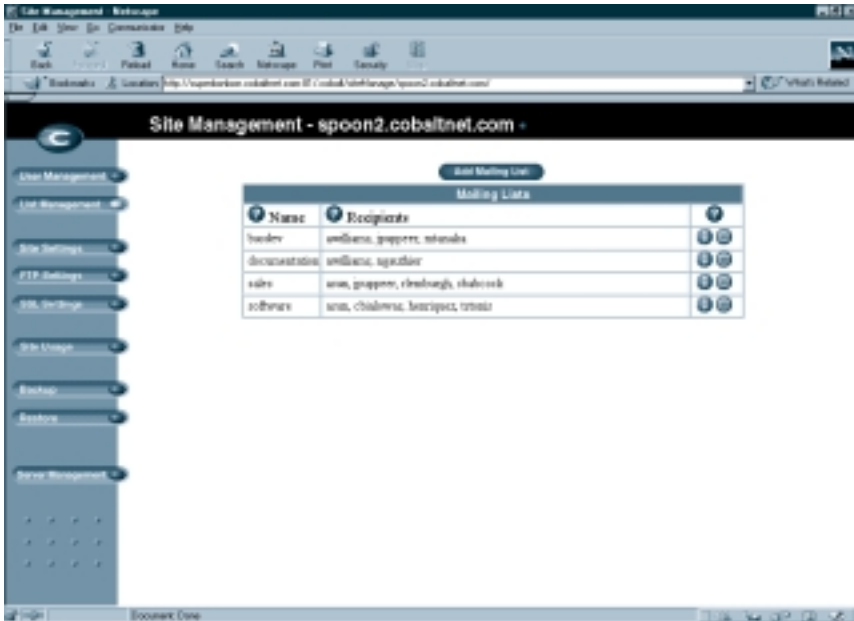
To add a mailing list on the RaQ 3:

1. On the **Site Management** screen, click **List Management**. The Mailing List table appears.

2. Click **Add Mailing List**. The Add Mailing List table appears. See Figure 31.

3. Enter a name for the mailing list.

4. Enter a password for the mailing list. You need the the password for managing the mailing list.

5. To accept email addressed to the mailing list from an email address that is not a member of the list, click the check box next to Allow mail from unsubscribed addresses.

6. Add recipients to the mailing list.

    •   To add external recipients to the mailing list, enter the email addresses in the "External Recipients" field.

    •   To include existing registered site users on the RaQ 3 in the list, click the username in the scrolling window.

        To select all the registered site users, click **Select All**.

        To select individual recipients in the scrolling window, hold the down the Control key (Windows) or the Apple key (Macintosh) and click on the user names.

7. Click **Confirm New Mailing List**.

Figure 31 shows the Add Mailing List table in the List Management section.

Figure 31   Add Mailing List table
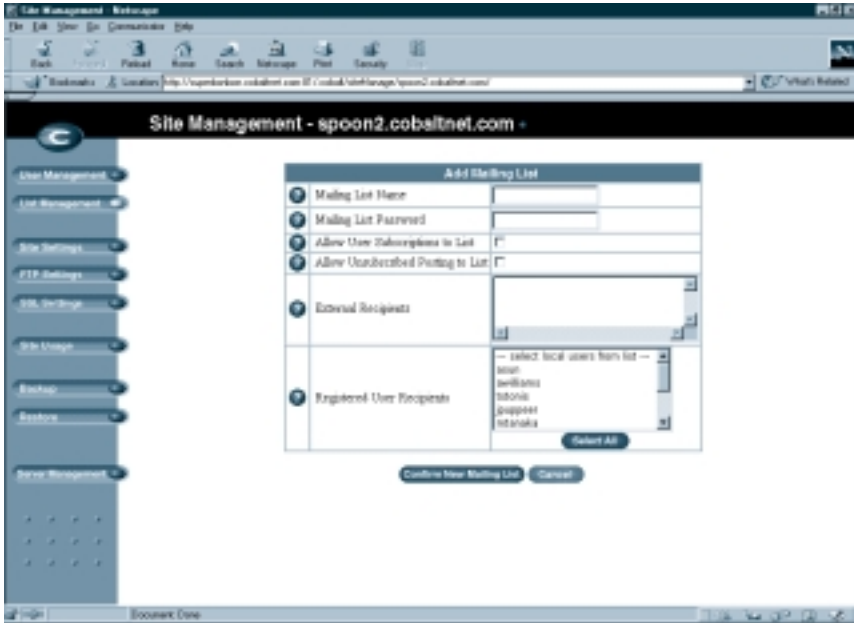
To modify a mailing list:

1.   On the **Site Management** screen, click **List Management**. The Mailing List table appears.

2.   Click the green pencil icon next to the mailing list you want to modify. The Modify Mailing List table appears.

3.   Modify the information as neccessary (see the prcoedure for adding a new mailing list for the options).

4.   Click **Confirm Modify**.

To remove a mailing list:

1. On the **Site Management** screen, click **List Management**. The Mailing List table appears.

2. Click the brown trashcan icon next to the mailing list you want to delete. A confirmation dialog box appears.

3. Click **OK** to delete the mailing list.

Site settings

Only the RaQ 3 Administrator can modify virtual site settings. For Site Administrators who are not the RaQ 3 Administrator, the Site Settings section is a read-only status page.

For an explanation of the fields on the Site Settings table, see"Overview of virtual sites" on page 38.

For a view of the Site Settings table, see Figure 32 on page 92.

In the Site Settings section of the **Site Management** screen, you can:

•   view the IP address, host name and domain name of the virtual site

•   enable or disable the bandwidth limiting function for the site, and enter a bandwidth limit in kilobits per second; the minimum is 10 Kb/s

•   enable or disable email acceptance for the virtual site's domain

•   enable or disable Web access by domain

•   change the maximum allowed disk space for the virtual site

•   limit the number of site users on a virtual site

•   enable or disable access to telnet/shell accounts, CGI scripts, SSL, server side includes, FrontPage server extensions and Secure POP3 (APOP)

•   suspend the virtual site

Changing site settings

To change the settings for a particular virtual site, click the green wrench icon. For an explanation of the fields on the Site Settings table, see"Overview of virtual sites" on page 38.

Figure 32 shows the screen for changing the site settings of a virtual site.

Figure 32   Changing the site settings of a virtual site

To change settings for a particular site:

1. On the **Server Management** screen, click **Site Management**.

2. Click the wrench icon next to the site to which the user belongs.

3. Click **Site Settings** on the left side. In the Site Settings table, you can set the values of the fields or enable the services:

    a. IP address

    b. Host name

    c. Domain name

    d. Bandwidth limit

    e. Accept email for domain

    f. Web access by domain

    g. Maximum allowed disk space (Mb)

    h. Maximum number of users

    i. Enable shell accounts

    j. Enable CGI scripts

    k. Enable SSL

    l. Enable Server Side Includes

    m. Enable FrontPage Server Extensions

    n. Enable Secure POP3 (APOP)

    o. Suspend Site

4. Click **Save Changes**.

Common gateway interface (CGI) allows users to have Web sites run programs that dynamically generate HTML pages in response to specific user inputs. CGI scripts can be created on a user's desktop computer and then transferred to the RaQ 3 with a file transfer protocol (FTP) application (as explained in Chapter 5). CGI scripts must have a .pl or .cgi filename extension.

If the "Accept email for domain" function is selected, site users can retrieve email using the address <username>@domain.com. For example, if the host name of the site is raq1 and the domain name is abc.com, users can receive mail addressed to both <username>@raq1.abc.com and <username>@abc.com.

Suspend a virtual site

There are two ways to suspend a virtual site on the RaQ 3: a hard suspension and a soft suspension.

For more information on hard suspensions, see "Suspend a virtual site" on page 68.

Soft suspension

The RaQ 3 Administrator or Site Administrator can suspend an individual virtual site. All of the site users are denied access to telnet, FTP and POP3/IMAP/APOP services, as well as Web access to their files. The site user accounts continue to receive email.

To suspend an individual virtual site:

1. On the **Server Management** screen, click **Site Management** on the left.

2. Click the wrench icon next to the virtual site you want to suspend.

3. Click **Site Settings** on the left.

4. At the bottom of the table, click the Suspend Site check box so that it is checked off.

5. Click **Save Changes**. The RaQ 3 saves the new configuration.

6. If you want to see that the site is suspended, click **Server Management** on the left.

    In the Virtual Site List table, the entry for the suspended site shows a red X in the third column; the name and the IP address of the site are grayed-out.

Suspend a site user

The Site Administrator (or RaQ 3 Administrator) can suspend a site user on a virtual site. The site user is denied access to telnet, FTP, POP3/IMAP/APOP services, as well as Web access to their files. The site user account continues to receive email.

To suspend a site user:

1. On the **Site Management** screen, click the green pencil icon next to the site user you want to suspend. The Modify User table appears.

2. At the bottom of the Modify User table, click the Suspend User check box.

3. At the bottom of the table, click the Suspend Site check box so that it is checked off.

4. Click **Confirm Modify**.

    The User List table appears. The entry for the suspended user shows a red X in the fourth column; the full name, the username and the email alias of the user are grayed-out.
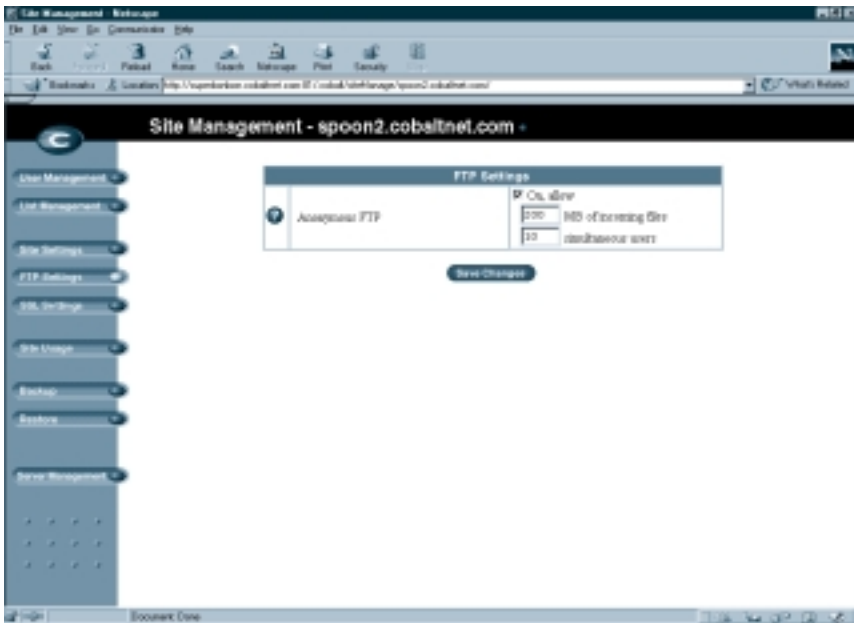
FTP settings

Only the RaQ 3 Administrator can modify site settings. For Site Administrators who are not the RaQ 3 Administrator, the FTP Settings section is a read-only status page.

The RaQ 3 Administrator can enable the anonymous FTP server for the site, set limits on the size of files that can be uploaded and set the number of simultaneous anonymous users. This feature allows users without passwords to download and upload files via FTP, up to the specified disk-space limit.

You can only enable anonymous FTP on one name-based virtual site per IP address. The UI does not allow you to enable anonymous FTP on a second name-based virtual site that shares the same IP address.

Figure 33 shows the FTP Settings table.

Figure 33   FTP Settings table

To change the FTP settings for your virtual site:

1. On the **Server Management** screen, click **Site Management** on the left.

2. Click the green wrench icon next to the virtual site.

3. Click **FTP Settings** on the left.

4. Enter the settings you want. You can specify the number of megabytes of incoming files to accept and the number of simultaneous users.

5. Click **Save Changes**.

To download files via anonymous FTP, log on to the site with the username "guest" or "anonymous" — you do not need to enter a password. When you log on with one of these usernames, you enter the directory `/home/sites/<sitename>/ftp/`. The Site Administrator can post files here for downloading via FTP client software or a Web browser.

Site Administrators can access the anonymous FTP directory as "/ftp" during an FTP session.

To upload files, you must use FTP client software (for example, Fetch) and access the directory `/home/sites/<sitename>/ftp/incoming/`. Once you have uploaded a file, you (as a guest) cannot see it or access it on the FTP site. However, all registered site users with telnet/shell privileges can access the file.

The size limit specified for FTP uploads is the total amount of disk space allocated for FTP uploads. If this number is set to 0, a guest cannot upload to the FTP site.

SSL settings

Secure sockets layer (SSL) provides a secure Web connection to the end user. The implementation of SSL on the RaQ 3 is based on mod_ssl and BSAFE cryptographic software from RSA Security.

The RaQ 3 provides an optional secure sockets layer (SSL) for RaQ 3 administration. SSL is provided in 56-bit encryption code. For North America (United States and Canada), an upgrade to 128-bit encryption is available.

A secure connection means two things: no one can snoop the connection between the browser and the RaQ 3, and the client receives, through a certificate, assurance that the server is who they say they are. The security is assured on two levels.

At the network level, the first time the browser connects to a server, the browser stores the server's certificate. Each time the browser "thinks" that it is communicating with this same server, it verifies that this certificate is used to assure the secure connection.

At a higher level, a server's certificate is "signed" by a trusted external authority that the browser knows about, such as VeriSign or Thawte. The server information (country, state, city, organization) is encoded into the certificate and certificate request. The external authority signs your request and guarantees your server information is legitimate.

For example, if a Web site sends a signed certificate saying that it comes from Cobalt Networks in Mountain View, California, United States, the end user can trust (due to the signed certificate from the external authority) that this Web site is indeed run by this company located in this city.

A self-signed certificate is a certificate that has not been signed by an external authority. A self-signed certificate simply assures you that you have a secure Web connection; it does NOT guarantee to a user that you are who you say you are.

Enable SSL on a virtual site

> *IMPORTANT:* You can enable SSL on only one name-based virtual site on an IP address. Only the RaQ 3 Administrator can enable SSL on a virtual site.

You can only enable SSL encryption on one name-based virtual site per IP address. The UI does not allow you to enable SSL on a second name-based virtual site that shares the same IP address.

To enable SSL on a virtual site:

1. Go to the **Server Management** screen.

2. Click the wrench icon next to the virtual site on which you want to enable SSL.

    Note: The Site Administrator may not have access to the **Site Management** screen.

3. Click **Site Settings** on the left side. See Figure 34.

4. Click the check box next to Enable SSL.

    Note: This feature only enables the public web server; it does not enable the SSL administrative server. See "SSL certificate for the main site" on page 101.

5. Click **Save Changes.**

    The RaQ 3 saves the configuration of the virtual site.

Figure 34   Site Settings table: Enable SSL
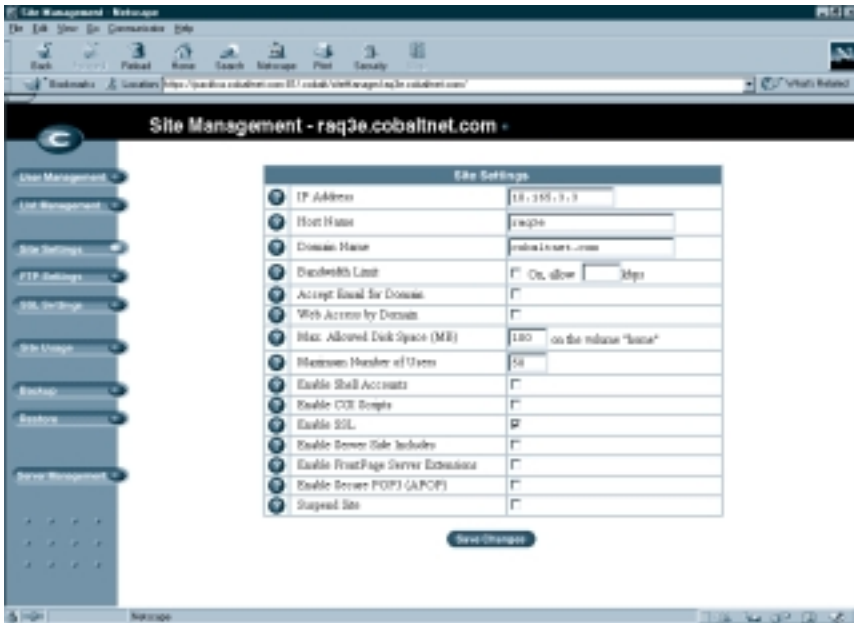
Generate a self-signed certificate

Once the RaQ 3 Administrator has enabled SSL, the user must now create a self-signed certificate. The self-signed certificate can be signed later by an external authority.

1. Click **SSL Settings** on the left side. The **Certificate Subject Information** screen appears. See Figure 35.

2. Enter the following information:

   Country Enter the two-letter country code (for example, AU for Australia or US for United States).

   State Enter the abbreviated form of the state name (for example, NSW for New South Wales or CA for California).

   Locality Enter the city or locality (for example, Sydney or Toronto).

   Organization Enter the name of the organization (for example, The Widgets Corporation).

   Organizational Unit As an option, enter the name of a department (for example, Hardware Engineering).

3. Select **Generate self-signed certificate** from the pull-down menu at the bottom.

4. Click **Save Changes.**

   The RaQ 3 processes the information and regenerates the screen with the new self-signed certificate in the Certificate Request and Certificate windows. See Figure 36.

Figure 35 shows the blank form for generating an SSL certificate.

Figure 35   Blank form for generating an SSL certificate
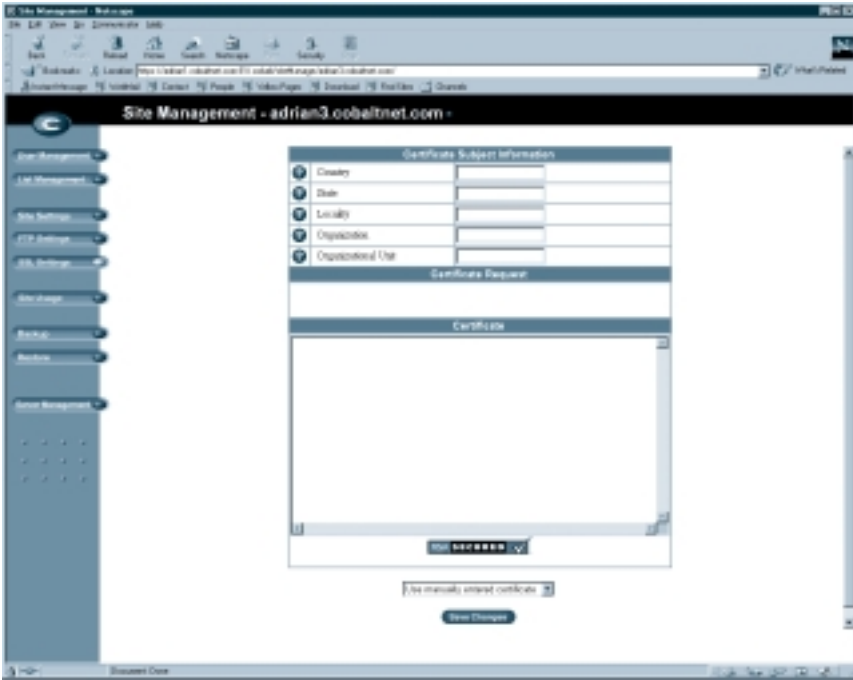
Figure 36 shows the processed information of a self-signed SSL certificate.

Figure 36   Processed information of a self-signed SSL certificate
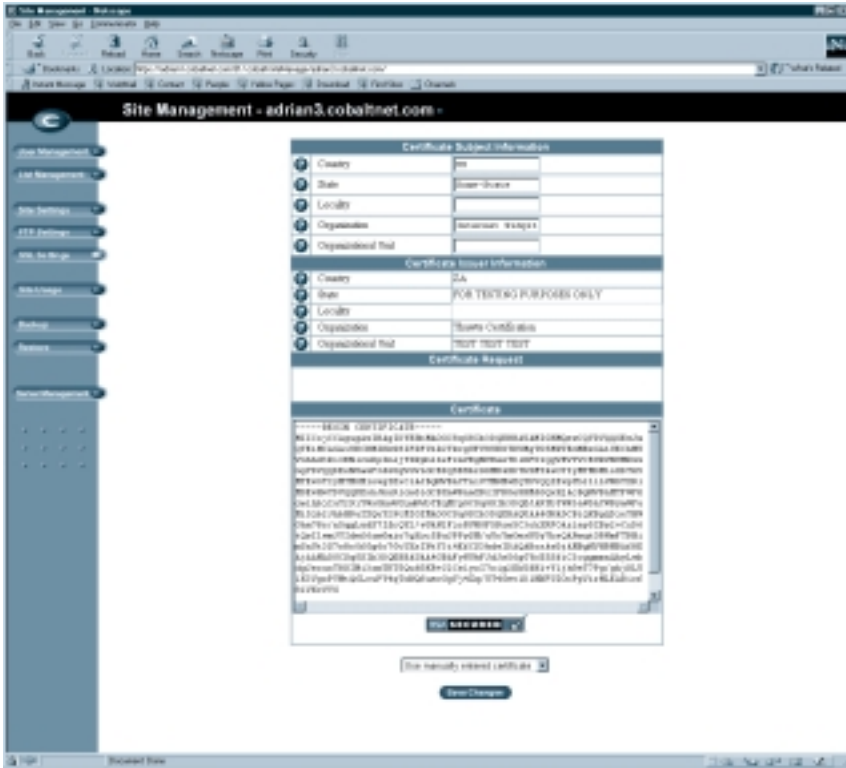
SSL certificate for the main site

If the browser prompts you for your username and password, you have enabled SSL on the main site of the RaQ 3. The browser prompts you since this secure connection is in fact a new connection to the RaQ 3.

Generating a certificate for the main site is a special case and causes three things to happen:

1.   SSL is enabled for all RaQ 3 management screens (both server management and site management).

2.   The SSL administration server is enabled for the RaQ 3.

3.   The main site certificate request is propagated to all virtual sites that have SSL enabled but do not have their own certificate request.

Now that you have enabled SSL, you can access your virtual site over a secure connection at https://<sitename> .

For more information on obtaining an externally signed certificate, see "Obtain an externally signed SSL certificate" on page 102.

Conversely, deleting the certificate from the main site removes the certificate from the virtual sites to which the certificate has been propagated.

Enable the administration server for SSL

The Cobalt RaQ 3 supports secure administration. The certificate generated for the main site is also used for secure administration. Therefore, to enable secure administration on a virtual site, generate a certificate for the main site on the RaQ 3 (if this has not already been done.)

Delete an SSL certificate

If for any reason you want to delete an SSL certificate for a virtual site, perform the following steps.

> **Note:** Deleting the certificate from the main site removes the certificate from the virtual sites to which the certificate has been propagated. In addition, it removes the secure connection to the administration server (it reverts from https: to http:).

1. Go to the **Server Management** screen.

2. Click the wrench icon next to the virtual site on which you want to delete the certificate.

3. Click **SSL Settings** on the left side.

4. Select **Delete certificate** from the pull-down menu at the bottom.

5. Click **Save Changes.**

    The RaQ 3 processes the information and regenerates the screen; the Certificate Request and Certificate windows are now blank.

Obtain an externally signed SSL certificate

For e-commerce, an externally signed SSL certificate is required.

First, you need a self-signed certificate request. If you do not have a self-signed certificate, see "Generate a self-signed certificate" on page 99.

To obtain an externally signed SSL certificate:

1. On the **SSL settings** screen, copy the information from the "Certificate Request" window of your self-signed certificate.

2. Open a new browser window and go to the Web site for one of the certification authorities (for example, Thawte or VeriSign).

3. Paste the information from Step 1 in the window on the Web site of the certification authority. Follow the instructions on the Web site.

4. The certification authority wither sends you a certificate by email or returns the information on the browser. Copy this information.

5. On the **SSL settings** screen, delete the information currently in the "Certificate" window.

6. Paste the new certificate information that you copied in Step 4 into the "Certificate" window.

7. Select **Use manually entered certificate** from the pull-down menu at the bottom.

8. Click **Save Changes**.

Site Usage

The Site Usage feature allows the Site Administrator to monitor the amount of bandwidth consumed by Web, email and FTP traffic generated by a virtual site as well as disk usage for the virtual site. Report graphs for the traffic are generated on a daily, weekly and monthly basis.

For the Site Usage feature on the **Server Management** screen, see "Site Usage" on page 71.

The reports are generated each night at 1:00 a.m and the statistics are updated once daily for all services.

The results are presented in bar graphs and can be viewed according to the following criteria.

1. Hourly reports are generated from the traffic of the previous day.

2. Daily reports provide the average number of hits on each Monday for the length of the report.

3. Weekly reports are generated from the traffic of the previous six to eight weeks.

4. Monthly reports are generated from the traffic of the previous 12 months.

Figure 37 shows a sample summary of Web usage on a virtual site.

Figure 37   Sample summary of Web usage
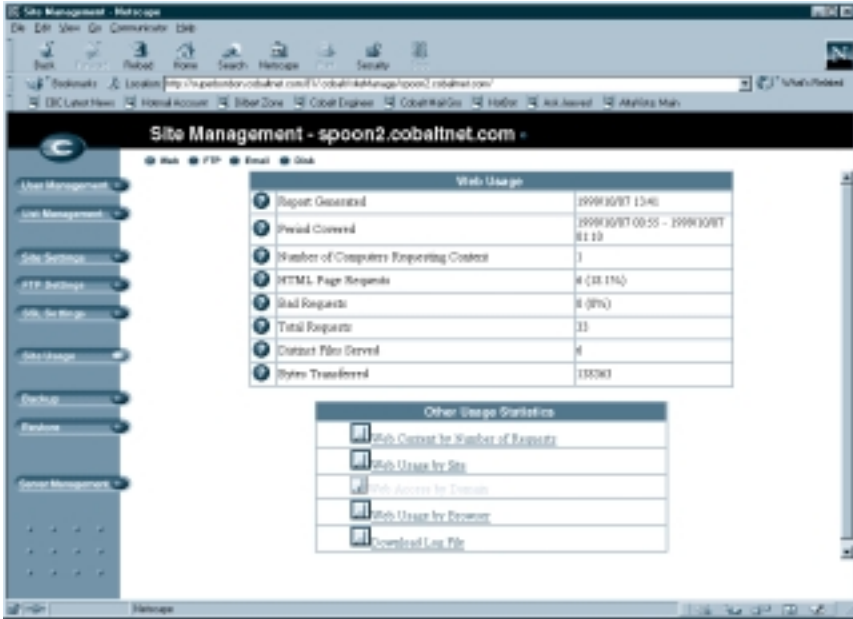
To use the Site Usage function:

1. On the **Server Management** screen, click **Site Management**.

2. Click the green wrench icon next to the virtual site.

3. Click **Site Usage** on the left. A table for the type of usage summary appears.

    •   **Web** displays Web usage for the virtual site.

    •   **FTP** displays FTP usage for the virtual site.

    •   **Email** displays email usage for the virtual site.

    •   **Disk** displays information concerning the disk usage for the virtual site as a whole, as well as the disk usage for each site user.

    Each option also displays a table for other usage statistics. Click on any of the links in this table for more detailed information.

Backup

A Site Administrator can perform different types of backups.

Caution: A backup captures data only (for example, email messages or files). It does NOT back up the settings for virtual sites or users.

Caution: Internet Explorer 3.0 allows a backup but does not allow a restore. Upgrade your browser or back up your files through a more recent version of the browser on a different machine.

Manual backup

A Site Administrator can manually back up data stored on the RaQ 3.

1. On the **Site Management** screen, click **Backup**. The File Backup table appears. See Figure 38.

2. In "Data to Backup," select the type of backup:

    *   **All email, Web and user files on this site** This option backs up the files for all the site users (including the administrator) and email, as well as the site Web and FTP data.

    *   **Files and email of user** This option backs up the files and email in-box for a specific user on this site.

3. To back up all files or to back up files changed within a certain time frame, choose from the pull-down menu adjacent to "Backup files modified in the last."

    You can choose "Backup all Files," 31 days, 14 days, 7 days, 2 days or 1 day.

4. Click **Start Backup**.

5. Assign a path and a file name on your computer for storing the backup data. Click **Save**.

The file transfer takes several seconds to several minutes.

!

Caution: Do not interrupt or cancel the backup process. If you do, or if the file transfer fails for any other reason, delete the partial backup file stored on your personal computer and try again. If you attempt to use a partial file to restore data, you risk corrupting the data already stored on the server.

Figure 38 shows the File Backup table for a virtual site.

Figure 38   Backup table for a virtual site
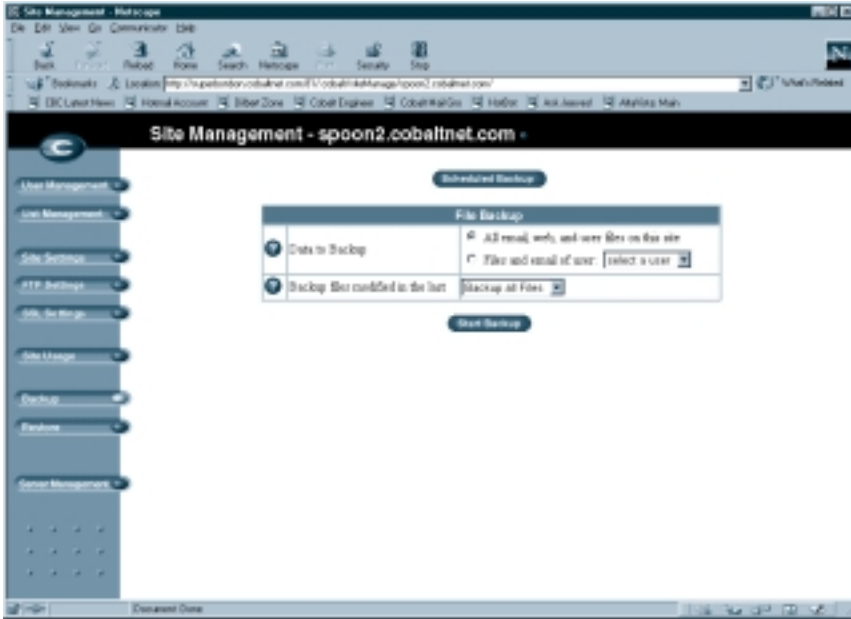
Scheduled backup

A Site Administrator can schedule regular automatic backups.

To schedule regular, automatic backups:

1. Click **Backup** on the Site Management screen.

2. Click **Scheduled Backup**. The Scheduled File Backup table appears. See Figure 39.

3. In "Data to Backup," select the type of Backup, as described in step 2 in "Manual backup" on page 106.

4. To back up all files or to back up files changed within a certain time frame, choose from the pull-down menu adjacent to "Backup files modified in the last."

5. Choose the frequency of the automatic backup:

   • **Daily** means nightly at 1 a.m.

   • **Weekly** means every Sunday morning at 1 a.m. (Saturday night going into Sunday morning)

   • **Monthly** means on the first of every month at 1 a.m.

6. Choose a backup method.

  - **FTP Server** writes the backup file to an FTP server.

  - **NFS** places the backup file on a mountable NFS resource.

  - **SMB Server** (Windows File Sharing) places the backup file onto a directory shared from a Windows machine.

7. Enter a location for storing the backup data.

  The location you specify depends in part on the backup method you select in step 6. See "Backup File Locations" below for an explanation of locations you can enter here.

8. Click **Save Changes**.

Figure 39 shows the Scheduled File Backup table for a virtual site.

Figure 39   Scheduled File Backup table for a virtual site
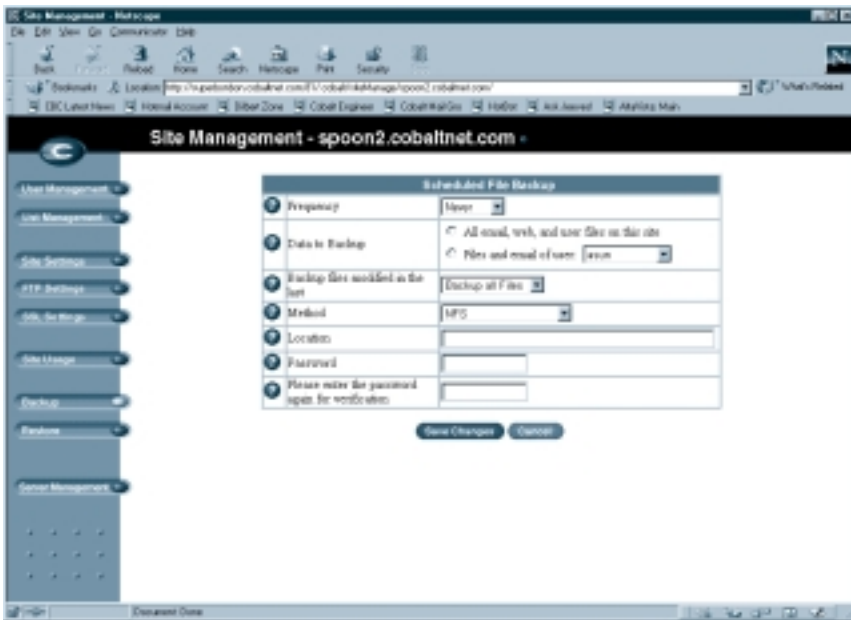
Backup file locations

For a backup by an **FTP Server**:

- A location of `<username>@ftp.server.com` puts the backup file in the initial login directory.

- A location of `<username>@ftp.server.com/path/to/ backups/` puts the backup file in the specified path on the server, using `<username>` to login.

For a backup by **Anonymous FTP**:

- For an anonymous FTP connection, the file must be put in a directory where anonymous FTP users have write access. This is generally the `/incoming/` directory.

- A location of `ftp.server.com/incoming` places the backup file on ftp.server.com under the `/incoming/` directory.

- The "Password" field should contain the password for the specified user or be left blank for anonymous logins.

For a backup by **NFS Server**:

- The location should be `<server>:/<share>`, where `<server>` is the NFS server and `<share>` is the NFS volume to mount and write to. You must have write privileges to this directory.

- The "Password" is ignored for NFS server backups.

For a backup by **SMB Server** (Windows File Sharing):

- The location should be `<user>@\\windowspc\<share>`. This mounts the volume share on the Windows server, using `<user>` as the login. The "Password" field must contain the password for `<user>`.

- For volumes that do not require a user, the location should be `\\windowspc\share`.

For **All Scheduled** backups:

- Ensure the target location is available and has enough disk space to hold the backup archive. Failure to do this may result in zero-length or truncated archives.

Restore

You must restore data from the same machine on which the data was backed up. Site Administrators can restore files only to their own site.

!

> **Caution:** The system restores data only (for example, email messages or files). It does NOT restore virtual sites or site users to a RaQ 3.

!

> **Caution:** The system does not merge the current and backed up data. When data is restored, any changes made to files on the RaQ 3 since the last backup are lost.

To restore a backup file.

1. On the Site Management screen, click **Restore** on the left.   The File Restore table appears.

2. Enter the path and filename of the backup file, or click **Browse** and select the file to restore.

    > **Note:** If the file does not appear in the list and you are using Netscape 4.x or Internet Explorer 4.x, you might need to change "File Type" in the desktop to "All Files."

3. If you want to restore only some of the files, click **Selective Restore**.

4. Click **Restore A Backup File** below the File Restore table.

    > **Note:** Restoring large backup archives can cause your Web browser to timeout. If you upload the ".raq" archive with FTP to the Administrator's home directory, it is selectable from a menu on the restore screen.

Archive restores are not possible with Microsoft Internet Explorer version 3. If you experience problems uploading an archive, use a newer version of browser.

Do not interrupt an archive restore because this can corrupt data. If the restore process is interrupted, the user can try to restore again.

To restore a user home directory or a site, make sure the user or site already exists.

When data is restored, the RaQ 3 and its corresponding parts (site, user and email) are returned to the exact state they were in prior to backup.

Server management

If you are the RaQ 3 Administrator, you can return to the RaQ 3 **Server Management** screen. On the **Site Management** screen, click **Server Management** on the left.

Publishing Web pages

For information on publishing Web pages on the RaQ 3, see "Developing Web pages" on page 120, "Publishing Web pages using FTP" on page 121 and "Publishing Web pages with FrontPage" on page 122.

Chapter 4

Using Services on a Site

This chapter describes the functions that site users can perform on the RaQ 3. As a site user, you can change your user name and password, set email options, monitor the use of disk space in your directory, back up and restore your files, send and receive email, and create and upload Web pages and other files.

Managing Your Personal Profile

You manage your directory using any standard browser. Access your directory by typing the URL http://<sitename> /personal/ into your browser. You must enter your user name and password.

When you access your directory, the **Personal Profile** screen appears with the Modify User table; see Figure 40. The management functions available on the **Personal Profile** screen are described in the sections that follow.

Figure 40   Modify User table
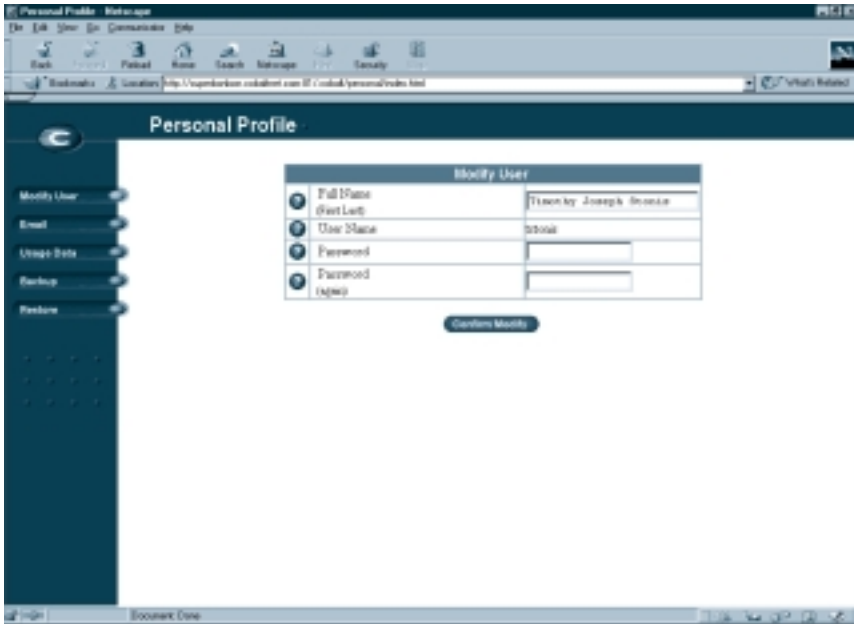
Modify site user

You can change your full name and password. To modify your settings:

1. On the **Personal Profile** screen, click **Modify User**. The Modify User table appears. See Figure 40.

2. Change the settings.

3. Click **Confirm Modify**.

Email

The email section allows you to select email options.

Figure 41 shows the Email Settings table for a site user.

Figure 41   Email Settings table
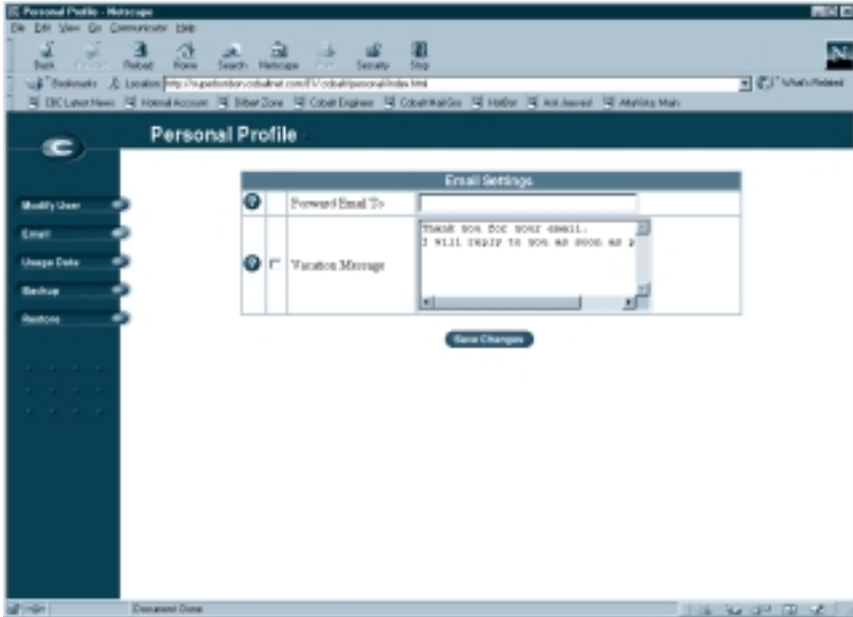
To set your email options:

1.   On the **Personal Profile** screen, click **Email** on the left. The Email
     Settings table appears.

2.   In the Email Settings table, select the options that are described in
     the next two sections.

3.   Click **Save Changes**.

Forward email to

You can forward your RaQ 3 email to another email account.

In the Email Settings table, enter the destination email address in the
Forward Email To field. Click **Save Changes**.

Vacation reply

You can create a vacation-reply message that is automatically sent to each person who sends you email. This feature is useful when you know that you will not be reading or responding to incoming email messages for a period of time.

A vacation-reply email is sent only once a week to each sender.

To set up a vacation reply:

1. Click the Vacation Reply check box to enable the function.

2. In the scrolling field, type the text of the message you want to send to users while you are away.

3. Click **Save Changes**.

Usage data

The Usage Data section displays a Disk Usage table showing information on your disk usage. To view the Disk Usage table:

1. On the **Personal Profile** screen, click **Usage Data** on the left. The Disk Usage table appears.

2. The Disk Usage table displays the following information:

    •   the amount of disk space used (Mb)

    •   the amount of disk space free (Mb)

    •   the amount of disk space allowed (Mb)

    •   a usage bar showing how much space has been used (percentage)

Backup

As a site user, you can back up your files. When you select a backup method, your Web browser prompts you to save a file containing all of your backup data. This data includes your home directory files, your email inbox and your vacation autoresponder message.

⚠

Caution: A backup captures data only (for example, email messages or files). It does NOT back up the settings for virtual sites or users.

⚠

Caution: Do not interrupt or cancel the backup process. If you do, or if the file transfer fails for any other reason, delete the partial backup file stored on your personal computer and try again. If you attempt to use a partial file to restore data, you risk corrupting the data already stored on the server.

To back up your files:

1. On the **Personal Profile** screen, click **Backup** on the left. The File Backup table appears.

2. Follow the on-screen instructions. When you are ready to perform the backup, click **Backup My Files**.

Restore

Restore allows you to restore all files and subdirectories in your home directory from a .raq backup file.

> **!**
>
> **_Caution:_** The system restores data only (for example, email messages or files). It does NOT restore virtual sites or site users to a RaQ 3.

To restore the backed-up files (from your local disk to your RaQ 3 home directory):

1. On the **Personal Profile** screen, click **Restore** on the left. The File Restore table appears.

2. Click **Browse** and select the .raq backup file to restore onto the RaQ 3.

3. If you want to restore only some of the files, check **Selective Restore**.

4. Click **Restore a Backup File**.

Archive restores are not possible with Microsoft Internet Explorer version 3. If you experience problems uploading an archive, use a newer version of browser.

Do not interrupt an archive restore because this can corrupt data. If the restore process is interrupted, the user can try to restore again.

Using email on the RaQ 3

To use all of the email capabilities on the RaQ 3, the email parameter settings must be correct; see "Email server" on page 48. You must also configure your email application to send and retrieve email from the RaQ 3.

Ensure the following information is entered into your email program:

1. **Email address** The format is:

   <username>@hostname.domainname

   (for example, myname@raq1.cobalt.com) where:

   - <username> is the user ID assigned to you (for example, myname)
   - <hostname> is the name assigned to the RaQ 3 (for example, raq1)
   - <domainname> is either the official domain name that is registered with InterNIC (for example, cobalt.com), or an intranet domain name specific to your network. Obtain this information from your system administrator.

2. **SMTP server** The format is hostname.domainname (for example, raq1.cobalt.com).

3. **POP3 server** The format is hostname.domainname (for example, raq1.cobalt.com).

4. **IMAP server** The format is hostname.domainname (for example, raq1.cobalt.com).

5. **APOP server** The format is hostname.domainname (for example, raq1.cobalt.com).

   > **Note:** Occasionally, an email application asks for an "incoming" mail server. The incoming mail server is the POP3 server.

Developing Web pages

You can create complex Web pages using any of the standard HTML editors and the HTML publishing capabilities of many popular desktop productivity applications.

You can create and link the Web pages on your desktop computer, and then move them to the appropriate subdirectory in the RaQ 3 through a file transfer protocol (FTP) application; see "Publishing Web pages using FTP" on page 121.

CGI scripts

The RaQ 3 supports common gateway interface (CGI) scripts, such as those written in Perl, C or other languages. If CGI is enabled for your site (see the Site Settings section of the **Site Management** screen), you can add CGI scripts to work with your Web content.

This enables you to develop highly interactive, powerful Web-based applications by building server-side CGI scripts that generate Web pages in response to specific user inputs. These applications range from simple scheduling and conferencing applications to sophisticated electronic commerce solutions.

You can develop CGI scripts on your desktop machine and then transfer them to the RaQ 3 by means of any FTP-based application that allows permission bits to be set to "Executable".

Use FTP to upload .cgi and .pl files; use ASCII mode to upload CGI files. Once the file is on the RaQ 3, use your FTP program to make the script executable. You can also use the telnet command: chmod 775 <filename>.cgi.

The path to Perl is `/usr/bin/perl`. In order for users (other than the RaQ 3 Administrator) to add CGI files, CGI must be enabled for the user's virtual site (see the Site Settings section of the **Site Management** screen). CGI scripts must use .pl or .cgi filename extensions in order to be executed by the Web server.

Publishing Web pages using FTP

After creating your Web pages, you can publish them on the RaQ 3 using FTP.

Make sure you have the following information:

- the host name or the IP address of your RaQ 3

- your username and password

- a filename of your choice to save as your main page (the default is index.html)

Launch your FTP software and establish an FTP link to the RaQ 3. Upload your HTML files. If you need help, consult the instructions for your FTP application.

By default, the files you upload using FTP are stored in your personal directory; the directory path is:

`/home/sites/<sitename>/users/<username>`

where <sitename> is the fully qualified domain name of your site and <username> is your user name.

Note to site administrators: To post Web pages for your site, you must upload to the directory `/home/sites/<sitename>/web`. Only Site Administrators or the RaQ 3 Administrator can upload to this directory. If you do not specify this directory, your Web pages are stored in your personal directory which is not accessible from the Web.

The Site Administrator can access and edit the site root content in the directory `/web` during an FTP session. The site web root is accessible on the Web at http://<sitename>/.

Site Administrators can edit their personal Web pages in the directory `/users/<username>/web` during an FTP session. Personal Web sites are accessible on the Web at

- http://<sitename>/users/<username>/

- http://<sitename>/~<username>/

Users who are not Site Administrators can edit their personal Web sites in the directory `/web` during an FTP session.

Publishing Web pages with FrontPage

If FrontPage Server Extensions are enabled on a site, a Site Administrator can open the site "root web" using Microsoft FrontPage software.

To publish a Web page using FrontPage:

1. Using FrontPage Explorer on a personal computer, select **Open FrontPage Web**.

2. Select **More Webs**.

3. Type the exact virtual site host name into the Web Server field.

4. Click **List Webs**.

5. Choose the web named root web.

6. Click **OK**.

For FrontPage and FrontPage Web information and technical support, see http://www.microsoft.com/frontpage/ and http://www.rtr.com/

Using telnet

Site users can telnet to the RaQ 3.

> **Warning to the RaQ Administrator:** You can adversely affect the performance of your RaQ 3 if you modify system configuration files. Check your warranty card for details.

> **Warning:** Direct root logins are not allowed on the RaQ 3. To obtain a root shell, telnet to the server and login as the user "admin". From the command prompt, type "**su -**" and press enter. Enter the administrator's password at the password prompt. Only the RaQ 3 Administrator can **su -** to root.

The Site Administrator can enable telnet access for individual site users; see "User management" on page 79.

Telnet should only be used by advanced users who want to run shell scripts or use shell commands. An advanced user is someone who is proficient in the internal workings of the Unix operating system.

Chapter 5

New Features on the RaQ 3

The following sections describe the new features available on the RaQ 3.

Add-on storage support

On a RaQ 3 equipped with a SCSI connector, the Cobalt UI allows disk devices on the SCSI bus to be used as additional storage for virtual sites.

For more information, see "Add-on storage support" on page 67.

Disaster recovery

The RaQ 3 uses Arkeia software. The Arkeia software can be used to back up the content and data on the RaQ 3. In case of failure, this data can then be restored to the RaQ 3.

For more information, see "Arkeia file backup" on page 54.

Output bandwidth management

The RaQ 3 allows you to set an output bandwidth limit for each IP address you assign to a RaQ 3. This feature is available when you create a virtual site on the **Server Management** screen or when you modify the settings of a virtual site. The virtual site must have an IP address associated in order to specify a bandwidth limit.

For more information, see "Output bandwidth management" on page 40.

Secure administration (SSL)

The RaQ 3 provides an optional secure sockets layer (SSL) for RaQ 3 administration. SSL can be used for both Web servers on the Cobalt RaQ 3, the main virtual sites and the admin server.

SSL functions only with IP-based virtual sites.

For more information, see "SSL settings" on page 96.

Site Usage

The Site Usage feature on the **Server Management** screen allows the RaQ 3 Administrator to monitor the amount of bandwidth consumed by Web, email and FTP traffic generated by a virtual site. Report graphs for the traffic are generated on a daily, weekly and monthly basis.

For more information on Site Usage on the **Server Management** screen, see "Site Usage" on page 71.

The Site Usage feature on the **Site Management** screen now allows the Site Administrator to monitor the amount of bandwidth consumed by email and FTP traffic generated by a virtual site, as well as the Web and disk usage. Report graphs for the traffic are generated on a daily, weekly and monthly basis.

For more information on Site Usage on the **Site Management** screen, see "Site Usage" on page 103.

Support for uninterruptible power supply (UPS)

When the RaQ 3 is configured to use an uninterruptible power supply (UPS), the RaQ 3 powers down the network functions in an orderly manner in the event of a power failure. There is no support for this feature through the Web UI.

Cobalt Networks, Inc.'s recommended supplier for UPS units is American Power Conversion (www.apcc.com). For more information on Cobalt's power solutions, refer to the Solutions page on the Cobalt Web site (http://noram.cobalt.com/solutions/).

For more information on UPS, see "Configuring an uninterruptible power supply (UPS)" on page 131.

Support tools

The Support Tools feature is a Web page that assists Technical Support in diagnosing problems on a RaQ 3 unit.

On the **Server Diagnostics** screen, the RaQ 3 Administrator can create and download a data dump of the configuration files on the RaQ 3. This data dump can then be emailed to diagnostics@cobalt.com. A member of the Technical Support team can then evaluate the condition of your RaQ 3 before providing you with corrective action, either by telephone or email.

If the RaQ 3 Administrator is familiar with Linux, he or she can look through this file in an effort to determine the problem with the RaQ 3. The file is a standard gzip file.

For more information on the Support Tools feature, see "Support tools" on page 70.

Suspend a virtual site

There are two ways to suspend a virtual site on the RaQ 3: a hard suspension and a soft suspension.

A hard suspension occurs when a storage device is disabled through the UI or is disconnected from the RaQ 3. In this case, all virtual sites on that storage device are inaccessible. You cannot administer these sites, and users cannot receive email.

For more information on hard suspensions, see "Suspend a virtual site" on page 68.

The RaQ 3 Administrator or Site Administrator can also suspend an individual virtual site. All of the site users are denied access to telnet, FTP and POP3/IMAP/APOP services, as well as web access to their files. The site user accounts continue to receive email.

For more information on soft suspensions, see "Suspend a virtual site" on page 94.

Suspend a site user

The Site Administrator (or RaQ 3 Administrator) can suspend a site user on a virtual site. The site user is denied access to telnet, FTP, POP3/IMAP/APOP services, as well as web access to their files. The site user account continues to receive email.

For more information on suspending a site user, see "Suspend a site user" on page 94.

Using the LCD Console

During startup, the LCD screen on the front panel of the RaQ 3 displays status information about the boot process itself.

When setting up the RaQ 3, you use the LCD console to enter network configuration information for the RaQ 3.

Once the RaQ 3 is running, the LCD console serves several purposes. Through the LCD console, you can:

- change the network configuration information, which is useful if the location of the RaQ 3 is changed.

- configure the uninterruptible power supply (UPS)

- reboot, which restarts the entire RaQ 3.

- power down in a way that allows the RaQ 3 to close all open files, and minimizes startup time the next time the RaQ 3 is powered on.

- exit from the LCD console without making any changes

> **IMPORTANT:** Before turning off the RaQ 3, follow the proper power-down procedure, as described in "Powering down" on page 134.

The adminstrator can also assign through the LCD console the IP address and netmask to the second ethernet port (if it is present).

You access each of these functions by holding down the (S) (select) button on the LCD console for approximately two seconds. This action causes the LCD screen to enter its function mode. Press the (S) button until the function you want appears on the LCD screen. To cancel the LCD function mode, select the **EXIT** function when it appears on the screen. Press the (E) (enter) button and select **YES**.

Changing network configuration

To reset the IP address or change the network configuration of the Network 1 interface:

1. On the LCD console, hold down the (S) button for approximately 2 seconds.

   The LCD screen displays:

   ```
   SELECT:
        SETUP NETWORK
   ```

2. Press the (E) button.

3. Enter the IP address using the arrow buttons. The left and right arrow buttons move the cursor position to the left or right. The up and down arrow buttons increase or decrease the digit at the cursor position.

4. Press the (E) button.

5. Enter the Netmask using the arrow buttons.

6. Press the (E) button.

7. Enter the Gateway using the arrow buttons.

8. Press the (E) button.

9. Use the arrow buttons to toggle the cursor between [S]ave and [C]ancel.

10. Press the (E) button.

If you select the Save option, the RaQ 3 reboots using the new network configuration. If you select Cancel, you return to step 1 of this procedure.

You can also change the network configuration of the RaQ 3 through the Web browser:

1. On to the **Server Management** screen, click **Control Panel**.

2. Click **Network** at the top of the screen. You can edit the network settings in the table that appears.

3. When finished, click **Save Changes**.

If you change the network IP address of the RaQ 3 through the Web browser, the RaQ 3 reboots automatically when you click **Save Changes**.

Configuring an uninterruptible power supply (UPS)

The are two options for configuring the RaQ 3 for a UPS: as the master or as a slave.

The master communicates directly to the UPS through the serial port. The slave(or slaves) communicates with the master to verify the status of the power supply.

To configure a RaQ 3 as the master, you must first connect the RaQ 3 to the UPS through the serial port.

If you configure a RaQ 3 as the master, the RaQ 3 configures itself automatically. If you configure a RaQ 3 as a slave, the LCD screen prompts you for the IP address of the RaQ 3 that is configured as the master.

First, connect the UPS unit and the RaQ 3. (For more information, refer to the UPS manual.)

1. Plug the UPS into the wall socket.

2. Turn on the UPS.

3. Plug the RaQ 3 units into the UPS power sockets.

4. Connect the the UPS serial cable to the UPS unit and the RaQ 3 that will serve as the master. See Figure 42 for the correct serial port.

> **IMPORTANT:** You must use the serial cable shipped with the UPS unit.

Figure 42   Serial port for UPS connection

Serial port for UPS connection
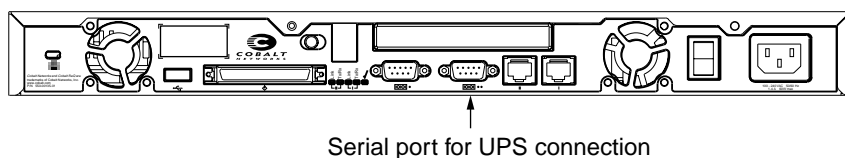
Configure the RaQ 3 that will serve as the master first. To configure the RaQ 3 for the UPS:

1. On the LCD console, hold down the (S) button for approximately 2 seconds.

    The LCD screen displays:

    ```
    SELECT:
         SETUP NETWORK
    ```

2. Press the (S) button until **Configure UPS** appears in the LCD screen:

    ```
    SELECT:
         CONFIGURE UPS
    ```

3. Press the (E) button.

4. Use the arrow buttons to toggle the cursor between [ ] On and [ ] Off.   Select [ ] On.

5. Press the (E) button.

6. Use the arrow buttons to toggle the cursor between [M]aster and [S]lave.

7. Press the (E) button. If you choose [M]aster, the RaQ 3 configures itself automatically for the UPS.

8. If you choose [S]lave, the LCD screen prompts you for the IP address of the RaQ 3 configured as the master.

    Enter the IP address using the arrow buttons. The left and right arrow buttons move the cursor position to the left or right. The up and down arrow buttons increase or decrease the digit at the cursor position.

9. Press the (E) button.

    The LCD screen returns to the host name and IP address. The LCD screen does NOT prompt you to save the changes.

To verify that you have configured the UPS correctly:

1. Unplug the UPS unit to simulate a power outage to the UPS.

2. The UPS takes over the power supply to the RaQ 3s. Each of the RaQ 3 units monitoring the UPS displays on the LCD screen:

    ```
    UPS:
        ON BATTERY
    ```

3. Plug the UPS into the power supply again. Each of the RaQ 3 units monitoring the UPS displays on the LCD screen:

    ```
    UPS:
        POWER RESTORED
    ```

Rebooting

To reboot the RaQ 3 through the LCD console:

1. On the LCD console, hold down the (S) button for approximately 2 seconds.

    The LCD screen displays:

    ```
    SELECT:
        SETUP NETWORK
    ```

2. Press the (S) button until **Reboot** appears in the LCD screen:

    ```
    SELECT:
        REBOOT
    ```

3. Press the (E) button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to reboot the system.

5. Press the (E) button.

You can also reboot the RaQ 3 through the Web browser:

1. On the **Server Management** screen, click **Maintenance**.

2. Click **Reboot** at the top of the screen.

    A warning box appears, stating that rebooting the Cobalt server will make it unavailable to the network for a few minutes.

3. 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 before turning off the RaQ 3.

To power down the RaQ 3:

1. On the LCD console, hold down the (S) button for approximately 2 seconds.

    The LCD screen displays:

    ```
    SELECT:
        SETUP NETWORK
    ```

2. Press the (S) button until **Power down** appears in the LCD screen:

    ```
    SELECT:
        POWER DOWN
    ```

3. Press the (E) button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to power down the system.

    The **OK to Power Off** light on the back panel blinks. The LCD screen displays:

    ```
    PLEASE SWITCH
    POWER OFF NOW
    ```

5. Toggle the **On/Off** switch on the back panel to the **Off** position.

Product Specifications

Technical data for the RaQ 3

Hardware

The RaQ 3 has the following hardware components.

- x86-compatible 300-MHz superscalar processor
- Up to 512 Kb of L2 cache
- 64-Mb to 512-Mb PC-100 SDRAM DIMMs (2 slots) (3.3 v, 168-pin, non-parity, unbuffered)
- Up to two internal Ultra ATA hard drives
- Dual 10/100 Base-T ethernet network interfaces
- Dual serial console interface
- External ultra-wide SCSI interface (mini-micro 68-pin) 40 Mb/sec.
- LCD console for easy set-up and administration
- PCI slot for expansion
- Support for uninterruptible power supply (UPS)

Software

The RaQ 3 has the following software features.

Features

- Linux 2.2 multitasking operating system
- Apache 1.3.6 Web server, HTTP/1.1 compliant
- Virtual hosting services: name-based and IP-based
- Common gateway interface (CGI) support
- Server side includes (SSI) support
- Perl scripting

- Email protocol support: Simple Mail Transfer Protocol (SMTP), Internet Message Access Protocol (IMAP4), Post Office Protocol (POP3), Authentication Post Office Protocol (APOP)

- File transfer protocol (FTP), anonymous FTP access

- Telnet access

- Domain Name System (DNS) server

- 56-bit Secure Sockets Layer (SSL) (based on mod_ssl which is based on apache-ssl)

- FrontPage 2000 server extensions

- NTP client support

- Cobalt Bandwidth Management software

- Java support for Java Run-time Environment version 1.2 from Sun Microsystems (ported to the x86 architecture by the Java-Linux Porting Team at www.blackdown.org)

- Code development environment

- Legato Networker client, Arkeia Backup support

- Security: PAM/shadowed passwords

System management

- SSL support for secure administration

- Simple Network Management Protocol (SNMP) management support

- Browser-based Setup Wizard

- Browser-based RaQ 3 server management and individual virtual site management interfaces

- Online ActiveAssist real-time help

- ActiveMonitor maintenance agents

- Advanced management using telnet

- Web-based performance and usage reporting

- Browser-based backup and restore utility

- Browser-based software upgrade

Partner solutions

- E-commerce

- Database

- Backup

- Analysis and usage statistics

Physical data

The RaQ 3 has the following physical characteristics.

- 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 a standard single-unit, 19-in. equipment rack)

- Weight: 9 lbs. 3 oz. (4.2 kg)

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

- Power consumption: 35 watts

- Operating environment:

    32° to 108^oF ($0^o$to 40^oC)

    10% to 90% humidity (non-condensing)

- Non-operating environment:

    14° to 122^oF ($-10^o$to 50^oC)

    5% to 93% humidity (non-condensing)

- Light-emitting diodes (LEDs): Power, Transmit/Receive, Link, Collision, 100 Mbit Operation, Disk Activity, Web Activity

Regulatory approvals

- CISPR 22B

- VCCI-B

- UL

- C-UL

- TUV

- CE

- Austel

- BSMI/BCIQ

- RRL

Upgrading your RaQ 3

The RaQ 3 unit is a single rack-unit (1RU) enclosure. Before you purchase a component to add to the RaQ 3, ensure that the component fits into the allocated space:

- The DIMM modules must be less than 1.5 inches (38.1 mm) tall and less than 0.158 inches (4.0 mm) thick.

- The PCI expansion slot has been designed to accomodate the PCI standard short card form factor, with some additional space for longer cards. The PCI card must be less than 10.5 inches (267 mm) long.

To add memory or a PCI expansion card to the RaQ 3:

Opening the RaQ 3

> **Warning:** You MUST power down the RaQ 3 before opening the unit.

1. Power down the RaQ 3. See "Powering down" on page 134.

2. Unplug the RaQ 3.

3. Remove the power cord from the rear of the RaQ 3. The cable is located beside the power switch. See Figure 2 on page 4.

    > **Note:** If the RaQ 3 is mounted on an equipment rack, remove the RaQ 3 from the rack and take it to a service area. Do not attempt this upgrade while the RaQ 3 is still in the equipment rack.

4. Unscrew the top cover. Ten screws hold the the top cover in place. The screws are labeled 1 through 10 in Figure 43.

Adding a memory module or PCI card

Be careful not to damage components during the upgrade.

5.   Adding a memory module

   •   You can install a DIMM module in either Memory Slot 1 or
       Slot 2. See Figure 44.

6.   Adding a PCI expansion card

   •   Remove the PCI slot cover, and its retainer and screw. See
       Figure 43.

   •   Plug the PCI card into the PCI connector. See Figure 44.

   •   Replace the PCI retainer and screw to hold the PCI card in
       place.

   •   Save the PCI slot cover in case you want to remove the PCI card
       later.

7.   Replace the top cover

Secure the top cover properly and replace the ten screws that hold the
top cover in place. See Figure 43.

Figure 43 shows how to remove the top cover of the RaQ 3.

Figure 43   Top cover on the RaQ 3
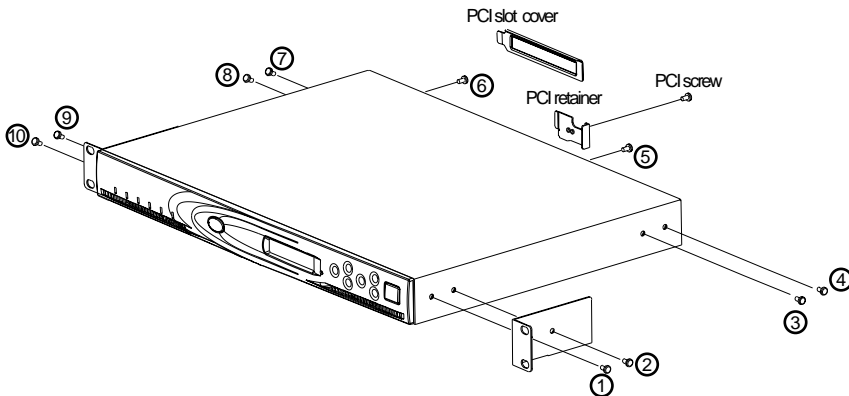
View from top

PCI
connector

Screw
hole

Screw
hole

Heat sink

USB port

External SCSI
connector
(optional)

Status
Indicators
(LEDs)

Console
serial port

Serial
connector

Network 2
(optional)

Network 1

Screw
hole
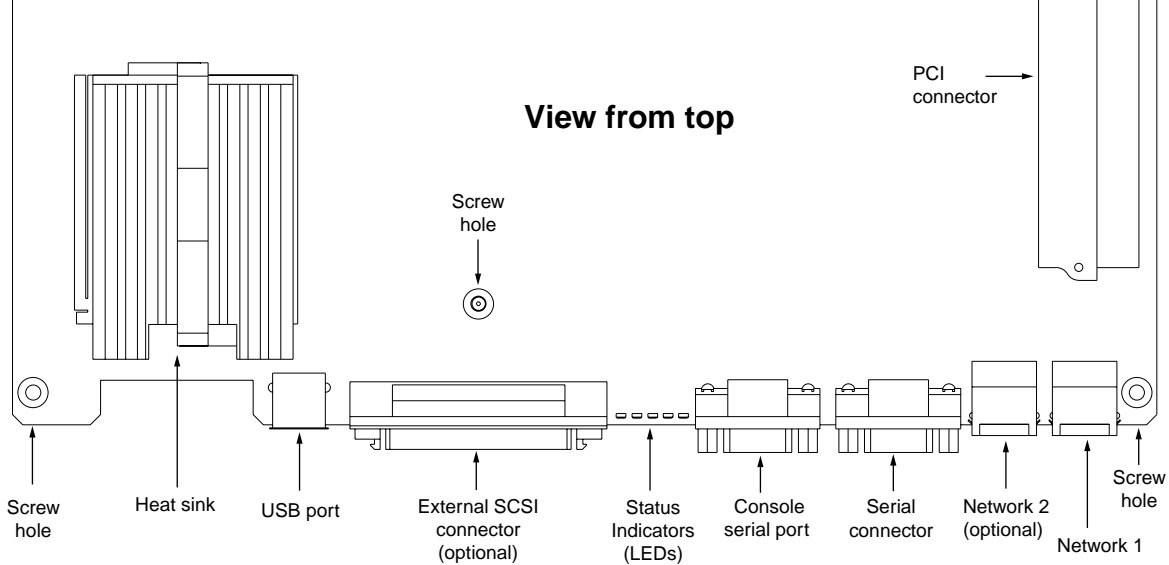
Advanced Information

Serial console port

You can connect a console terminal to the DB-9 connector on the back panel of the RaQ 3. The terminal can be either an ASCII terminal or a PC running terminal software. The console terminal should have the following communications parameters — 9600 Baud, 8 data bits, no parity and one stop bit.

Development tools

The RaQ 3 provides a collection of utilities to support applications development and server administration. These tools include:

- GNU C/C++ compiler (`gcc`) and libraries

- Java Run-time Environment

- GNU Bourne Again Shell (`bash`)

- Text editors (`emacs`, `vi`)

- File system utilities (`ls`, `mv`, `cp`, `ln`, `rm`, `chmod`, `chown`, `chgrp`, `du`, `df`)

- File parsing utilities (`sed`, `awk`, `diff`)

- File display utilities (`cat`, `more`, `less`)

- Search utilities (`find`, `grep`, `which`)

- Archive utilities (`gzip`, `tar`, `cpio`, `rpm`)

- Network utilities (`FTP`, `telnet`, `netstat`, `ping`, `finger`, `mail`, `pine`)

- Perl programming language

These utilities can be found in one of the following directories:

```
/sbin
```

```
/bin
```

```
/usr/sbin
```

```
/usr/bin
```

For an expanded set of development tools, visit the Solutions directory on Cobalt Networks' web site (http://www.cobalt.com/solutions/)

Additionally, the Linux distribution on the RaQ 3 is based on the RedHat Linux 6.0 distribution for x86-compatible processor systems.

You can run most pre-compiled x86-based commercial software packages on the RaQ 3, as long as the software does not require a mouse, keyboard or monitor. Ensure that the software is compatible with the Linux 2.2 kernel and the glibc library.

Configuration files

If necessary, you can change some of the configuration files for the RaQ 3 services for development purposes, but this may void your warranty. Please read your warranty card before making any changes.

Caution: Changing any of the following configuration files can dramatically affect the operation of the services configured by means of the RaQ 3's Web-based administration service or the administration service itself.

The services and some of their associated configuration files and directories are the following:

- Email

  ```
  /etc/inetd.conf
  ```
  ```
  /etc/sendmail.*
  ```
  ```
  /etc/mail/
  ```

- Domain Name Service (DNS)

  ```
  /etc/named/
  ```

- File transfer protocol (FTP)

  `/etc/proftpd.conf`

- Web

  `/etc/httpd/conf/*.conf`

Directory structure

The disk on the RaQ 3 is partitioned into four segments. Most of the available disk space is on the partition mounted from `/home`. It is recommended to do most of your work under this partition. By default, quotas are turned on in this partition and are used extensively by the system software.

RaQ 3 home page

The document root for the Web server is the RaQ 3's main site:

`/home/sites/home/web`

Web content in this directory is associated with the URL http://<IP address>/.

For example, a file saved as:

`/home/sites/home/web/testdir/test.html`

is accessed through the URL:

`http://<IP address>/testdir/test.html`

> **Note:** <IP address> refers to the IP address or host name.domainname of the RaQ 3.

Virtual site home page

The document root for the virtual sites' Web page content is:

`/home/sites/<sitename>/web`

For example, www.cobalt.com would have a document root of

`/home/sites/www.cobalt.com/web`

Only the RaQ 3 Administrator or the Site Administrator can upload to this directory.

Web content in this directory is associated with the URL http://<sitename>/.

For example, a file saved as:

```
/home/sites/<sitename>/web/testdir/test.html
```

is accessed through the URL:

```
http:/</sitename>/testdir/test.html
```

> **Note:** <Sitename> refers to the hostname.domainname of the corresponding virtual site.

Site user home page

When a user on the main site is created through the Web-based administration screens, the home directory for that site user is created in:

```
/home/sites/home/users/username/web
```

The content of their web pages can be viewed at:

http://<IP address>/users/<username>/ or
http://<IP address>/~ <username>/

When users on a virtual site are created using the Web-based administration screens, the user's home directory is:

```
/home/sites/<sitename>/users/<username>
```

The users default Web page is:

```
/home/sites/<sitename>/users/<username>/web
```

The content of their Web pages can be viewed at:

http://<sitename>/~<username>/

Common gateway interface (CGI) usage for users

You can save CGI files in any directory on your site, provided that CGI is enabled, the CGI file is executable and the file ends with a .pl or .cgi extension.

The Web server is configured to execute CGI scripts using a wrapper program (cgiwrap), which preserves the permissions set for the executing script. For more information regarding this security precaution, refer to:

http://www.umr.edu/~cgiwrap/

Domain Name System

Basic DNS

The Internet uses a distributed naming system called the Domain Naming System (DNS). DNS allows us to refer to computers by host names as well as by Internet Protocol (IP) addresses.

IP addresses are hard to remember and are inconvenient to use. DNS allows us to use host names and domain names which can resolved to IP addresses. DNS servers translate host names and domain names (for example, www.cobalt.com) to an associated IP address (for example, 192.168.1.10.)

For example, Cobalt Networks has registered the domain name "cobalt.com" for use by our servers "mail.cobalt.com", "www.cobalt.com" and others. The host names "mail" and "www" represent different servers registered in the same domain.

A domain name is a computer name suffix shared by a group of computers in the same organization. A domain name should be associated with an IP address through a Forward Lookup record. Domain names are organized in a hierarchy; this hierarchy includes your company or server name, and a country code (for example, .uk or .ca) or a top-level domain (for example, .com or .edu).

A Web site on the server is created with one IP address, one host name and one domain name that together establish the identity of that Web site on the Internet.

Each domain name requires a primary domain authority on one DNS server. A secondary DNS server acts as a backup to the primary. DNS information is configurable only on the primary server, and not on the backup server.

Enabling the DNS server feature

IMPORTANT: Always click **Save Changes to DNS Server** after modifying DNS records. If you do not, the changes will not take effect.

To enable the DNS server on the RaQ 3:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click the check box for Domain Name System (DNS) Server to turn it on (if it is not already turned on).

3. Click **Save Changes**.

To set the optional DNS services, click **Parameters** next to the DNS service in the Service Settings table.

Configuring a primary DNS server

A primary DNS server maintains a list of name records and their associated IP addresses. This list is made available to other DNS servers if your domain is registered with your country-specific domain-naming organization. Your Internet service provider (ISP) can help you register your Internet server.

To configure a primary DNS server for your RaQ 3:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click the check box for Domain Name System (DNS) Server to turn it on (if it is not already turned on).

3. Click **Save Changes**.

4. Click **Parameters** next to the DNS service in the Service Settings table.

5. Select Address (A) from the **Add...** pull-down menu.

6. Enter the host name and domain name you want to serve (for example, www and yourdomain.com) and enter its IP address (for example, 192.168.1.1).

7. You can enable Automatic Reverse Lookup Generation for this IP address and host name pair so that IP address/host name pairs can be resolved in both directions. Reverse lookup (PTR) records that are generated automatically assume the network mask of 255.255.255.0 (24 bits.)

8. Click **Update List**.

9. Click **Save Changes to DNS Server**.

Specifying a reverse lookup (PTR) record

A DNS server can also resolve a computer host name to an IP address, which is known as reverse lookup. The network mask, or subnet size, is specified by an integer from 8 to 32.

See Table 4 "Network Mask Notation Conversion" on page 150.

To specify a reverse lookup (PTR) record:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Reverse Lookup (PTR) from the **Add...** pull-down menu.

4. Enter the host name and domain name you want to serve (for example, www and your domain.com) and enter its IP address (for example, 192.168.1.1) and network mask (for example, 24).

5. Click **Update List**.

6. Click **Save Changes to DNS Server**.

Specifying a mail server (MX) record

To specify a mail server (MX) record:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Mail Server (MX) from the **Add...** pull-down menu.

4. Enter the host name and domain name you want to serve (for example, www and your domain.com) and enter its IP address (for example, 192.168.1.1) and network mask (for example, 24).

5. Click **Update List**.

6. Click **Save Changes to DNS Server**.

Specifying an alias (CNAME) record

This feature allows you to alias one host name to another. The target host name does not need to be a member of the local domain. For example, you can create an alias record from "news.domain.com" to "uucp.isp.net".

Caution: Do not use an Alias (CNAME) Record to cause a domain name to resolve to a host name.

For example, do not create an Alias (CNAME) Record for mydomain.com that resolves to www.mydomain.com. Instead, add a new Address (A) Record for mydomain.com to the IP address used by www.mydomain.com. See "Configuring a primary DNS server" on page 146.

To specify an alias (CNAME) record:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Alias (CNAME) from the **Add...** pull-down menu.

4. Enter the host name and domain name for which you want to create an alias (for example, www and yourdomain.com) and enter the host name and domain name for the target. The target host name is optional.

5. Click **Update List**.

6. Click **Save Changes to DNS Server**.

Configuring a secondary DNS server

You can configure a secondary DNS server to provide redundant DNS service to your computers. If the primary DNS server is turned off, a computer can use the secondary DNS server with no loss of performance.

To add a secondary name-server authority for a domain:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Secondary Name Service for Domain from the **Add...** pull-down menu.

4. Enter the domain name to be serviced and the IP address of the primary DNS server.

5. Click **Update List**.

6. Click **Save Changes to DNS Server**.

To add secondary name-server authority for a network:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Secondary Name Service for Network from the **Add...** pull-down menu.

4. Enter the network to be serviced and the IP address of the primary DNS server.

5. Click **Update List**.

6. Click **Save Changes to DNS Server**.

Advanced DNS

Network Mask Notation Conversion

Use Table 4 to convert between dot-quad and bit-count subnet mask and network size notations.

Table 4   Network Mask Notation Conversion

Dot-Quad	Bit count
255.0.0.0	8
255.128.0.0	9
255.192.0.0	10
255.224.0.0	11
255.240.0.0	12
255.248.0.0	13
255.252.0.0	14
255.254.0.0	15
255.255.0.0	16
255.255.128.0	17
255.255.192.0	18
255.255.224.0	19
255.255.240.0	20
255.255.248.0	21
255.255.252.0	22
255.255.254.0	23
255.255.255.0	24
255.255.255.128	25
255.255.255.192	26
255.255.255.224	27
255.255.255.240	28
255.255.255.248	29

IMPORTANT: Always click **Save Changes to DNS Server** after modifying DNS records. If you do not, the changes will not take effect.

Delegating a subdomain

DNS servers are organized hierarchically. You can delegate the name-server authority for subdomains of any domain served by the RaQ 3 to other name servers.

For example, domain.com can be served authoritatively by a RaQ 3 by defining an Address (A) Record using that domain. A subdomain, such as remote.domain.com, can use its own set of DNS servers so that domain authority can be shared between multiple physical sites. This makes it easier to use multiple DNS servers in remote locations sharing a common domain.

To delegate the subdomain naming authority to another name server:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select the parent domain from the **Select Domain or Network...** pull-down menu.

4. Select Delegate Subdomain from the **Add...** pull-down menu.

5. Specify the subdomain name and the qualified host name(s) of the DNS server(s) that will be authoritative for that subdomain.

6. Click **Save Changes**.

7. Click **Save Changes to DNS Server**.

Delegating a subnet

You can delegate the name-server authority for a network to a remote DNS server.

To delegate the subnet naming authority to a remote DNS server:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select the parent network from the **Select Domain or Network...** pull-down menu.

4. Select Delegate Subnetwork from the **Add...** pull-down menu.

5. Specify an IP address and the size of the network to be delegated. The IP address must be a member of the subnet to be delegated.

6. Specify the qualified host name of the DNS server that will be authoritative for that subnet.

7. Click **Save Changes**.

8. Click **Save Changes to DNS Server**.

Configuring server settings

You can configure forwarding servers and zone transfer access control for the RaQ 3 DNS server.

To configure the DNS server settings:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select Server Settings from the **Add...** pull-down menu.

4. If the RaQ 3 is being used on a private network or in conjunction with a restrictive firewall, you can specify forwarding servers.

   Enter the IP address of the Forwarding Server and, if you want, the Backup Forwarding Server.

5. A zone transfer allows another DNS server to download the complete list of hosts maintained by your DNS server. By default, zone transfers are unrestricted. However, you can restrict zone transfers if you want.

    Enter IP addresses or network addresses in the **Zone Transfer Access** field; this automatically causes zone transfers to become restricted. Now, only the IP addresses or network addresses listed in this field are able to perform zone transfers.

6. Click **Save Changes**.

7. Click **Save Changes to DNS Server**.

Start of Authority (SOA) configuration

For the best reliability, you can fine tune all primary domain and network authority settings independently of each other.

To fine tune the primary domain and network authorities:

1. On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2. Click **Parameters** next to the DNS service in the Service Settings table.

3. Select an authoritative domain or network from the **Select a Domain or Network...** pull-down menu.

    The first record in the record list is called the Start of Authority (SOA) record.

4. Click the pencil icon to modify the SOA record.

    The SOA record defaults to acceptable values in the majority of RaQ 3 configurations. You can fine tune the values for the following parameters:

    •   Primary name server host name

    •   Seconday name server host name (optional)

    •   Domain administrator email address

    •   Refresh interval

    •   Retry interval

    •   Expire interval

    •   Time-to-live (TTL) interval

5. Click **Save Changes**.

6. Click **Save Changes to DNS Server**.

Name server (NS)

The primary name server defaults to the host name of the RaQ 3. You can specify the qualified host name of the secondary DNS server for that domain in the Secondary Name Server (NS) host name field. Some top-level domain registration organizations require that the secondary name server record be defined.

Domain administrator email address

The email address defaults to the user name "admin" of the RaQ 3. This email address is publicly available and is the administrative contact for the domain or network served.

Refresh interval

You can configure the refresh interval between updates from a secondary DNS server.

- If DNS record changes occur infrequently, increase the default value.

- If DNS record changes occur often, decrease the default value.

Tune the refresh interval to avoid wasting bandwidth and to ensure the content on the secondary server is accurate at all times.

Retry interval

Due to a connection or service failure, a secondary DNS server may be unable to refresh data from the primary server. The secondary DNS server attempts to refresh data after the interval specified for trying again.

Expire interval

A secondary DNS server may be unable to refresh data from the primary server for a prolonged period of time. After the interval specified for expiry, the secondary server stops serving name requests.

Time-to-live period (TTL)

A caching DNS server other than the primary and secondary DNS servers for this domain or network can cache record lookups for the TTL period. During the TTL period, a caching DNS server does not poll the primary or secondary DNS servers for repeated lookups of the same record.

Quick Start Guide for Domain Name Service (DNS)

This quick start guide assumes that you have already done two things:

1. You have registered your domain with InterNIC or some other registration service. If you have not, refer to the FAQ section on Cobalt's web site (http://www.cobalt.com/support, under the Knowledge Base link) for information on registering your domain name.

    You can also refer to the Web site for Network Solutions, Inc. (www.networksolutions.com).

2. You have created the Web site on the RaQ 3. For instructions on how to do this, see "Adding a virtual site" on page 43.

In the following examples, we will configure a sample domain called "mydomain.com" for Web service and e-mail service using a sample IP address 192.168.10.10.

IMPORTANT: Substitute your domain name and IP address anywhere you see the sample domain name or IP address appear.

The recommended minimum configuration for Web and e-mail service requires these records:

*   An Address (A) Record for mydomain.com which points to 192.168.10.10

*   An Address (A) Record for www.mydomain.com which points to 192.168.10.10

*   A Mail Server (MX) Record for mydomain.com which points to www.mydomain.com

*   A Reverse Address (PTR) record for 192.168.10.10 which points to mydomain.com

These records allow anyone on the Internet to type either "mydomain.com" or "www.mydomain.com" and access your Web site. To set up these records, go to the Parameters section of the DNS server in the Cobalt user interface (UI).

1.   On the **Server Management** screen, click **Control Panel**. The Service Settings table appears.

2.   Click **Parameters** next to the DNS service in the Service Settings table.

The DNS Settings table appears, as in Figure 45.

Figure 45   DNS Settings table
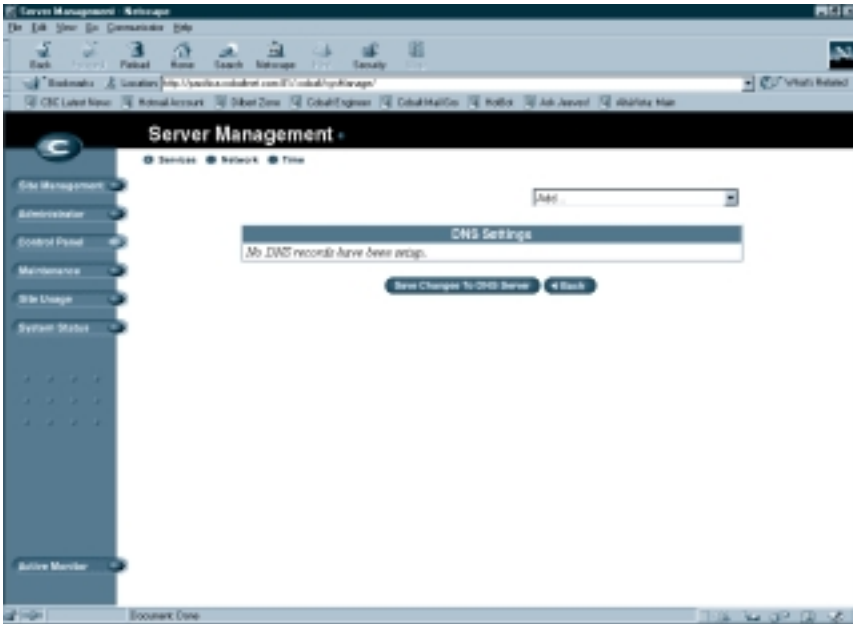
3. Create an Address (A) Record for mydomain.com.

    *   Select Address (A) Record from the **Add...** pull-down menu
    *   Leave the **Host Name** field blank.
    *   In the **Domain Name** field, type mydomain.com.
    *   In the **IP Address** field, type 192.168.10.10.
    *   Ensure the check box for Automatic Reverse Address Record Generation is checked.   This automatically creates the Reverse Address (PTR) Record.
    *   Click **Update List**.

The DNS Settings table is regenerated showing mydomain.com, as in Figure 46.

Figure 46   DNS Settings table (mydomain.com)
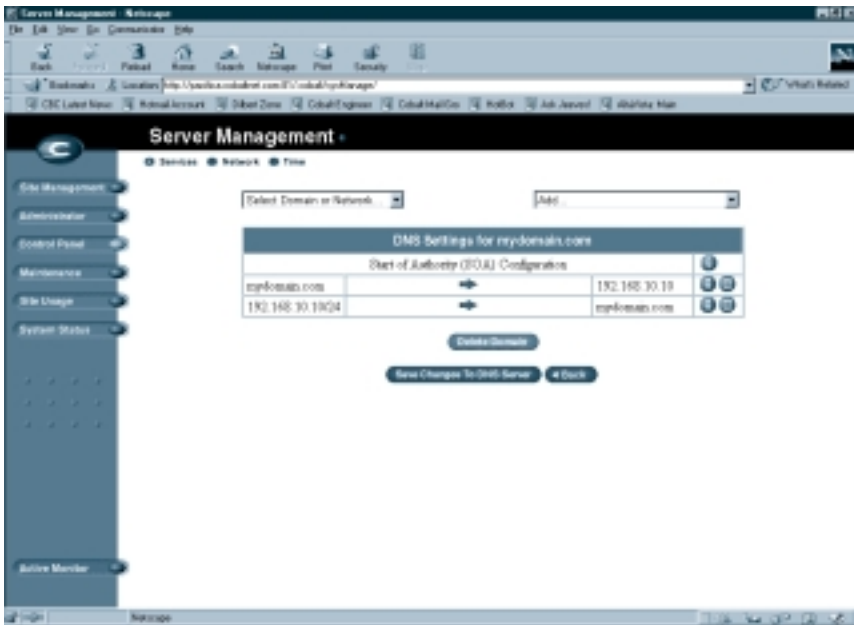
4. Create an Address (A) Record for "www.mydomain.com".

    • Select Address (A) Record again from the **Add...** pull-down menu.

    • In the **Host Name** field, type www.

    • In the **Domain Name** field, type mydomain.com.

    • In the **IP Address** field, type 192.168.10.10.

    • Remove the check from the check box for Automatic Reverse Address Record Generation.

    • Click **Update List**.

Note: Do not make this a CNAME record. Some email server software cannot process CNAME records. If you would like to create multiple names for one IP address, create multiple A records. See "Specifying an alias (CNAME) record" on page 148 for the appropriate applications of CNAME records.

The DNS Settings table is regenerated showing mydomain.com and www.mydomain.com, as in Figure 47.

Figure 47   DNS Settings table (mydomain.com and www.mydomain.com)
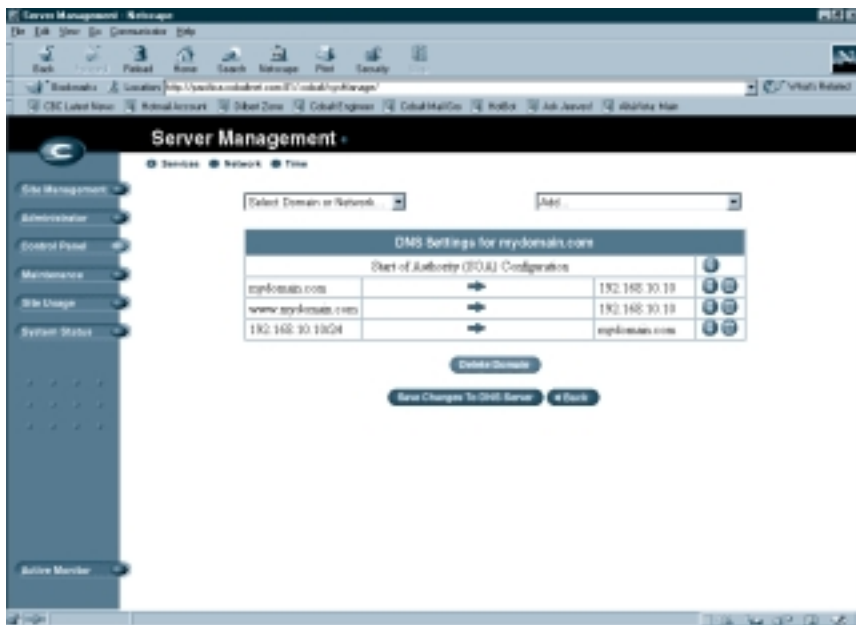
5. To receive mail for "mydomain.com", create a Mail Server (MX) Record. An MX record is similar to a A record but points to a name rather than an IP address. It is critical that the MX record point to a name which has a corresponding A record with the proper IP address.

- Select Mail Server (MX) Record from the **Add...** pull-down menu.

- Leave the **Host Name** field blank.

- In the **Domain Name** field, type mydomain.com.

- In the **Mail Server** field, type www.mydomain.com.

- For our example, the Delivery Preference can be left at High.

- Click **Update List**. See Figure 48.

6. IMPORTANT! Click **Save Changes to DNS Server**. This activates the changes you have made. If you exit this screen without saving your changes, they will not become active.

The completed DNS Settings table is regenerated as in Figure 48.

Figure 48   Completed DNS Settings table
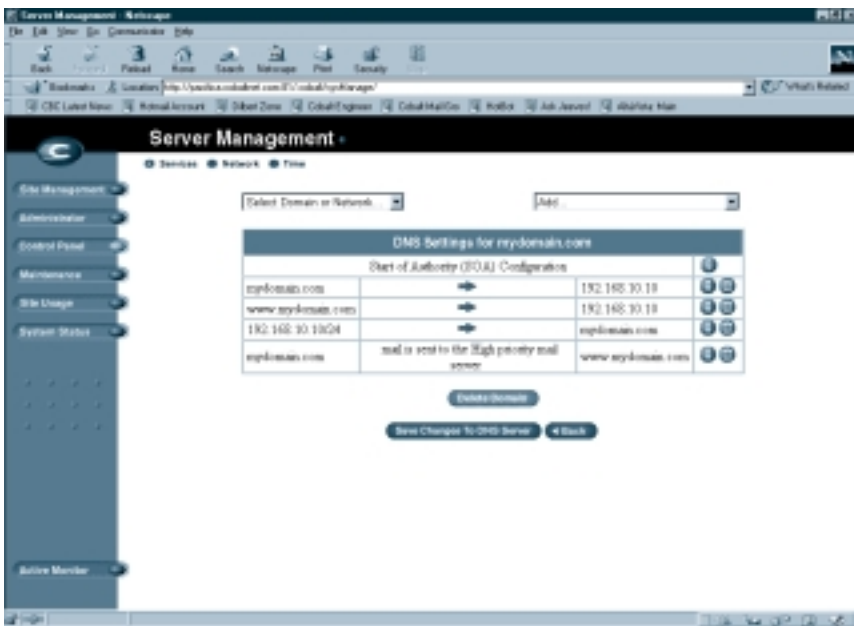
To edit another domain, select another domain from the **Select Domain or Network...** pull-down menu. You can select any domain that you have configured for the DNS server.

To add a new domain, use the **Add...** pull-down menu again. In the **Domain Name** field, replace the default domain name with the new domain name that you want to create.

For further information, refer to the following:

*   In the Cobalt Knowledge Base, search on "DNS".
*   http://www.dnswiz.com/dnsworks.htm
*   http://www-europe.cisco.com/warp/public/787/indexDNS.html

Brief history of the Domain Name System (DNS)

In the 1960s, the U.S. Department of Defense Advanced Research Projects Agency (ARPA, and later DARPA) began funding an experimental wide area computer network called the ARPAnet. The ARPAnet used a centrally administered file called HOSTS.TXT which held all name-to-address mapping for each host computer connected to the ARPAnet. Since there were only a handful of host computers at the start, HOSTS.TXT worked well.

When the ARPAnet moved to the Transmission Control Protocol/ Internet Protocol (TCP/IP) suite of protocols and become known as the Internet, the population of the network exploded. HOSTS.TXT became plagued with problems, namely

*   traffic and load
*   name collisions
*   consistency

A replacement for the HOSTS.TXT file was needed. The goal was to create a system that solved the problems inherent in a unified host table system. The new system should allow local administration of data and also make that data globally available.

In 1984, the architecture of a new system called Domain Name System (DNS) was designed and is the basis of the DNS service used today on the Internet.

DNS is a distributed database that allows local administration of the segments on the overall database. Data in each segment of the database are available across the entire network through a client-server scheme consisting of name servers and resolvers.

What is a DNS record?

People are much more comfortable dealing with names rather than strings of numbers. A domain name such as "cobalt.com" is much easier to remember than the IP address which consists of four octets of numbers such as 207.91.131.30. Domain names must be registered with Root Domain Registration Service, such as Network Solutions, Inc. (www.networksolutions.com)

Computers, on the other hand, prefer numbers to names. Since computers have the final say when a user is looking for a company Web site, a mechanism is needed to convert the human-friendly domain name to the computer-friendly IP address.

DNS records on a DNS server perform this function. The records translate a domain name to an IP address; a record equates a domain name such as "cobalt.com" to an IP address such as 207.91.131.30. Once the domain name has been converted or "resolved" to an IP address, then (and only then) can the user connect to your Web site.

Without DNS and domain names, the user would be required to remember the IP address of every site they wanted to visit. With DNS servers and DNS records, customers and their software can easily remember how to get to your site.

Who manages your DNS records?

Your DNS records can reside on any Cobalt server that has the DNS service enabled. You or your administrator can easily configure a Cobalt Server to act as a DNS server. To provide DNS service, InterNIC requires a site to maintain both a primary and a secondary server. Your Cobalt server can act as the primary server and a DNS server from your Internet service provider (ISP) can act as the secondary server.

How does DNS work?

The basic method that allows a domain name to direct customers to your Web site is shown in Figure 49. This diagram describes a request made by a Web browser as the customer attempts to log on to your Web site.

To determine which primary name server contains your domain name:

1. The local name server (the DNS resolver/browser machine) contacts the root domain name server maintained by the serveral Internet root server authorities.

2. The root domain name server returns the IP address of the primary name server responsible for the requested domain name.

3. The local name server contacts the primary name server.

4. The primary name server holds the IP address information for the domain name in a database and satisfies the request from the local name server.

5. If the primary name server is unavailable, the local name server contacts the secondary name server that satisfies the request from the local name server. The local name server returns to the Web browser with the IP address for the requested domain name.

6. Using the IP address, the Web browser contacts the company Web server.

7. The company Web server sends the Web page to the local name server.

Figure 49   Basic method of DNS
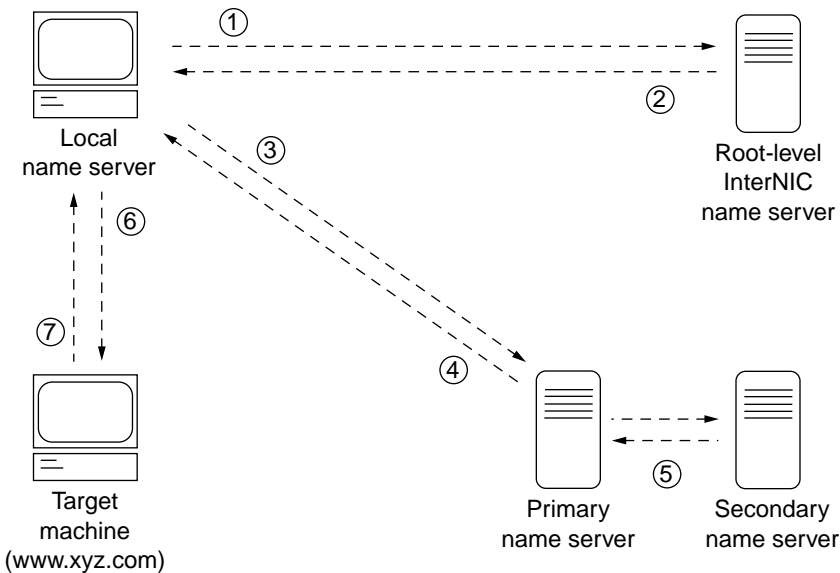
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Glossary

10/100 BaseTX

An Ethernet connection over twisted-pair cables with a throughput of 10 Mb/s or 100 Mb/s.

10BaseT

A 10-Mb/s baseband Ethernet specification using two pairs of twisted-pair cabling (Category 3, 4, or 5): one pair for transmitting data and the other for receiving data. 10BaseT (part of the IEEE 802.3 specification) has a distance limit of approximately 328 feet (100 meters) per segment.

100BaseTX

A 100-Mb/s baseband Fast Ethernet specification using two pairs of either unshielded twisted pair (UTP) or shielded twisted pair (STP) wiring. The first pair of wires is used to receive data; the second pair is used to transmit. To guarantee proper signal timing, a 100BaseTX segment cannot exceed 328 feet (100 meters) in length. 100BaseTX is based on the IEEE 802.3 standard.

APOP

see *Authentication Post Office Protocol (APOP)*

AppleShare

A file-sharing protocol in Apple system software that allows sharing of files and network services through a file server in the Apple Macintosh environment.

Authentication Post Office Protocol (APOP)

Authentication POP is a challenge-response authentication scheme built on top of the standard POP protocol. APOP is designed in a way that protects your password from being sent across the network. To keep your password safe, the server stores your password in a file on local disk. When your mail client connects to the APOP server, a magic string is sent back. That string contains a unique identifier for the current session based upon the process id (PID) and current time.

Carrier sense

> In a local area network (LAN), an ongoing activity of a data station to detect whether another station is transmitting.

Carrier sense multiple access with collision detection (CSMA/CD)

> A protocol that requires carrier sense and in which a transmitting data station that detects another signal while transmitting stops sending, sends a jam signal and then waits for a variable period of time before sending again. Used in Ethernet LAN technology.

CGI

> see *Common gateway interface (CGI)*

Common gateway interface (CGI)

> A set of rules that describe how a Web server communicates with another application running on the same computer and how the application (called a CGI program) communicates with the Web server. Any application can be a CGI program if it handles input and output according to the CGI standard.

CSMA/CD

> see *Carrier sense multiple access with collision detection (CSMA/CD)*

DHCP

> see *Dynamic Host Configuration Protocol (DHCP)*

DNS

> see *Domain Name System (DNS)*

Domain name

> The location of an organization or other entity on the Internet. For example, www.cobalt.com locates an Internet address for "cobalt.com" at a particular IP address and a particular host server named "www."

Domain Name System (DNS)

> The Internet service responsible for translating a human-readable host name such as cobalt.com into a numeric IP address (111.123.45.67) for TCP/IP communications.

Dynamic Host Configuration Protocol (DHCP)

> A protocol that provides a mechanism for allocating IP addresses dynamically so that an address can be reused when a host no longer needs it.

Ethernet

> The most widely used local area network (LAN) technology. Standard Ethernet runs at 10 Mb/s, 100 Mb/s or 1000 Mb/s. It 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 can also be any device that passes packets from one network to another network across the Internet.

HTML

> see *HyperText Markup Language (HTML)*

HTTP

> see *HyperText Transfer Protocol (HTTP)*

HyperText Markup Language (HTML)

> A set of "markup" symbols or tags inserted in a text file intended for display on a World Wide Web browser. The markup tags tell the Web browser how to display a Web page's content, words, and images. A subset of Standardized Generalized Markup Language (SGML).

HyperText Transfer Protocol (HTTP)

> A set of rules for exchanging files (text, graphic images, sound, video and other multimedia files) on the World Wide Web.

ICANN

> see *Internet Corporation for Assigned Names and Numbers (ICANN)*

IEEE 802.3

> IEEE local area network (LAN) protocol that specifies an implementation of the physical layer and the media access control (MAC) sublayer of the data link layer. IEEE 802.3 uses CSMA/CD access at a variety of speeds over a variety of physical media. Extensions to the IEEE 802.3 standard specify implementations for Fast Ethernet. Physical variations of the original IEEE 802.3 specification include 10Base2, 10Base5, 10BaseF, 10BaseT and 10Broad36. Physical variations for Fast Ethernet include 100BaseT, 100BaseT4 and 100BaseX.

Internet Corporation for Assigned Names and Numbers (ICANN)

      The private (non-government) non-profit corporation that has been formed to assume responsibility for the IP address space allocation, protocol parameter assignment, domain name system (DNS) management and root server system management functions. These functions were previously performed by the Internet Assigned Numbers Authority (IANA). The U.S. government is essentially turning over control of the Internet to ICANN, although domain name registration performed by Network Solutions, Inc. (NSI) will continue to be under U.S. government contract for a limited time.

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 host name. An Internet domain should not be confused with an NT Domain. See *NT Domain*.

Internet Protocol (IP)

      A network-layer protocol in the TCP/IP stack offering a connectionless internetwork service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security. IP is defined in RFC 791.

InterNIC

      The former organization responsible for registering and maintaining the com, edu, gov, net and org domain names on the World Wide Web. Domain name registration is now performed by Network Solutions, Inc. who will continue to be under U.S. government contract for a limited time.

IP address

      A 32-bit address assigned to hosts using Transmission Control Protocol/ Internet Protocol (TCP/IP). An IP address belongs to one of five classes (A, B, C, D or E) and is written as four octets separated by periods (for example, 192.168.10.10), also called the dotted decimal format. Each address consists of a network number, an optional subnetwork number and a host number. The network and subnetwork numbers together are used for routing, while the host number is used to address an individual host within the network or subnetwork. A subnet mask is used to extract network and subnetwork information from the IP address. Also called an Internet address.

LAN

      see *local area network (LAN)*

Leased IP addresses

> IP addresses assigned by the Dynamic Host Configuration Protocol (DHCP) to unrecognized computing devices. This method involves setting up a leased pool of IP addresses that are allocated dynamically when new devices are booted and recognized on the network.

Local area network (LAN)

> A high-speed, low-error data network covering a relatively small geographic area (up to a few thousand meters). A LAN connects workstations, peripherals, terminals and other devices in a single building or other geographically limited area. LAN standards specify cabling and signaling at the physical and data link layers of the Open Systems Interconnection (OSI) model. Widely used LAN technologies include Ethernet, fiber distributed data interface (FDDI) and token ring. See also *wide area network (WAN)*.

Logical memory

> see *Virtual memory*

Media access control (MAC) sublayer

> The lower of the two sublayers of the data link layer defined by the IEEE. The MAC sublayer handles access to shared media, such as whether token passing or contention will be used.

Media access control (MAC) address

> A standardized data-link-layer address that is required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports in the network, and to create and update routing tables and data structures. MAC addresses are six bytes long and are controlled by the IEEE. Also known as a hardware address, a MAC-layer address and physical address.

Name server

> Programs called name servers constitute the server half of the DNS client-server mechanism. A name server contains information about a segment of the DNS database and makes it available to a client called a resolver. A resolver is often just a library routine that creates queries and sends them across a network to a name server.

NAT

> see *Network Address Translation (NAT)*

Network Address Translation (NAT)

>   A mechanism for reducing the need for globally unique IP addresses.
>   NAT allows an organization with addresses that are not globally unique
>   to connect to the Internet by translating those addresses into globally
>   routable address space. Also known as Network Address Translator.

Network Time Protocol (NTP)

>   A protocol built on top of the Transmission Control Protocol (TCP) that
>   synchronizes the time of a local computer client or server to radio clocks
>   and atomic clocks located on the Internet. This protocol is capable of
>   synchronizing distributed clocks within milliseconds over long time
>   periods. Some configurations include cryptographic authentication to
>   prevent accidental or malicious protocol attacks.

NTP

>   see *Network Time Protocol (NTP)*

Packet

>   The unit of data that is routed between an origin and a destination on the
>   Internet or any other packet-switched network. The packet includes a
>   header containing control information and (usually) user data. Packets
>   are most often used to refer to network layer units of data.

Root name server

>   On the Internet, the root name server system is the manner in which an
>   authoritative master list of all top-level domain names (such as .com,
>   .net, .org and individual country codes) is maintained and made
>   available.

SCSI

>   see *Small Computer System Interface (SCSI)*

Secure Socket Layer (SSL)

>   Encryption technology for the Web used to provide secure transactions
>   (for example, the transmission of credit card numbers for e-commerce).

Server

>   A system program that awaits requests from client programs across a
>   network, and services those requests. A server can be dedicated, in
>   which case this is its sole function, or non-dedicated, where the system
>   can be used in other ways, such as a workstation.

Server Message Block (SMB)

>   A protocol that enables client applications in a computer to read and
>   write files on a computer network and to request services from server
>   programs in a computer network for systems running Microsoft
>   Windows.

Simple Mail Transfer Protocol (SMTP)

> The TCP/IP standard protocol for transferring electronic mail messages from one machine to another. SMTP specifies how two mail systems interact and the format of control messages they exchange to transfer mail.

Simple Network Management Protocol (SNMP)

> A network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage configurations, statistics collection, performance and security on a network.

Small Computer System Interface (SCSI)

> A parallel interface standard used by Apple Macintosh computers, PCs and many Unix systems for attaching peripheral devices to computers. SCSI interfaces provide for faster data transmission rates (up to 80 Mb/s) than standard serial and parallel ports. In addition, you can attach many devices to a single SCSI port, so that SCSI is really an input/ouput bus rather than simply an interface. Although SCSI is an ANSI standard, there are many variations, so two SCSI interfaces can be incompatible. For example, SCSI supports several types of connectors.

SMB

> see *Server Message Block (SMB)*

SMTP

> see *Simple Mail Transfer Protocol (SMTP)*

SNMP

> see *Simple Network Management Protocol (SNMP)*

SSL

> see *Secure Socket Layer (SSL)*

Subnet mask

> 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 random access memory (RAM). Having a swap file allows the computer's operating system to pretend that it has more RAM than it actually does. The least-recently-used files in RAM are "swapped out" to your hard disk until they are needed later; in their place, new program segments or data can be "swapped in" to RAM.

Transmission Control Protocol (TCP)

A connection-oriented transport-layer protocol that provides reliable full-duplex data transmission. TCP is part of the TCP/IP protocol stack.

Transmission Control Protocol/Internet Protocol (TCP/IP)

A common name for the suite of protocols developed in the 1970s to support the construction of worldwide internetworks. TCP and IP are the two best-known protocols in the suite.

Virtual host

See *Virtual site*

Virtual memory

A concept that, when implemented by a computer and its operating system, allows programmers to use a very large range of memory or storage addresses for stored data.

Virtual site

Whereas industry uses the term *virtual host*, Cobalt Networks uses the term *virtual site*.

In Cobalt's definition, a virtual site consists of a Domain Name System (DNS) domain with web, ftp and email services. Each virtual site contains its own list of site user accounts. Each site user account has its own web, email spool and any number of email aliases. The fully qualified domain name of a virtual site is unique to that site, while its IP address can be shared by many sites.

With the advent of name-based virtual hosting, it is no longer necessary to dedicate an IP address to a virtual site. Apache can now differentiate among target virtual sites according to the name requested. Many virtual sites on the RaQ 3 can share one IP. Not all services are compatible with name-based virtual hosting. SSL encryption for web data and an anonymous FTP account can only be enabled on one virtual site per IP address hosted by the RaQ 3.

The IP address of the RaQ 3 can be shared by many virtual sites or it can be unique to one virtual site.

The RaQ 3 has one main site (which by default cannot be deleted) and virtual sites. The main site uses the IP address assigned to the RaQ 3 using the LCD console.

Wide Area Network (WAN)

A data communications network that serves users across a broad geographic area and often uses transmission devices provided by common carriers. Asynchronous transfer mode (ATM), frame relay, Switched Multimegabit Data Service (SMDS) and X.25 are examples of WANs.

Appendix F

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