COBALT Qube™ 3

User Manual

COBALT
N E T W O R K S

Part Number: 070-00247-02
Date: 03-2001

The majority of the software used within the Cobalt Qube 3 can be freely distributed under the terms of the BSD copyright and the GNU Public License. However, some applications remain the property of their owners and require their permission to redistribute.

The Cobalt Qube 3 includes software developed by the Apache Group for use in the Apache HTTP server project (http://www.apache.org/).

The Cobalt Qube 3 also includes Majordomo, a package for managing Internet mailing lists. The latest version of Majordomo can be obtained from ftp://ftp.greatcircle.com/pub/majordomo/.

Sendmail is a trademark of Sendmail, Inc.

Important Safeguards

For your protection, please read all these instructions regarding your Cobalt Qube 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 Qube 3's bottom vents and fan opening 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.

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.

Avertissement : 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 équivalent recommandé par le fabricant. Mettre au rebut les piles usagées conformément aux instructions du fabricant.

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

4. Power Cord

> **⚠** *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.

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

> **⚠** *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. 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 Qube 3, you may occasionally experience a browser failure. Released product versions of the browsers are usually more reliable than beta versions and later versions typically work the most reliably. A browser program failure, although annoying, does not adversely affect your Cobalt Qube 3's data.

To use the Qube 3, you need a personal computer (attached to the network) that uses a Web browser (for example, Netscape Navigator, version 4.7 or later, or Microsoft Internet Explorer, version 5.0 or later). To manage the Qube 3 from the Server Desktop, you must enable cookies, cascading style sheets and Javascript on your browser (these features are normally enabled by default).

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.

Important Safeguards

Preface

This user manual is for anyone who will set up the Qube 3 network server appliance for a group of users. You should be familiar with Microsoft® Windows™, Macintosh® or other operating systems, and Netscape Navigator®, Microsoft® Internet Explorer or other Web browsers.

This manual consists of the following chapters and appendices:

Chapter 1 — "Introduction" on page 1 includes an overview of the Qube 3's features.

Chapter 2 — "Setting up the Qube 3" on page 11 describes the hardware setup of the Qube 3 and the process to integrate the Qube 3 into the network.

Chapter 3 — "Qube 3 Services" on page 37 explains the features available on the Qube 3.

Chapter 4 — "Users Site" on page 63 explains the Qube 3 Web Mail and Address Book features.

Chapter 5 — "Administration Site" on page 95 explains the features of the Qube 3 Administration screen.

Appendix A — "Using the LCD Console" on page 195 explains the LCD console functions.

Appendix B — "Product Specifications" on page 207 lists the Qube 3 technical specifications.

Appendix C — "Upgrading the Qube 3" on page 211 explains how to upgrade the Qube 3 hardware.

Appendix D — "Advanced Information" on page 221 provides information on the high-speed serial port and the directory structure.

Appendix E — "Domain Name System" on page 227 gives an in-depth explanation of the DNS service.

Appendix F — "Licenses" on page 249 lists licensing information.

Appendix G — "Glossary" on page 257 provides a glossary of terms used in the Qube 3 manual.

Preface

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Introduction

The Cobalt Qube 3 is a powerful and versatile network server. It fits easily within an existing network, and it enhances workgroup activities by providing many communication and collaboration services.

Qube 3 services

Here is a sample of what you can do with the Cobalt Qube 3:

- **Web publishing.** You can access a broad range of Web publishing capabilities for users and groups.

- **Email.** The Qube 3's email service allows you to communicate internally and externally to individuals and groups. It includes auto-forward and auto-response capabilities. You can even create mailing lists that include external users. To access your email on the Qube 3, you can use any standard email client software or the Qube 3's integrated email client called WebMail.

- **Shared access to the Internet.** You can use the high-speed serial port to connect through an external analog modem or an Integrated Services Digital Network (ISDN) terminal adapter, or the second ethernet port to connect through a local area network (LAN), a cable modem, a digital subscriber line (DSL) or a leased line connection. Multiple clients can access the Internet through the Qube 3.

- **File sharing.** By displaying the Qube 3 on the desktop as a shared network device, you can move files easily to and from the Qube 3, using standard file-sharing capabilities.

- **Archived mailing lists.** The Qube 3 creates an archive of the email messages between members of a mailing list. You can review the archive in the integrated WebMail client.

These services can be used within an extranet or an intranet environment, or across the Internet.

Documentation

You can access the user manual in PDF format from the browser-based user interface (UI), known as the Server Desktop. If you have installed third-party software on the Qube 3, the relevant documentation is available on this screen.

To access the PDF file for the user manual, click on the help icon in the top right corner. A separate browser window opens displaying a list of PDF files in the languages available. Click the link for the PDF in your preferred language; you can open the PDF file in the browser window or save it to your personal computer.

Qube 3 hardware

Figure 1 show the Qube 3 controls, indicators and connectors.

The indicator light bar on the front of the Qube glows green when the Qube 3 is powered on.

Figure 1. Qube 3 rear view
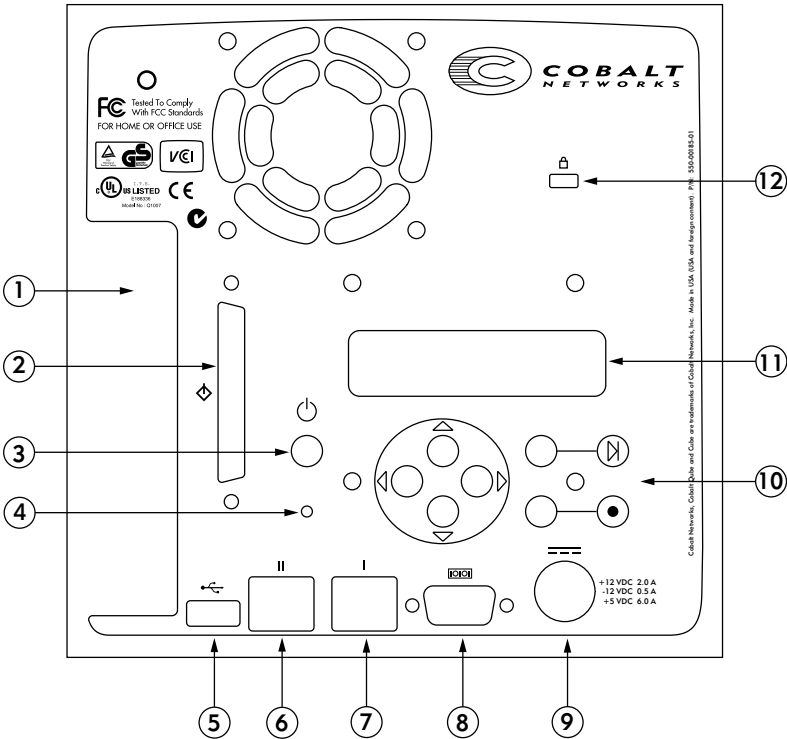
1. The **PCI slot shield** covers the PCI expansion slot of the Qube 3. This shield is removed when a PCI expansion card is plugged in. (See "Adding components to the Qube 3" on page 216.)

2. The **SCSI connector** provides an Ultra SCSI connection (optional).

3. **On/Off** power switch.

4. You can use the recessed **Reset Password** button if you forget the Qube 3 Administrator password. (See "Resetting the Qube 3 Administrator password" on page 103.)

5. The **USB port** provides a Universal Serial Bus connection.

6. The **Secondary Network Interface** accepts a 10/100 BaseT network cable.

7. The **Primary Network Interface** accepts a 10/100 BaseT network cable.

8. The high-speed **Serial port** allows you to connect a standard (Hayes™ -compatible) external analog modem, an Integrated Services Digital Network (ISDN) terminal adapter or a console.

9. The **Power socket** receives the power connector from the power adaptor.

10. The **LCD Console** allows you to enter network configuration information, reboot the Qube 3, reset the network configuration, reset the IP firewall filtering rules and power down the Qube 3.

11. 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 13.)

12. The **Security lock hole** allows you to secure your Qube 3 with a standard security cable.

Qube 3 Server Desktop

You access the Qube 3 Server Desktop with a Web browser such as Internet Explorer or Netscape Communicator. The Qube 3 Server Desktop consists of the the **Administration**, **BlueLinQ**, **Programs** and **Personal Profile** screens. These are described in the following sections.

Administration screens

If you are the Administrator and log in with the user name *admin*, there are additional Administration and BlueLinQ buttons in the top menu bar which open the Administration screen (see Figure 2) and the BlueLinQ screen (see Figure 3). The Administration screen has a left menu bar with sub-menus under each category. The BlueLinQ screen provides tools for updating and installing the Qube 3 software and third-party software. These screens are described in Chapter 5, "Administration Site."

Figure 2. Administration screen
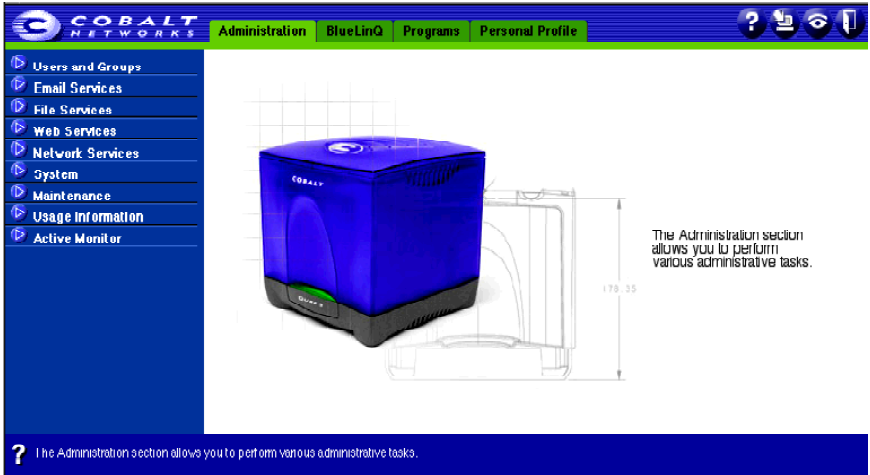
Figure 3. BlueLinQ screen
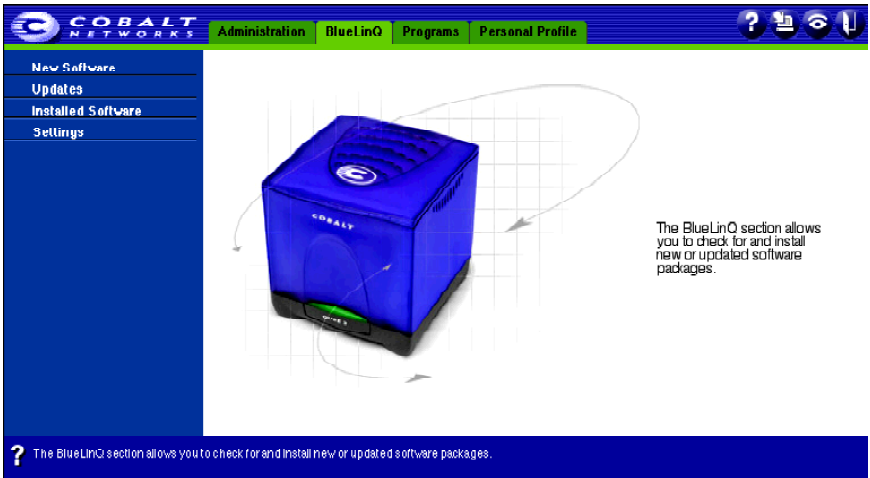
Programs screen

The **Programs** screen (Figure 4) is where you access the WebMail feature and manage the address book. The **Programs** screen is where Qube 3 users will spend most of their time when using the Qube 3.

Figure 4. Programs screen
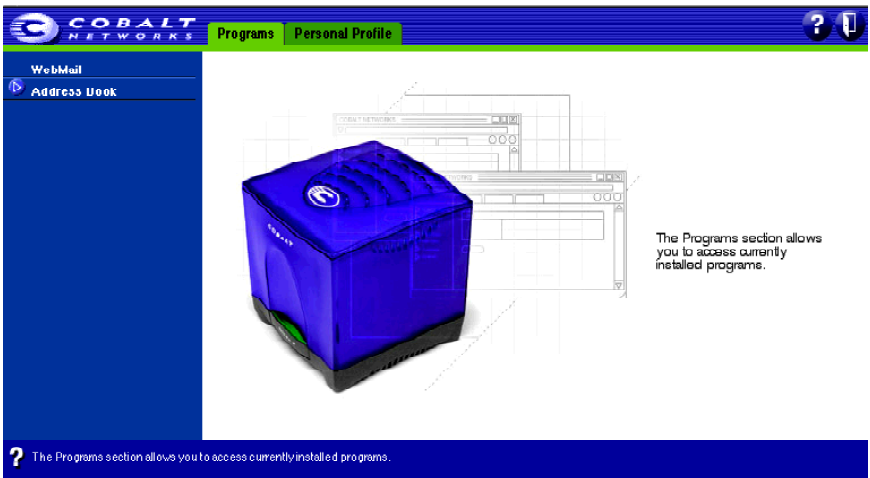
Personal Profile screen

The **Personal Profile** screen (Figure 5) is where users access and configure the personal settings on the Qube 3.

Figure 5.   Personal Profile screen

Qube 3 usage requirements

To use the Qube 3, you need:

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

• A personal computer (attached to the network) that uses a Web browser (for example, Netscape Navigator, version 4.7 or later, or Microsoft Internet Explorer, version 5.0 or later).

   To manage the Qube 3 from the Server Desktop, you must enable cookies, cascading style sheets and Javascript on your browser (these features are normally enabled by default).

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

• An Internet service provider (ISP), if you plan to connect to the Internet.

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, the Middle East and Africa, call +31 71 565 7000 (The Netherlands), or send email to info-emea@cobalt.com.

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

Cobalt Technical Support and Service

Email contact

You can contact Cobalt Networks Technical Support by email using the Online Email Support Form. This form provides us all the information we need to service your request in a timely fashion.

Go to the URL http://www.cobalt.com/support/ and click on the **Contact Support** link.

Technical Support telephone numbers

In the United States, call (800) 266-4378.

In Europe, Middle East and Africa, call +31 (71) 565-7070 (The Netherlands).

Customers in Japan can send email to support-japan@cobalt.com.

Further resources and information

Cobalt also offers the following additional resources and information.

Solutions that extend the functionality of the Qube 3

For solutions that extend the functionality of the Qube 3, visit the Online Solutions Directory on Cobalt's Web site at the following URL:

http://www.cobalt.com/solutions/

Cobalt Developer Network

Cobalt provides a wide range of resources, such as technical notes and white papers, for developers of Linux applications for Cobalt platforms. Premium resources are also available.

To register with the Cobalt Developer Network at no cost, visit the Web site at http://developer.cobalt.com/.

Discussion Groups

Cobalt has made available a number of discussion groups through which users can share information.

To view the current list of Cobalt discussion groups, type the URL http://www.cobalt.com/support/resources/usergroups.html in your Web browser. The names of the discussion groups show up as hypertext links.

To subscribe to or unsubscribe from a discussion group, or to view previous postings to a group, click on the group name. A new browser window opens, displaying information about the discussion group.

New discussion groups are added periodically. The current groups include:

- an announcement list concerning Cobalt products
- an information list for developers working on Cobalt products
- a user list for sharing information between users of Cobalt products
- a security list for users to address network security issues on Cobalt products

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://www.cobalt.com/support/kb/.

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/.

Education

For those who desire a premium level of technical expertise with Cobalt Networks products, we offer a number of training courses. The intended audience includes end users, Cobalt resellers, system and network administrators, systems engineers, product developers, support technicians, consultants and trainers. You can access the site at http://www.cobalt.com/support/education/index.html/.

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://developer.cobalt.com/.

Before contacting Cobalt Networks Technical Support

Note: To receive Technical Support, you must first register your Cobalt product.

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.

- the serial number, located on the back panel, or the MAC address of the primary network interface, accessible through the Server Desktop, of your Qube 3

- any additional software installed on your system

- any peripherals connected to your system

- any error messages you have received and the time when they occurred

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

- the steps you have taken to resolve the problem

Setting up the Qube 3

This chapter guides you through the process of connecting and configuring the Cobalt Qube 3 for your network and user community. A typical setup process takes less than 15 minutes, after which you can begin using all of the Qube 3 services.

If the Qube 3 has been configured previously for a different network, refer to "Set up network" on page 196.

Qube 3 setup

The setup process occurs in two phases.

- "Phase 1: Making the connection" explains the physical connection of the Qube 3 to a power source and the network.

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

Phase 1: Making the connection

Connecting to the network

Connect the primary network interface (10/100 BaseTX) of the Qube 3 to your local are network (LAN) with a twisted-pair ethernet cable; see Figure 6.

Figure 6. Network connectors

Secondary network interface   Primary network interface   Serial port   Power socket
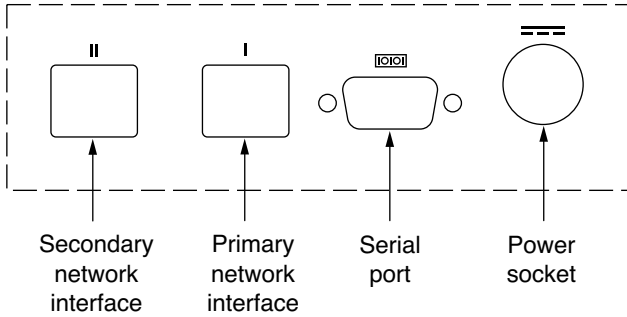
Connecting the power supply

There are two parts to the power supply: the power supply unit and the country-specific AC power cord.

Connect the power supply unit to the Qube 3 by pushing the connector into the multiple-source DC power socket; see Figure 6. Plug one end of the AC power cord into the power supply unit and the other end into an electrical outlet.

Powering on the Qube 3

Turn on the power by pressing the **On/Off** switch on the back of the Qube 3; see Figure 1 on page 2.

The hard disk spins up and the fan turns on. The light bar on the front of the unit blinks a few times and then glows steadily.

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

> ⚠️ *Caution*: It is important to follow the proper power-down procedure before turning off the Qube 3. Refer to "Power down" on page 203.

Configuring network settings

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

The Qube 3 requires specific network information in order to function properly. Depending on the network environment, the Qube 3 may be able to obtain all of the necessary information from a Dynamic Host Configuration Protocol (DHCP) server on the network. If so, the Qube 3 tries to configure itself with information from the DHCP server. The second option is to have the Qube 3 configure itself automatically. Finally, you have the option of configuring the Qube 3 manually, using the LCD console on the back panel; see Figure 7.

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

• the IP address assigned to the Qube 3

• the subnet mask of your network

Note: A gateway or router address is not required for a Qube 3 that is only connected to a local area network (LAN). If you connect to another network through the Qube 3, you require a gateway address. If you connect to the Internet with a modem, you do not require a gateway.

Using the LCD console to configure the network

Figure 7 shows the LCD console for the Qube 3.

The LCD screen on the back of the Qube 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 below the LCD screen to enter the required network information manually.

Appendix A, "Using the LCD Console," on page 195 provides more information about the LCD console.

Figure 7. LCD console
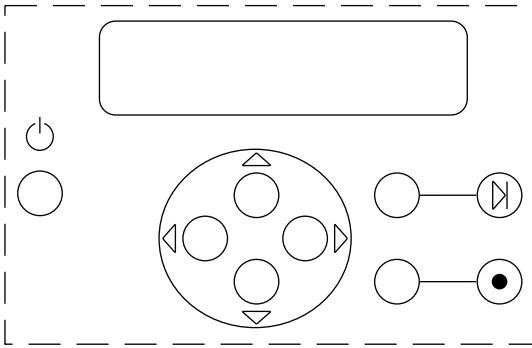
During startup, the LCD screen on the back of the Qube 3 displays status information about the boot process itself. When setting up the Qube 3, you use the LCD console to enter network configuration information. Once the Qube 3 is running, the LCD console is used to change network configuration information, reboot the unit and power down the unit.

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 "select" button displays the next option.

The "enter" button accepts the information entered or the options displayed.

Configuring the Qube 3 with a DHCP server on the network

The Qube 3 first checks to see whether a DHCP server is present on the network. If there is a functioning DHCP server that is set up to serve leased IP addresses, the Qube 3 configures itself with the information received from the DHCP server. Once the boot process is completed, the top line of the LCD screen displays the fully qualified domain name of the Qube 3 and the bottom line displays the leased IP address.

☞ *Important:* To function properly over long periods of time, the IP address of the primary network interface on the Qube 3 must remain fixed, meaning that the DHCP server must not assign this IP address to a different machine at a later date. Unfortunately, some DHCP servers do not honor requests for permanent IP addresses. As a result, your Internet service provider (ISP) or network administrator may need to assign a different (and permanent) IP address to the Qube 3. If so, you will need to change the network configuration information.

Coordinate any changes to the IP address, subnet mask or gateway address with your ISP. If your Qube 3 is integrated into a larger network, consult with your network administrator for this information.

Configuring the Qube 3 with the auto-configuration feature

⚠️ *Caution:* The auto-configuration feature on the Qube 3 launches a DHCP server on your network. If you already have a network set up, do not use the auto–configuration feature. If you do not have a network set up, Cobalt recommends the auto-configuration method over the manual method.

The auto-configuration feature allows you to set up a network through the Qube 3. The Qube 3 assigns itself an IP address and a subnet mask on the primary network interface. It also provides an internal host name (myserver) for the Qube 3 and a domain name (mydomain) for the new network. The Qube 3 acts as a DHCP server and provides IP addresses to clients on the network.

👉 *Important:* If you want to be able to send email out over the public Internet, you must have a valid external domain name. The "mydomain" domain name generated by the auto-configuration feature is not valid for external email.

When you have obtained a registered domain name, change the domain name on your Qube 3. To do so, see "TCP/IP" on page 162.

For more information on registering a domain name and a list of accredited registrars, visit the Internet Corporation for Assigned Names and Numbers (ICANN) at http://www.icann.org.

To use the auto-configure feature, select this option on the LCD screen after the Qube 3 has completed its boot process.

✍️ *Note:* The Qube 3 first looks for an existing DHCP server on the network. If it does not find one, it then offers the auto-configuration option on the LCD screen.

- The Qube 3 assigns itself "10.6.18.1" as the primary IP address and "255.255.255.0" as the subnet mask. If 10.6.18.1 is not available, the Qube 3 tries 10.6.18.2 and so on in succession until it finds one that is available.

- If 10.6.18.1 through 10.6.18.5 are not available, the Qube 3 assumes that the 10.6.18.x network is in use and aborts the auto-configuration procedure. The LCD screen prompts you to manually enter an IP address. Refer to "Configuring the Qube 3 manually" on page 17.

- If the Qube 3 auto-configures successfully, it acts as a DHCP server and assigns to the clients IP addresses in the range 10.6.18.30 through 10.6.18.249, a subnet mask of "255.255.255.0", a primary DNS server address of "10.6.18.1" and a gateway or router address of "10.6.18.1".

- Once you have completed the browser-based setup of the Qube 3, change the TCP/IP settings for the clients on your network to "Use a DHCP server" (Apple) or "Obtain an IP address automatically" (Windows).

Continue the setup process with "Phase 2: Setting up with the Web browser" on page 20.

Configuring the Qube 3 manually

☞ *Important:* In this phase, you configure only the primary network interface. To complete this phase, you must know:

- the IP address assigned to the Qube 3

- the subnet mask of your network

✍ *Note:* A gateway or router address is not required for a Qube 3 that is only connected to a local area network (LAN). If you connect to another network through the Qube 3, you require a gateway address. If you connect to the Internet with a modem, you do not require a gateway.

If the Qube 3 is unable to find a DHCP server on the network and you do not choose the auto-configuration option, the LCD display reads:

```
PRIMARY IP ADDR:
000.000.000.000
```

A blinking cursor appears on the second line of the LCD display. The following steps explain how to enter the required network information for the primary network interface. The secondary network interface is configured through the Web browser as described in the next section.

An IP address consists of four numbers, ranging from 0 to 255, separated by periods (for example, 192.168.25.77); this is often referred to as "dot-quad notation".

To enter the IP address for the Qube 3:

1. Use the arrow buttons on the LCD console to enter the IP address assigned to the Qube 3.

2. Press the (●) button to accept the IP address.

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

    ```
    PRIMARY NETMASK:
    000.000.000.000
    ```

3. Enter the netmask of your network.

4. Press the (●) button to accept the entry.

    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. Press the (●) button to accept the default value of "000.000.000.000".

> *Note:* A gateway or router address is not required for a Qube 3 that is only connected to a local area network (LAN). If you connect to another network through the Qube 3, you may require a gateway address. If you connect to the Internet with a modem, you do not require a gateway.

6.   Press the (●) button.

     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 the (●) button. It pauses for a moment and
     then you will see:

     `Setting up Network`

> *Note:* Selecting [C]ancel cancels the configuration and the
> LCD screen displays `PRIMARY IP ADDR:` again. You must repeat
> the entry process.

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

Configuration is complete when the LCD screen displays the IP address assigned
to the Qube 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 a computer on your network. Use one of the standard Web browsers such as Netscape Navigator (version 4.7 or later) or Microsoft Internet Explorer (version 5.0 or later) to do this. Once the setup process is complete, the Qube 3 can be managed from any computer on the network with a valid Web browser.

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

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

2. Enter the IP address of the Qube 3 (displayed on the LCD screen on the back of the Qube 3) in the URL field of your browser, for example:

Location: **http://192.168.25.77**

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

If you configured the Qube 3 network settings successfully, the Cobalt Welcome screen appears; see Figure 8.

The Setup Wizard synchronizes with the language preference configured in settings of your Web browser and displays the Welcome screen in that language. If the language selected in the browser preferences is not available on the Qube 3, the server defaults to the Administrator's choice of language.

> *Note:* You cannot use accented characters (for example, ä, é, ñ) in the following items:
>
> - user names
>
> - group names
>
> - email addresses and email aliases
>
> - host names and domain names
>
> - the names of email folders in the WebMail program
>
> You can use accented characters.in descriptive fields, for example, in the Full Name field for a user or in the Remarks field describing a group.

Active Assist — Online Help

Active Assist provides real-time context-sensitive help on the Server Desktop. When you move the mouse pointer over a context-sensitive area of the screen, a description of the item appears at the bottom of the browser page.

Configuring the Qube 3 with the Setup Wizard

To configure the Qube 3, enter information into the fields on the **Setup Wizard** screens. These fields are described in the sections that follow.

The Setup Wizard is a series of screens that guide you through the setup process. After completing each step, click on the right arrow at the bottom to apply the changes and move on to the next step. You can click on the left arrow to return to a previous screen.

The Qube 3 performs automatic checks on the information entered and alerts you when an illegal value or a problem is encountered. When the information is entered correctly at each stage, the Qube 3 enters the changes in its configuration files before proceeding to the next step. Changes may take several seconds to complete.

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

Note: For help with a particular item in the Setup Wizard, move the pointer over the item on the screen; help text appears at the bottom of the screen.

Figure 8. Qube 3 Welcome screen
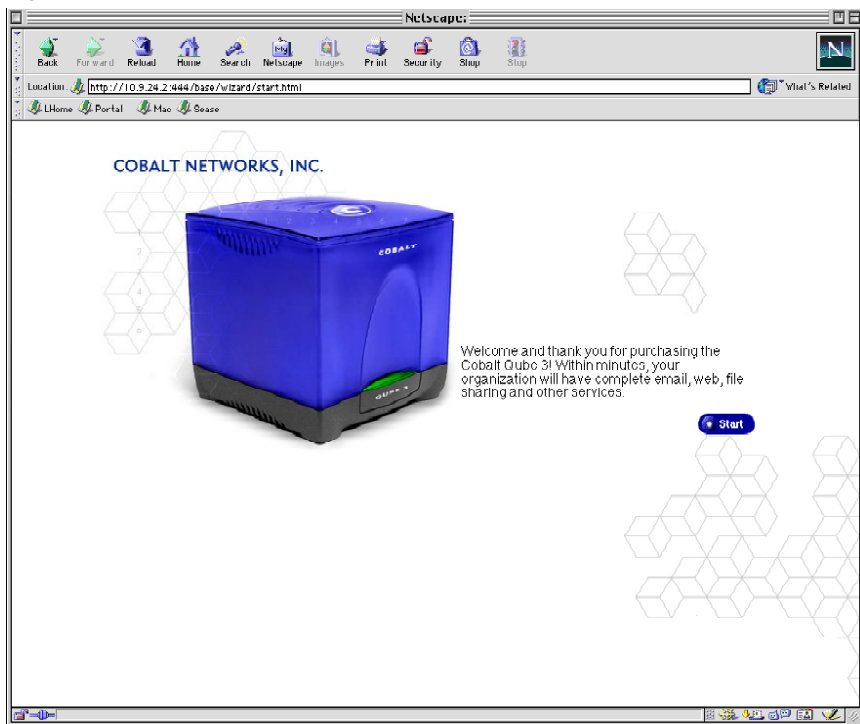
Language selection

On the first screen of the Setup Wizard, you can select a different language for the Server Desktop UI. Select a language from the pull-down menu.

> *Note:* The language chosen in this step applies only to the user *admin*. When a new user accesses the Qube 3, the server synchronizes with the language preference configured in settings of the user's Web browser and displays the Welcome screen in that language.
>
> If the language selected in the browser preferences is not available on the Qube 3, the server defaults to the Administrator's choice of language.

The selected language applies to the Server Desktop UI, the messages and commands on the LCD screen and the alert messages that Active Monitor sends to the Qube 3 Administrator.

Once the Qube 3 has been set up, an individual user can change the language displayed on the Qube 3. For more information, see "Personal profile" on page 89.

License agreement

You are presented with the Cobalt Network **License Agreement** screen.

By clicking on the arrow button on this screen, you acknowledge receipt of and agreement with the terms and conditions set forth on the Warranty/Registration Card enclosed with your Cobalt Qube 3 and with the License Agreement shown in Figure 9.

Read through the License and click the right arrow at the bottom.

Figure 9. License Agreement
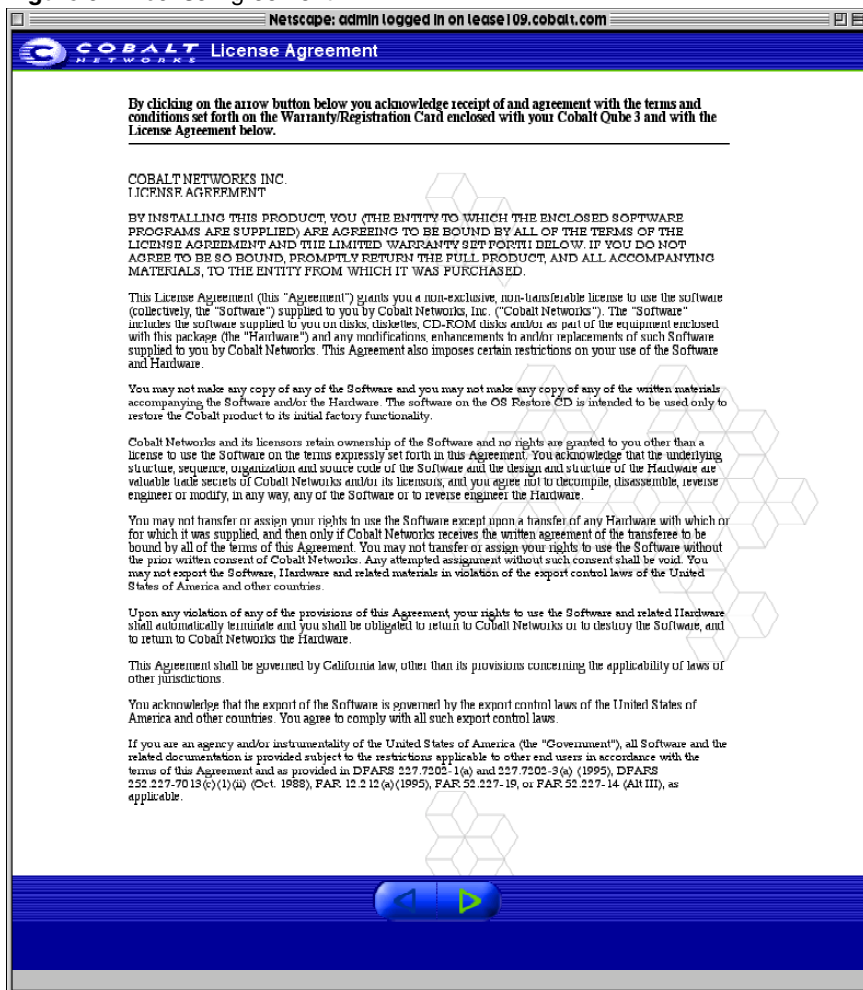
Administrator Settings

The **Administrator Settings** screen appears; see Figure 10. The Qube 3 Administrator is responsible for the following:

- Setting up and maintaining the users, groups and services on the Qube 3

- Responding to email alerts from the Qube 3 in order to forestall potential problems

Figure 10. Administrator Settings
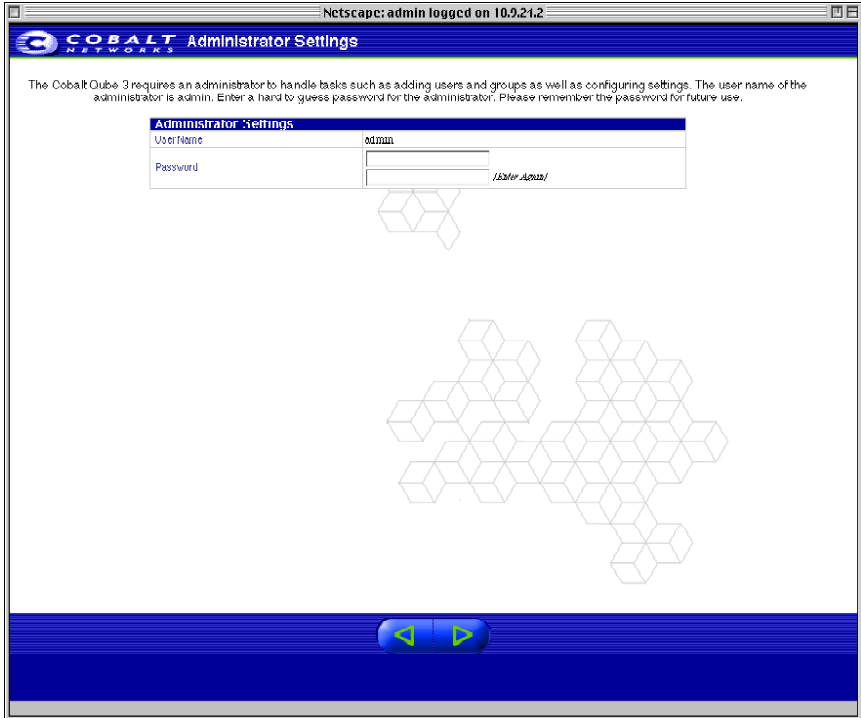
To set up the Qube 3 for the Administrator, you must enter a **Password** in this field. For guidelines on choosing a password, see "Password guidelines" on page 26.

> *Note:* We recommend that you reserve the email account *admin* for system messages and alerts only, and that you do not publicize this *admin* account. To send comments or suggestions to the Qube 3 Administrator, create instead an email alias such as *sysadmin* for that user.
>
> For information on how to add an email alias, see "Adding an email alias for a user" on page 112.

Be sure to remember the password to access the Qube 3 Administration features in the future.

If you forget the password or want to reset the password, see "Resetting the Qube 3 Administrator password" on page 103.

If you want to change the password for the Qube 3 Administrator, see "Modifying account information" on page 90.

Click the right arrow at the bottom to move to the next screen.

Password guidelines

Use the following guidelines when choosing a password:

1. Use between three and sixteen alphanumeric characters.

    The valid characters include: a-z A-Z 0-9 % ! @ $ ^ & * - _ = \ | . , / ? ; : +

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").

Time Settings

The **Time Settings** screen appears; see Figure 11. Using the pull-down menus, enter the current date, time and time zone on the Qube 3.

Click the right arrow at the bottom to move to the next screen.

Figure 11. Time Settings

User Settings

The **User Settings** screen appears as shown in Figure 12. On this screen, you can add users to the Qube 3 and allocate the user disk space limits. The Qube 3 Administrator can select how the Qube 3 generates the user name and set the default disk usage limits by clicking **Edit User Defaults**.

Figure 12. User Settings
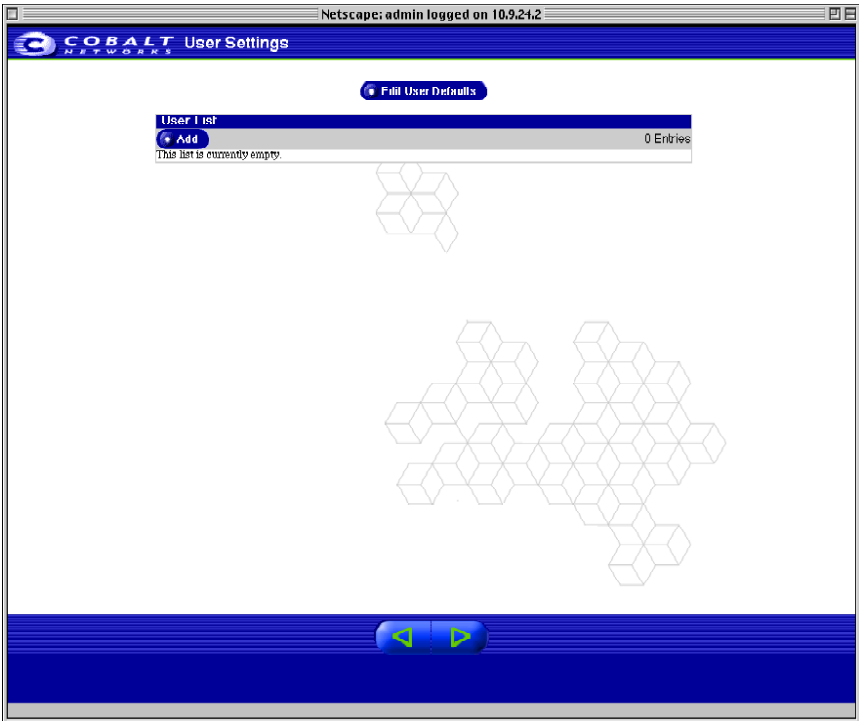
The Qube 3 Administrator, with the user name *admin*, has full control of the Qube 3 and manages the services on the Qube 3. The administrator can be added to a group as a regular member, up to a maximum of 32 groups.

> *Note:* To add users through the browser interface after the Qube 3 is set up, see "Adding a user" on page 107.

Click the right arrow at the bottom to move to the next screen.

Group Settings

The **Group Settings** screen appears as shown in Figure 13. On this screen, the Qube 3 Administrator can create different groups of users. Each group has its own mailing list, Web site and file storage. Click **Edit Group Defaults** to configure the maximum allowed disk space that groups can use.

Note: To add groups through the browser interface after the Qube 3 is set up, see "Adding a group" on page 115.

You can modify the Groups on this screen. Click the green pencil icon next to the group that you want to modify. For more information, see "Modifying a group" on page 116.

Click the right arrow at the bottom to move to the next screen.

Figure 13. Group Settings
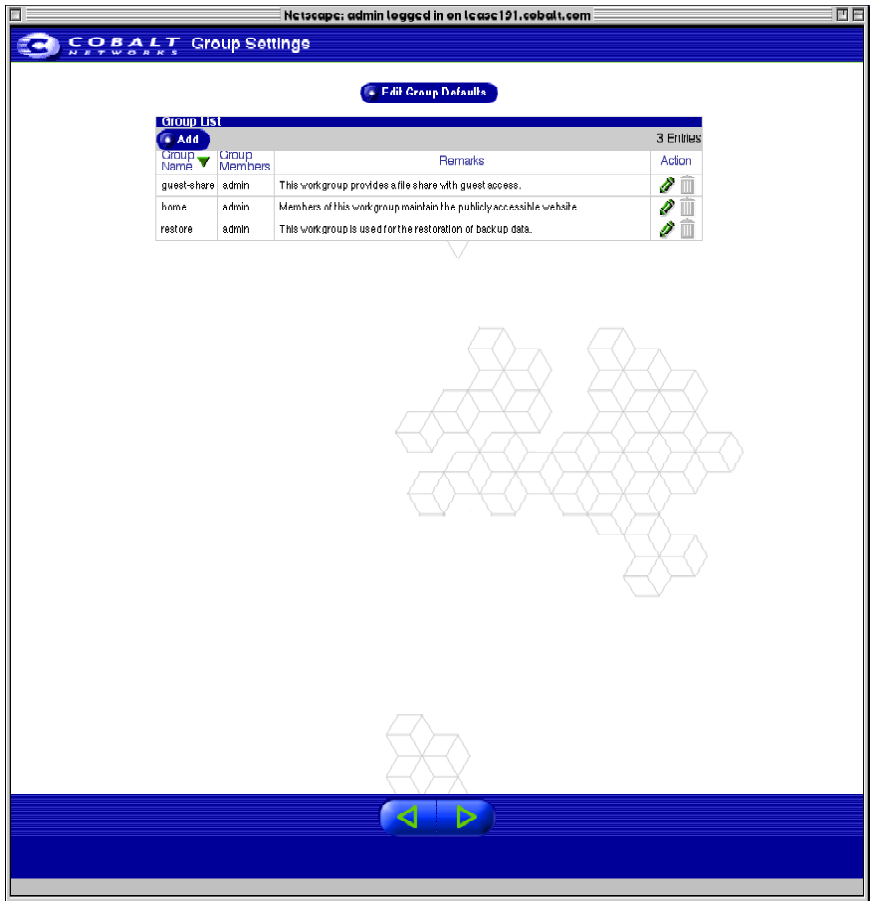
Network Integration

Figure 14 shows the **Network Integration** screen; on this screen, you can do the following:

- Assign a host name (for example, qube3) to the Qube 3.

- Enter your domain name. The domain name is either the official domain name that is registered with an ICANN-accredited registrar (for example, "cobalt.com") or an intranet domain name specific to your network.

  Coordinate the host name and domain name with your Internet service provider (ISP) to ensure the integrity of your network. If your Qube 3 is integrated into a larger network, consult with your network administrator for this information.

  This allows you to access your Qube 3 by host name and domain name, rather than only by IP address.

- From the pull-down menu, select the method by which the Qube 3 connects to the Internet:

  - Gateway on a Local Area Network (LAN)

  - Cable Modem or DSL

  - Analog Modem or ISDN

  If you do not know how you connect to the Internet or if you do not want to set up your connection yet, you can also select "None or Intranet". If you select "None", you can set up your Internet connection in the Server Desktop once the Qube 3 is operating. See "Internet" on page 165.

  Depending on the method by which the Qube 3 connects to the Internet, a particular screen appears in the Setup Wizard. For a full description of the three different screens, see "Internet" on page 165.

- Enter the IP address of your Domain Name System (DNS) server. A DNS server maintains a list of computer names and their IP addresses. The Qube 3 needs access to this list on the DNS server in order to convert between IP addresses and names. This conversion is essential for sending and receiving email external to the Qube 3. For more information on DNS, see Appendix E, "Domain Name System," on page 227.

> Note: If you choose a type of Internet connection in the previous step and you do not specify a DNS server, the Qube 3 becomes a DNS server.

Click the right arrow at the bottom to move to the next screen.

Figure 14. Network Integration
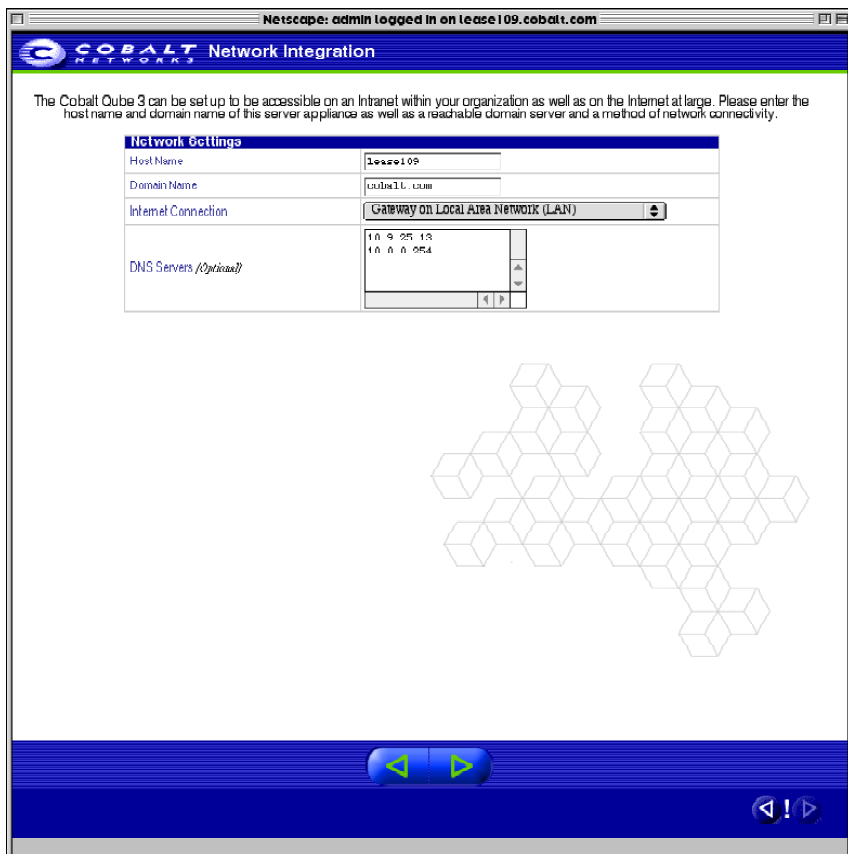
Product Registration

The **Product Registration** screen appears; see Figure 15. If you are connected to the Internet, you can register the Qube 3 by completing the online registration.

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

If you are not connected to the Internet, the **Product Registration** screen does not appear. Fill out the Warranty/Registration card included in the packaging materials and return it to Cobalt Networks, Inc. By doing so, you will register your Qube 3, and receive notifications of system upgrades, security upgrades and new product information.

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

To register online at a later time, see "Information" on page 174.

Figure 15. Online Registration
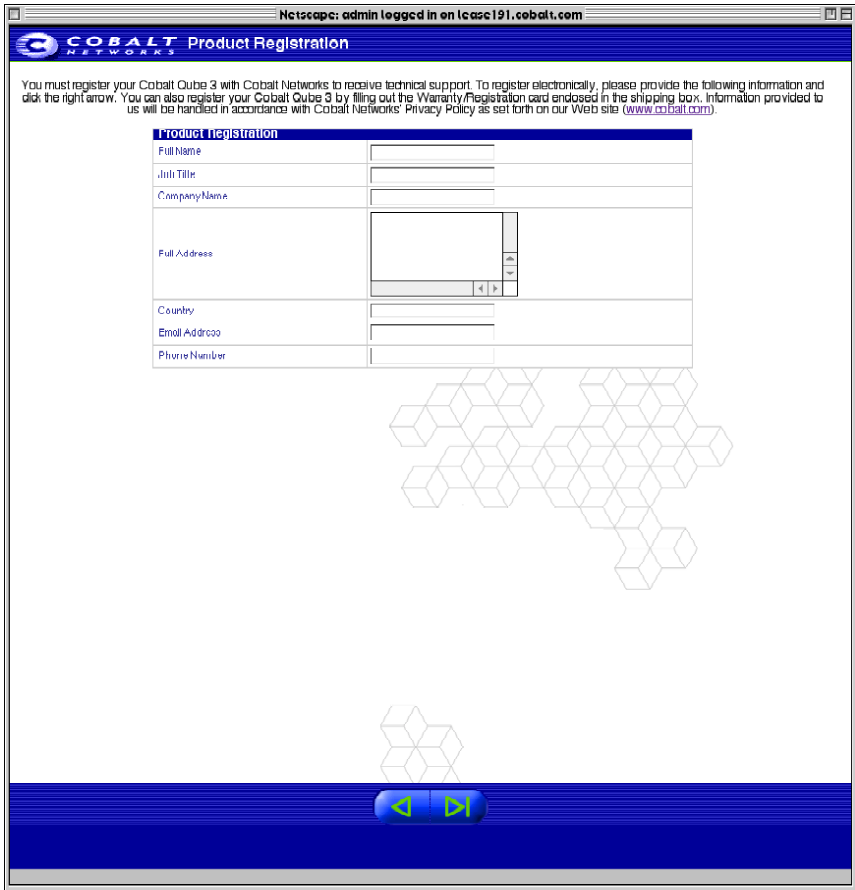
Completing configuration with the Setup Wizard

If you completed the **Product Registration** screen, click the right arrow at the bottom.

Once the Qube 3 has been configured, the Administration site on the Server Desktop appears; see Figure 16.

The buttons on the left side of Server Desktop provide access to the information and functions on this site. Move the mouse pointer over the menu buttons and a description of the Server Desktop features appears in the help text frame at the bottom.

Documentation

You can access the user manual in PDF format from the Server Desktop. If you have installed third-party software on the Qube 3, the relevant documentation is available on this screen.

To access the PDF file for the user manual, click on the help icon in the top right corner. A separate browser window opens displaying a list of PDF files in the languages available. Click the link for the PDF in your preferred language; you can open the PDF file in the browser window or save it to your personal computer.

Figure 16. Administration site on the Server Desktop

Qube 3 Services

This chapter offers a brief overview of the services available on the Cobalt Qube 3. These services are described in detail in Chapter 4 and Chapter 5.

These services include:

- Email and mailing lists

- Web publishing

- File sharing through Windows file sharing, AppleShare, and file transfer protocol (FTP)

- Dynamic Host Configuration Protocol (DHCP) server

- Domain Name System (DNS) server

- IP Masquerading (also known as Network Address Translation [NAT])

- Redundant array of independent disks Level 1 (RAID-1) (available on the Qube 3 Professional Edition only)

- Internet access through a high-speed serial port

- Basic Firewall

- Web Caching (available on the Qube 3 Business Edition and Professional Edition only)

- Archived mailing lists

- Lightweight Directory Access Protocol (LDAP) import and export

- Backup and restore data

- Installing software

- Simple Network Management Protocol (SNMP)

- Secure sockets layer (SSL)

Managing your personal profile

Registered users on the Qube 3 can manage their own Personal Profile, including changing their password, using a standard Web browser such as Netscape Navigator (version 4.7 or later) or Microsoft Internet Explorer (version 5.0 or later). The features accessible from this screen are:

- Account

- Email

- Disk Usage

- Personal Information

For more information, see "Personal profile" on page 89.

Using email on the Qube 3

To use all of the Qube 3's email capabilities, you must configure the email settings correctly. You must also configure your email client to send email to and retrieve email from the Qube 3.

For more information on setting up email on the Qube 3, see "Email server overview" on page 129.

WebMail client

The Qube 3 offers an integrated email client called WebMail. You can access the WebMail feature in the Programs site of the Server Desktop. See "Overview of WebMail" on page 66.

Setting up your email client

Ensure that the following information is entered into your email client on your personal computer.

> *Note:* If you check your mail through an external client (for example, Microsoft Outlook, Netscape Messenger or Qualcomm's Eudora), you can enable an option to save a copy on the email server for a number of days.

1. **Email address**. The format is either

   <username>@domainname (see the note below) or

   <username>@hostname.domainname

   (for example, myname@qube3.cobalt.com) where:

   • <username> is the user name assigned to you (for example, myname)

   • <hostname> is the name assigned to the Qube 3 (for example, qube3)

   • <domainname> is either the official domain name that is registered with an ICANN-accredited registrar (for example, "cobalt.com"), or an intranet domain name specific to your network. Obtain this information from your ISP. If your Qube 3 is integrated into a larger network, consult with your network administrator for this information.

> *Note:* To use the shorter email format <username>@domainname, you must enter the domain name in the email parameters table, in the field "Receive email addressed to these hosts/domains."

2. **SMTP server**. The format is hostname.domainname (for example, qube3.cobalt.com).

3. **POP3 server**. The format is hostname.domainname (for example, qube3.cobalt.com).

4. **IMAP server**. The format is hostname.domainname (for example, qube3.cobalt.com).

> *Note:* Occasionally, an email application asks for an "incoming" mail server. The incoming mail server is the POP3 server.

Email aliases

Each registered user on the Qube 3 must have a unique user name (for example, mary or john.smith or khoward). This user name is used to send or retrieve email.

The Email Alias feature allows you to create an arbitrary email address without creating a user account on the Qube 3. An email message addressed to the alias is forwarded to an existing email address.

If you add more than one alias for a user, enter one alias per line. You can only use lowercase alphanumeric characters, periods (.), hyphens (-) and underscores (_) in the alias.

Let us say that the XYZ Company has a Qube 3 and that the company's domain name is xyz.com. The email addresses for the users of the Qube 3 is <username>@xyz.com. Employee Andrew Bose has a user name of "abose"; his email address is "abose@xyz.com".

A user can have several email aliases that point to a his or her user name. For example, Andrew Bose can have can have the aliases "andrew@xyz.com" and "andrew.bose@abc.com". If he were an avid soccer player, he might want to use the alias "striker@xyz.com". All of these aliases point to his user name <abose> at xyz.com. Email messages addressed to any of these aliases are forwarded to "abose@xyz.com".

However, having a large number of aliases for each user can cause problems. If a new user is added and the user name that is automatically generated by the Qube 3 is already in use, a warning appears in the help text at the bottom of the screen, stating that <username> has already been taken by another person. The Qube 3 does not accept the New User entry.

Following the previous example, let us say that Andrew Boisvert is a new employee at the XYZ Company. If he wanted to have "andrew" as his user name, the Qube 3 help text displays:

> "Sorry, you have entered a value for User Name that has already been taken by another person on this system. Please enter another value for User Name."

The Qube 3 verifies the alias that you enter. If the alias is already in use as a user name, as another user's alias or as the name of a mailing list, the Qube 3 does not allow the new alias.

A Qube 3 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 user name.

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 Qube 3 accepts email if the recipient has a user account or an alias email account, or if the sending host (your client computer) is trusted to relay outgoing email messages 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. However, doing so allows hosts belonging to com, edu, net and others to relay email through your Cobalt server; this relayed mail is often 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 a large amount of their email messages.

If you have users who access your server through the Internet, ask your ISP which networks are used by their remote access (dial-up) equipment. If the ISP says the network 209.43.21.5/24 and 209.48.66.5/16, add "209.43.21.0" and "209.48.0.0" 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 (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 Qube 3.

> ✏️ *Note:* By default, the domain name for the Qube 3 is allowed to relay email.
>
> If you do not want to allow email to be sent through the Qube 3, enter the domain name of the Qube 3 in the "Block Email From Hosts/Domains" field. You will be able to download email but not be able to send outgoing email messages through Qube 3.
>
> For more information, see "Configuring the email settings" on page 131.

POP-before-SMTP feature

The Qube 3 provides an option to allow POP authentication before SMTP. To enable this feature, see "Configuring the email settings" on page 131.

Normally, you only permit email relaying from within your own network. But some users travel and connect from other places (for example, sales people or field engineers) and you want to let those users relay email through your server. The way to allow this and still protect your Qube 3 from being used to relay spam mail is to authenticate the user through POP before establishing an SMTP connection.

When a user logs in for POP3 email, the Qube 3 notes the IP address from which the connection was made and permits relay from that IP address for a limited time. Travelling users need only check their email to "unlock" the mail server; no changes to the client mail software are necessary.

The POP-before-SMTP implementation causes the IP addresses to expire after 15 minutes.

Mailing lists

A mailing list allows you to send messages to a certain group of people without having to address them individually. You can create a mailing list comprising users registered on the Qube 3 as well as email addresses external to the Qube 3.

When the Qube 3 Administrator creates a group, a mailing list is automatically created for that group.

The email messages between members of a mailing list can be continuously archived, allowing a user to review a thread of email messages. If you are a member of a mailing list (either for a group or an independent mailing list), a new item, Mailing Lists, appears in the left menu bar of the WebMail program on the **Programs** site. You can view the archived email messages through the Mailing List link.

> *Note:* By default, the Archive option is OFF for mailing lists.

For more information on viewing archived mailing lists, see "Mailing Lists" on page 77.

For more information on managing mailing lists, see "Group List" on page 113.

Developing Web pages

The Qube 3 automatically provides a default home page for each individual user and each group. It also supports a broad range of Web publishing capabilities that allow both novice and expert users to build and publish custom Web pages.

Note: To access your home page, enter the URL http://<hostname>/~<username>/, where <hostname> is the fully qualified domain name of your Qube 3 and <username> is your user name on the Qube 3.

You must include the tilde mark (~) before your user name.

FrontPage 2000 Server Extensions

The Qube 3 includes the FrontPage® 2000 Server Extensions, which allow you to use the FrontPage client application to publish and edit Web content easily. You can create and post Web pages using standard style templates and pre-configured tools—including form processing and search tools. It is not necessary to know anything about FTP or other file transfer protocols.

The Qube 3 Administrator can enable Microsoft FrontPage Server Extensions for Web page development on the root Web site.

When you enable FrontPage Server Extensions on the Qube 3, a FrontPage client *webmaster* account is created and you must provide a password for the *webmaster* account. See "Web settings" on page 141.

The "webmaster" account simply means that when you log in to the root web (http://<your.host.domain>/) using FrontPage, your user name is *webmaster* and the password is whatever you entered in the Web Settings table.

Note: The *webmaster* account does NOT have Web, email or FTP service. It is simply an account to use in the FrontPage client.

If FrontPage Server Extensions are enabled, the Web Settings table shows a check box indicating that the feature is enabled. If you disable FrontPage Server Extensions and save the changes, the Web Settings table refreshes to show the feature as disabled and a *webmaster* password field is now displayed in the table. If you re-enable FrontPage Server Extensions, you must provide a password again.

If you do not enter a password after you enable FrontPage Server Extensions and then try to save changes, the Server Desktop does not accept the changes. An error message appears at the bottom of the screen, informing you that you must enter a password for the *webmaster* account.

Once the webmaster has authenticated through the FrontPage client, he or she can:

- modify Web content

- create and manage FrontPage subwebs

- add, modify or remove additional FrontPage user accounts

- change the *webmaster* password

Using an HTML editor

You can create 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 themselves on your desktop computer, and then move them to the appropriate subdirectory in the Qube 3 through an FTP application; see "Publishing Web pages using FTP" on page 45.

CGI scripts

The Qube 3 supports common gateway interface (CGI) scripts, such as those written in Perl or C, as well as Unix shell scripts.

CGI scripts allow 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 Qube 3 through an FTP-based application that allows the permissions to be set to "Executable".

CGI scripts must use .pl or .cgi filename extensions in order to be executed by the Web server.

Use FTP to upload .cgi and .pl files; use ASCII mode to upload CGI files. Once the file is on the Qube 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/
```

To set the access rights specifying who is allowed to run CGI scripts, see "Web settings" on page 141.

PHP

The Qube 3 is pre-configured with support for embedded PHP scripts. You can save PHP files in any directory on your site, provided that the file ends with a .php extension.

Publishing Web pages using FTP

After creating your Web pages, you can publish them on the Qube 3 using FTP.

Ensure that you have the following information:

• the host name or the IP address of your Qube 3

• your user name and password

• a filename of your choice to save as your main page (the default filename is index.html)

Launch your FTP software and establish an FTP link to the Qube 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 path to your personal directory is:

```
/home/users/<username>/ where <username> is your user name
```

Upload your Web page into the directory

```
/home/users/<username>/web/
```

Sharing files and transferring data

You can access or connect to the Qube 3 through your desktop computer as you would any other shared network volume. The Qube 3 can be mounted from a Windows or Macintosh computer—it appears as a mounted volume on your desktop computer.

The method of connecting to the Qube 3 varies, depending on your computer's operating system. The Qube 3 offers several methods for transferring data. Use the following guidelines to decide which method is appropriate:

*   Windows file sharing (Server Message Block [SMB]) for Windows 95, Windows 98 and Windows NT

*   Apple file sharing (AppleShare) for Macintosh

*   File Transfer Protocol (FTP) on all platforms. Advanced users use FTP to transfer files

Windows File Sharing, FTP and Appleshare are enabled by default; guest share is not enabled by default. For more information, see "File Services" on page 137.

Once you have mounted the Qube 3, you can copy and move individual files and entire subdirectories to and from the Qube 3 by dragging and dropping.

Using Windows file sharing (SMB)

Windows-based machines use a file-sharing protocol called Server Message Block (SMB) or Common Internet File System (CIFS). Once SMB is set up, the Qube 3 appears in your Network Neighborhood as a machine named <hostname>. The <hostname> is the name that the Qube 3 Administrator assigned to the Qube 3, either in the Setup Wizard or the File Services section of the Qube 3 Administration Site.

Clicking the <hostname> icon in Network Neighborhood opens a window that provides an overview of the files and subdirectories that you can access.

Before you begin: Windows 95 and Windows 98 users

The user name on the Qube 3 must be identical to the user name on your computer before you can access your subdirectory on the Qube 3. If necessary, restart your computer and log in as a new user, using the user name and password that are stored on the Qube 3.

If your Windows password does not match the Qube 3 password, you are prompted for the Qube 3 password when you first connect to your Qube 3 through Network Neighborhood.

Setting up Windows file sharing for Windows 95 and 98

1. If the user name is the same on both your computer and the Qube 3, go to Step 6

2. If the user name on your computer is different from the user name on the Qube 3, click the **Start** button in the bottom left corner of your screen.

3. Select **Shut Down**. The Shut Down Windows dialog appears.

4. Within the Shut Down Windows dialog, select "Close all programs and log on as a different user". Click **Yes**.

    Your computer closes any applications that are running, logs you out and prompts you with an Enter Network Password menu.

5. Enter the same user name and password that are stored on the Qube 3. Your computer logs you in. If your Windows password does not match the Qube 3 password, you are prompted for the Qube 3 password when you first connect to your Qube 3 through Network Neighborhood on your Windows desktop.

6. Double-click on the Network Neighborhood icon. The Qube 3 (listed as the <hostname> assigned to the Qube 3) should be included in the listing.

7. If the Qube 3 is not listed, double-click on the Entire Network icon to cause your computer to scan the entire network for devices that can be shared. Select the name of the workgroup/domain of which the Qube 3 is a member. The default workgroup for the Qube 3 is WORKGROUP.

    You can also use the Find feature in Windows to locate the Qube 3.

    •   Click **Start** in the bottom left corner of the Windows screen.

    •   Select **Find** and then **Computer**. The Find:Computer dialog appears.

    •   Enter the hostname of the Qube 3 in the field and click **Find Now**. The results appear in a window below the Find:Computer dialog.

Note: It can take up to 15 minutes for a Windows PC to update its network information so that the Qube 3 is visible in the Network Neighborhood. The Find feature should produce quicker results.

8. Once the Qube 3 shows up in the Network Neighborhood list, double-click it to open it on your desktop computer. A password prompt appears. Enter the user name and password used on the Qube 3; the password is case-sensitive.

9. Click **OK**.

10. If you are using a workgroup name other than WORKGROUP, the Qube 3 may not appear in Network Neighborhood immediately.

    • To view your current workgroup name, click **Start** in the bottom left corner of the Windows screen.

    • Select **Settings** and then **Control Panel**. The Control Panel window appears.

    • Select **Network**. The Network dialog appears.

    • Select the Identification tab. The computer name, workgroup and computer description are displayed. Make note of the workgroup name and return to Step 7.

> *Note:* The Qube 3 Administrator can change the server workgroup name in **File Services > Windows** so that it matches your Windows 95/98 workgroup name.
>
> See "Windows file sharing (SMB)" on page 137.

Setting up Windows file sharing for Windows NT

1. Double-click the Network Neighborhood icon. If you are using the WORKGROUP domain or workgroup names, the Qube 3 (listed as <hostname>) should be included in the list.

   If the Qube 3 is not listed, double-click on the Entire Network icon to have your computer scan the entire network for devices that can be shared. Select **WORKGROUP**.

2. Once the Workgroup server list is visible, double-click the Qube 3 that you want to access. You can log into the Qube 3 as the Qube 3 Administrator or as any one of the registered users.

3. You may see a password prompt (depending on how your computer has been configured). If so, enter the user name and password used on the Qube 3; the password is case-sensitive.

4. Click **OK**.

5. You may want to log in to the Qube 3 as a different user. If you see a password prompt in Step 3, you can do so.

    However, if your Windows NT account uses the same user name and password as the Qube 3, account, the password prompt in Step 3 will not appear. In this case, you must first exit your Windows NT session.

    •   From the Start menu, select "Shut down the computer". The Shut Down Windows NT dialog appears.

    •   Select the radio button "Close all programs and log on as a different user". The computer closes all programs and logs out as the current user. A password prompt then appears for a new user.

    •   Enter the enter the user name and password.

    •   Click **OK**.

Using AppleShare

The Macintosh file-sharing protocol is called AppleShare. If AppleShare is enabled in the Setup Wizard or in the Administration section on the Server Desktop, the Qube 3 appears as an AppleShare volume in the Macintosh's Chooser.

1. From the Apple menu in the top left corner, select **Chooser**. The Chooser dialog appears.

2. In the window on the left, select **AppleShare**.

3. In the list in the scrolling window on the right, double-click the Qube 3 you want to access (listed as <hostname>).

    "Connect to the file server..." appears in the dialog box.

4. Select **Registered User**. Enter the user name and password used on the Qube 3; the password is case-sensitive.

5. Click **OK**. A dialog displays the volumes on the Qube 3; if a volume is not accessible, it is grayed-out.

6. Double-click the volume(s) you want to access:

    •   Home — provides access to group directories

    •   [<username>] — provides access to user directories

7. Click **OK**. The selected volume appears on the desktop.

Using AppleShare over IP

The Qube 3 supports the use of AppleShare over IP, which means you can access your Qube 3 across an intranet or over the Internet. The Qube 3 shares its volume through AppleShare over IP by default.

If you want to connect to a remote AppleShare volume over the Internet:

1. From the Apple menu in the top left corner, select **Chooser**. The Chooser dialog appears.

2. In the window on the left, select **AppleShare**.

3. In the left corner, click **Server IP Address**. The Server IP Address dialog appears.

4. Enter the fully qualified host name or IP address of the Qube 3 that you want to access.

5. Click **Connect**.

Using FTP

File Transfer Protocol (FTP) is typically available on platforms that support Transmission Control Protocol/Internet Protocol (TCP/IP), which are the underlying protocols used by the Qube 3. FTP is designed for transferring individual files.

1. In your FTP application, enter the IP address or the host name of the Qube 3.

2. Enter your user name and password.

   You are logged into the user home directory. Refer to the documentation for your FTP program for instructions on transferring files.

   Note: The user home directory is not the same as the Qube 3's root directory. Many HTML publishing programs that use FTP require full path names to transfer files.

   For example, the home directory for user Bill Lumbergh is accessed through the URL
   ftp://<hostname.domainname>/home/users/blumbergh/.
   The "sales" group home directory is accessed through the URL
   ftp://<hostname.domainname>/home/groups/sales/.

Dynamic Host Configuration Protocol (DHCP) server

The Dynamic Host Configuration Protocol (DHCP) allows the Qube 3 to assign automatically the network configuration information (such as IP address, domain name, DNS service, subnet mask and gateway) to client computers that support DHCP, including Macintosh and Windows desktop computers.

The Qube 3 Administrator can enable the DHCP feature on the Qube 3 so that the Qube 3 is able to assign automatically the network information necessary for your desktop computer.

For more information on setting up DHCP on the Qube 3, see "Dynamic Host Configuration Protocol (DHCP) server" on page 146.

What is DHCP and what are the benefits?

DHCP is a way for a computer on a network to obtain its TCP/IP settings when it boots up. With DHCP configured and enabled, a network administrator does not need to configure workstations manually, or modify networking settings when computers move or the network changes. This saves time and expense.

What is a configuration?

The Qube 3 DHCP configuration includes the default gateway, DNS servers, WINS server, subnet mask and IP address from an address pool.

What are leases?

When the Qube 3 sends a configuration to a requesting DHCP client, one of the DHCP options returned to the client is the lease time. The lease time tells the DHCP client how long it can use the IP address. Before the lease time expires, the DHCP client sends a lease renewal request to the Qube 3. The Qube 3 then sends back to the client a renewed lease time, along with any other settings that have changed (for example, new IP address[es] for the DNS server).

A short lease time is useful in a network that has a limited number of IP addresses at its disposal.

How does DHCP work?

DHCP requires a client and a server. The following steps briefly describe how a DHCP server provides a client with its proper TCP/IP configuration:
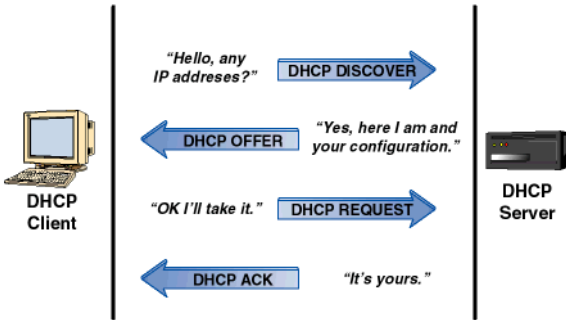
1. When booted, a DHCP client broadcasts a request, known as a DHCP Discover, looking for a DHCP server to provide TCP/IP settings. DHCP clients are found in most TCP/IP software suites for PC, Macintosh and UNIX workstations.

2. The Qube 3, as a DHCP server, receives the DHCP Discover request from a client and sends a reply, known as a DHCP Offer, to the DHCP client.
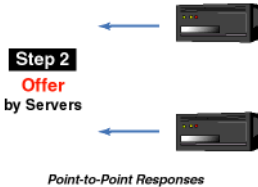
3. The DHCP client verifies the DHCP Offer it has received from the Qube 3 and sends back an acknowledgment (ACK) message to the Qube 3.

Step 3
Request
by Client

Selects Server #2

4. The Qube 3 responds to the client, reserves the IP address, acknowledges the client's acceptance of the offer and delivers the configuration information.

Step 4
Acknowledgement
by Selected Server

Server #2 Responds

Domain Name System (DNS)

The Domain Name System (DNS) is a vital and integral part of the Internet. Setting up DNS correctly on your Qube 3 is very important. For this reason, we have created an appendix solely for explaining DNS. See Appendix E, "Domain Name System," on page 227.

The appendix covers the following items:

*   basic DNS issues

*   advanced DNS issues

*   a quick start guide detailing a sample setup of DNS for a Qube 3

*   a brief history of the DNS service

If your network administrator is using the Qube 3 as a DNS server, you can enter the IP address of the Qube 3 into the "DNS server" field in the TCP/IP configuration on your desktop computer.

IP Masquerading (NAT)

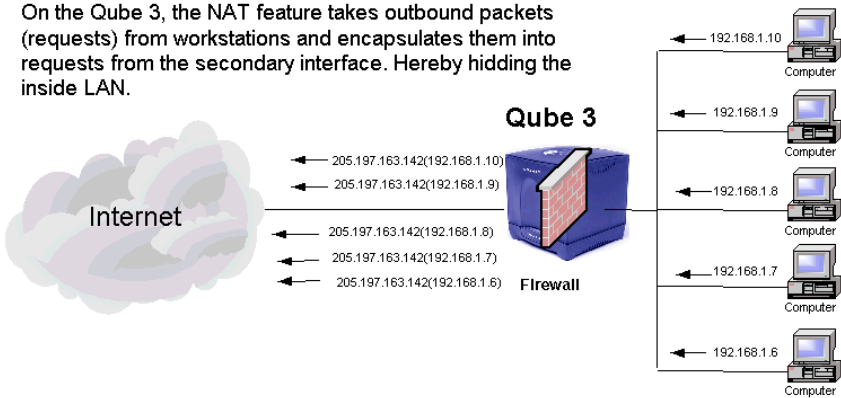✍ *Note:* IP Masquerading is also known as Network Address Translation (NAT).

The IP Masquerading feature simplifies and conserves IP addresses by presenting a single IP address for a private network to the public network. IP Masquerading enables private IP intranetworks that use non-registered IP addresses to connect to the Internet. IP Masquerading is both a security measure and a method of conserving IP addresses.

On the Qube 3, IP Masquerading functions as a router connecting two networks together. IP Masquerading advertises only one IP address for the entire network to the outside world. This provides additional security, since the entire internal network is hidden from the outside world behind that single IP address.

For outgoing packets, IP Masquerading translates a private IP address (an IP address that is not globally unique) on the internal network into the legal address of the secondary interface; packets are then forwarded onto the Internet.

For incoming packets, IP Masquerading does the opposite. IP Masquerading receives a packet from the Internet and translates the legal address of the secondary interface into the private IP address on the internal network.

NAT Returning Inbound Requests

On the Qube 3, the NAT feature takes inbound packets (requests) returning from the Internet, unencapsulates them and distributes them to the proper workstation on the internal LAN.
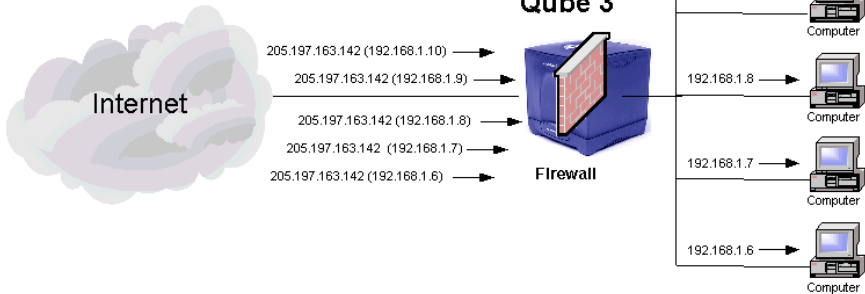
RAID-1 support

RAID-1 is available on the Qube 3 Professional Edition only.

A redundant array of independent disks (RAID) is a way of storing the same data in different places (thus, redundantly) on multiple hard disks. A RAID appears to the operating system to be a single logical hard disk.

There are a variety of different types and implementations of RAID, each with its own advantages and disadvantages. The Qube 3 Professional Edition implements RAID Level 1 (RAID-1), also known as disk mirroring, which consists of a primary hard disk and a secondary hard disk; the secondary hard disk is an exact copy or "mirror image" of the primary hard disk.

Although RAID can protect against disk failure, it does not protect against operator and administrator (human) error, or loss due to system errors.

The Qube 3 configuration uses Software RAID, meaning that it implements RAID in the software and requires no extra hardware.

You do not need to enable RAID-1 on the Qube 3; it is enabled by default. You cannot disable RAID-1 on the Qube 3.

Hardware failure

If one of the hard drives fails, the Qube 3 can function with one hard drive, but the server can no longer provide disk mirroring. To restore RAID service, you must shut down the Qube 3 and replace the failed hard drive. For more information on replacing a hard drive, see Appendix C, "Upgrading the Qube 3".

For a failed drive, Active Monitor indicates that the Drive A or Drive B has failed. Drive A is the drive next to the side wall of the chassis; Drive B is on the inside. The drive letters are stamped on the slots of the drive bay for the hard drives.

If RAID fails on the Qube 3, the system indicates the non-RAID status in two ways:

- An email is sent to the Qube 3 Administrator.

- In the Administration section, under **Active Monitor > Status**, the RAID circle changes to red.

Once you replace a failed drive on a Qube 3 and reboot the server, the system detects the new hard drive. It then automatically begins to synchronize the new hard drive to the existing hard drive so that the server will be able to provide disk mirroring.

> *Note:* During the synchronization process, the Qube 3 cannot provide disk mirroring but it can still serve requests.

Internet access through high-speed serial port

The Qube 3 is equipped with a high-speed serial port to which you can connect an external modem or an Integrated Services Digital Network (ISDN) terminal adapter. If you have (or can obtain) a standard point-to-point protocol (PPP) dial-up account with an Internet Service Provider (ISP), a phone line and a modem, your Qube 3 can provide Internet access for your network—no router is required.

For more information, see "Configuration for an analog modem or ISDN" on page 169.

Basic Firewall

For more information on configuring the firewall, see "Basic Firewall" on page 149.

For the definitions of the policies, see "Policy definitions" on page 153.

A firewall provides network security through a set of rules that restrict the flow of information between your Qube 3 and your network. It is also used to control the information that your Qube 3 allows to pass between different networks (such as your company's intranet and the public Internet.

When information is transmitted between your Qube 3 server and a network (for example, during an FTP file transfer or when fetching a Web page), the information is divided into small blocks of data called packets. Each packet contains a header which is used to direct the packet to its destination. The header contains information such as the destination address and source address of the packet, and indicates the software program that should receive the packet.

The Qube 3 ships with a type of firewall that allows you to accept or reject packets based on the information found in the header of a packet. This is known as an IP-packet-filtering firewall.

The type of IP-packet-filtering firewall implemented on the Qube 3 is the standard *ipchains* firewall system which is compiled into the Linux kernel. You can configure the ipchains firewall through the Qube 3's browser-based Server Desktop.

Caution: Basic Firewall is an advanced feature of your Qube 3 server. This feature is not recommended for novice users.

Note: The Web Caching feature on your Qube 3 (available on the Qube 3 Business Edition and Professional Edition only) relies on the Basic Firewall feature to operate. If you enable the Web Caching feature, the Basic Firewall feature is enabled automatically.

If you disable the Basic Firewall feature, the Web Caching feature is still enabled but will not function. To ensure that the Web Caching feature is functioning, re-enable the Basic Firewall feature.

For more information, see "Web Caching" on page 60.

Rules and chains

A packet-filtering rule consists of a set of criteria, and an action to take if a packet matches the criteria (this action is called the rule's policy). Criteria for a rule can consist of items such as the machine from which the packet originated, the destination of the packet and the network interface through which the packet is moving. Typically, a rule's policy accepts or rejects the packet; if rejected, the packet is discarded from the system.

Rules are organized into ordered lists called *chains*. When a chain of rules is applied, the firewall system tests the packet against each rule in sequence. If a packet meets the criteria of a rule, the action specified by the policy is taken; the packet is not evaluated against the subsequent rules. If a packet does not meet the criteria of a given rule, the packet is evaluated against the next rule in the chain.

Chains can also specify a default action to apply to packets that do not meet the criteria of any of the rules within the chain.

The Qube 3 allows you to configure three different rule chains, which are applied to packets at different stages of a packet's *lifecycle* within the Qube 3. These three chains are known as:

- **Input chain.** The *input* chain is applied against all packets entering the Qube 3 through a network interface.

- **Forward chain.** The *forward* chain is applied against all packets being forwarded through the Qube 3 to another computer.

- **Output chain.** The *output* chain is applied against all packets attempting to leave the Qube 3 through a network interface.

> *Note:* The output chain is applied against both existing packets being forwarded through the Qube 3 and new packets created by local services on the Qube 3.

The lifecycle of a packet within the Qube 3

When a packet enters the Qube 3 server through a network interface, the firewall system applies the input chain against the packet before it is allowed to proceed any further into the system.

If the input chain rejects or denies the packet, the Qube 3 discards the packet.

If the input chain accepts the packet, the Qube 3 then makes a routing decision about the packet: either to pass the packet to a local process (such as the Web server on the Qube 3) or to schedule the packet to be forwarded to another computer.

If the packet is scheduled to be forwarded, the firewall system applies the forward chain against the packet. If the forward chain rejects or denies the packet, the Qube 3 discards the packet. If the forward chain accepts the packet, the firewall system applies the output chain against the packet.

If a packet attempts to leave the Qube 3 through a network interface, the firewall system applies the output chain against the packet. If the output chain rejects or denies the packet, the Qube 3 discards the packet without transmitting it. If the output chain accepts the packet, the firewall system allows the Qube 3 to transmit the packet.

The output chain tests both existing packets that have just passed the forward chain as well as new packets created by local services on your Qube 3 (for example, the Web server responding to a request for a Web page).

To sum up the ipchains process:

- any packet entering the Qube 3, destined for a local service on the Qube 3, must pass the input chain of rules

- any packet originating within your Qube 3, destined for another computer, must pass the output chain of rules

- any packet entering your Qube 3 and being immediately forwarded to another computer must pass all three chains of rules: input, forward and output

Web Caching

Web Caching is available on the Qube 3 Business Edition and Professional Edition only.

The Qube 3 offers a caching feature. When the caching feature is enabled, the Qube 3 acts as a caching proxy server for Web clients.

> *Note:* The Web Caching feature on your Qube 3 relies on the Basic Firewall feature to operate. If you enable the Web Caching feature, the Basic Firewall feature is enabled automatically.
>
> If you disable the Basic Firewall feature, the Web Caching feature is still enabled but will not function. To ensure that the Web Caching feature is functioning, re-enable the Basic Firewall feature.
>
> For more information, see "Basic Firewall" on page 57.

Web cache servers are network servers that store frequently used content, such as Web pages and graphics, closer to the requesting clients so that subsequent accesses are served from the local server. It works as follows: when the browser requests a Web page from the network, the Web cache server intercepts the request. If the cache server has an up-to-date copy, it returns the copy to the client immediately. If the cache does not have a copy, it fetches one from the source of the content, saves a copy for future requests and returns the result to the client.

The key benefits of caching are:

- **Faster response times from the Web.** Once an object is cached, subsequent requests by a client for that object do not have to access the public Internet. Cached objects are held much closer to the client making the request and are retrieved much more quickly.

- **Cost savings.** In some locations (for example, in Europe, Asia and Australia), a client is charged a fee for each megabyte (MB) of data transferred. By having the object cached locally and not having to transfer it over the Internet again, a client avoids extra charges.

- **Reduced network bandwidth requirements.** Having an object cached locally means that content does not have to travel over congested wide area networks (WANs), thus conserving bandwidth.

For more information on Caching, see "Web Caching" on page 144.

Support for Lightweight Directory Access Protocol (LDAP)

Lightweight Directory Access Protocol (LDAP) is a client-server protocol for accessing a directory service.

The Qube 3 supports looking up user and group information through an LDAP client. For example, using a standard email client such as Netscape, Eudora or Outlook, you can use the address book feature of the email client to look up email addresses of users on the Qube 3.

For more information on LDAP, see "LDAP Directory" on page 117.

Back up and restore data

The backup feature on the Qube 3 allows the Qube 3 Administrator to perform full or incremental system backups, on a manual or scheduled basis.

The data can be backed up to a Windows (SMB) fileshare, a Network File System (NFS) share or to a File Transfer Protocol (FTP) server.

For more information on backing up your data, see "Backup" on page 175.

If the Qube 3 fails, you can fully restore the system from a backup set or you can restore the system to a special network fileshare in order to restore selected files only.

For more information on restoring backed-up data, see "Restore" on page 178.

Secure sockets layer (SSL)

The Qube 3 Administrator can administer the Qube 3 through secure sockets layer (SSL). SSL is provided in 128-bit encryption code and offers a secure Web connection to the end user. The implementation of SSL on the Qube 3 is based on mod_ssl and BSAFE cryptographic software from RSA Security.

A secure connection means two things: encryption and authentication. Encryption ensures that no one can snoop the connection between the browser and the Qube 3; authentication ensures the client, through a certificate, 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. This is the encryption part of the secure connection. Each time the browser "thinks" that it is communicating with this same server, it verifies that this same 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. This is the authentication part of the secure connection. The server information (country, state, city, organization) is encoded into the certificate and certificate request. The external authority signs your request and guarantees that 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 ensures that an encrypted Web connection is in place; it does NOT provide authentication to a user that the server is who they say they are.

On the Qube 3, a self-signed certificate is generated by the Qube 3 during configuration.

For more information on *authentication*, *encryption* and *secure sockets layer*, refer to Appendix G, "Glossary".

Install software

You can add new software to the Qube 3 through the browser interface. You can install new software obtained either from the Cobalt Networks Web site or from a CD supplied by Cobalt Networks. You can also add third-party software.

For more information, see "BlueLinQ" on page 190.

Simple Network Management Protocol (SNMP)

Simple Network Management Protocol (SNMP) is 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.

Users Site

This chapter describes the functions that Qube 3 users can perform with the Web browser interface which include the following:

- WebMail

- Address Book

- Mailing Lists

- Personal Profile

> *Note:* You cannot use accented characters (for example, ä, é, ñ) in the following items:
>
> - user names
>
> - group names
>
> - email addresses and email aliases
>
> - host names and domain names
>
> - the names of email folders in the WebMail program
>
> You can use accented characters.in descriptive fields, for example, in the Full Name field for a user or in the Remarks field describing a group.

Overview of users site

When a user other than the Administrator logs into the Qube 3, the Server Desktop consists of the **Programs** and **Personal Profile** screens which are selected with tabs at the top of the screen.

The **Programs** screen is where Qube 3 users will spend most of their time when using the Qube 3; see Figure 17. Users access the WebMail feature and manage the address book on the **Programs** screen.

The **Personal Profile** screen allows users to configure their personal settings on the Qube 3; see Figure 18.

> *Note:* To reduce the number of steps in each procedure, you may see the menu commands are grouped together and shown in **bold** type face. Right angle brackets separate the individual items.
>
> For example, select **Programs > Address Book > Users** means to click the **Programs** tab in the top menu bar, click the **Address Book** menu category in the left menu bar and finally click the **Users** sub-menu item.

Help icon

You can access the user manual in PDF format from the Server Desktop. If the Qube 3 Adminstrator has installed third-party software on the Qube 3, the relevant documentation is available on this screen.

To access the PDF file for the user manual, click on the help icon in the top right corner. A separate browser window opens displaying a list of PDF files in the languages available. Click the link for the PDF in your preferred language; you can open the PDF file in the browser window or save it to your personal computer.

Logout icon

There is a Logout icon in the top right corner of the Server Desktop. Click this icon to log out of the system.

Figure 17. Programs screen
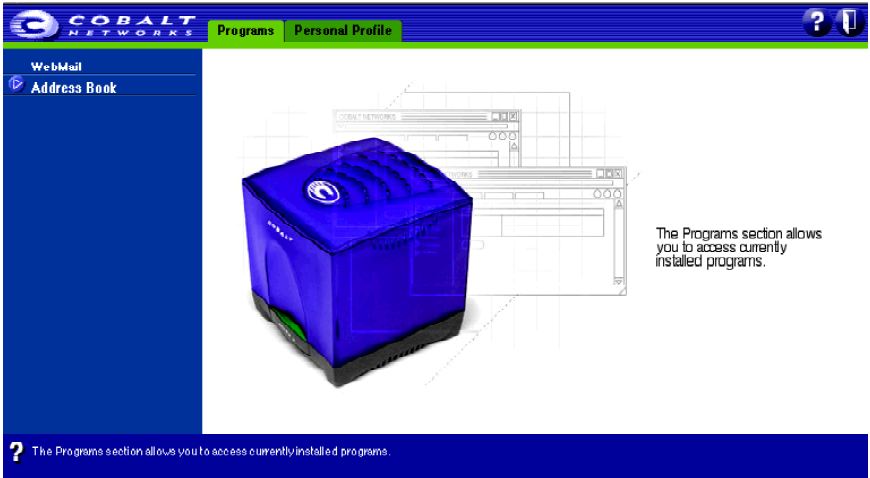
Figure 18. Personal Profile screen
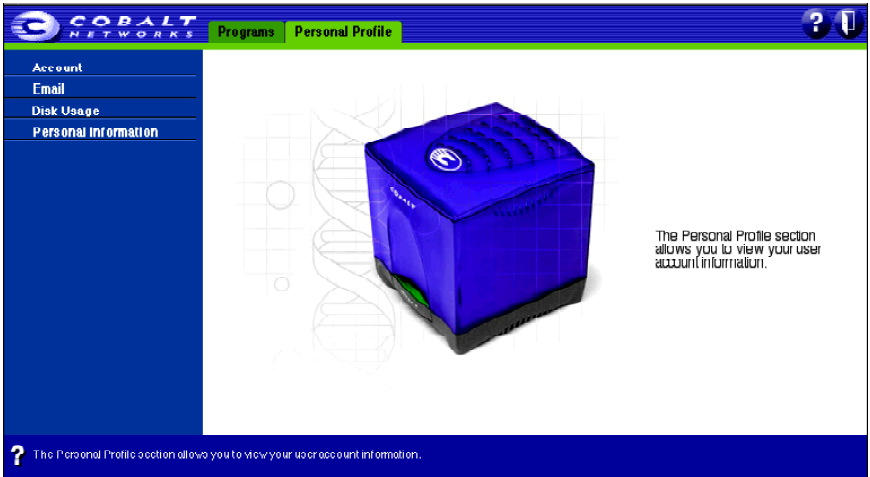
Overview of WebMail

Note: WebMail uses the IMAP email server. If the Qube 3 Administrator disables the IMAP server; users cannot access WebMail.

The IMAP server is enabled by default.

The Cobalt Qube 3 provides users with an integrated email client called WebMail. With WebMail's intuitive, easy-to-use interface, users can

- send email messages to other registered users, groups and mailing lists on the Qube 3 or to external recipients

- reply to messages received and forward messages

- create folders and move messages between them

- create an automatic vacation response

- enter an email address to which WebMail messages are forwarded

- if you belong to a certain group or mailing list on the Qube 3, review the archive of email messages among the members of a mailing list.

Note: The Qube 3 Administrator must enable the Archive option for the mailing list. For more information, see "Mailing Lists" on page 123.

Users can also add external recipients to an address book on the Qube 3 and send email from the Address Book feature. The Address Book feature is closely tied to the integrated WebMail client. For more information, see "Address book" on page 80.

To access WebMail:

1. From the Server Desktop, select **Programs**. The Programs screen appears, with a menu list on the left.

2. Click **WebMail**. A separate browser window opens for the WebMail program with one option at the top.

3. Under the tab **Messages**, you can:

    •   compose a message

    •   view your folders

    •   add or delete folders

4. If you belong to a group or mailing list for which the Archive option has been enabled, a Mailing List menu item also appears in the menu list. You can review the archive of email messages among the members of a mailing list.

WebMail messages

In the Messages section, you can compose a message, view your folders, manage your folders and (if available) view the archived mailing lists.

Compose

To compose a message:

1. Click **Compose** on the left. The Compose table appears. Fill in the fields in the table.

    a. **To.** This field is mandatory. You must enter an email address of a recipient. Separate multiple addresses with commas. For users on the Qube 3, you only need to enter their user name.

    b. **CC.** This field is optional. Enter the email addresses of the recipients to whom you want to send a copy of the message. Separate multiple addresses with commas.

c. **BCC.** This field is optional. Enter the email addresses of the recipients to whom you want to send a "blind" copy of the message. Separate multiple addresses with commas.

The recipients entered in the To: and CC: fields do not see the recipients listed in the BCC: field; a recipient in the BCC: field does not see any of the other recipients in the BCC: field.

> *Note:* You can also select recipients from your Address Book. The Address Book includes all of the users on the Qube 3 as well as your personal entries. For more information, see "Address book" on page 80.

- Click the address card icon to the right of these three fields; a separate browser window opens with the list of people entered in your address book.

- Click the check box next to the names of those people to whom you want to send the message.

- Click **Select** at the top. The selected names appear in the field into which you imported them.

d. **Attachments.** This field is optional. You can choose to attach a file to your email message. For more information, see "To add an attachment to a message:" on page 69.

e. **Subject.** This field is optional. Enter the subject of your message.

f. **Message.** Enter the body of your message in the scrolling window.

2. Click **Send** at the bottom. The Message Sent table appears with a list of the recipients of the message, Figure 19 shows a sample.

Figure 19. Message Sent table

Adding an attachment to a message

When you compose a new message, reply to a message or forward a message, you can attach a file to your message.

> *Note:* If you are using Internet Explorer on the Mac, you can only add one attachment to an email message. There is a single field with a browse button for locating the file.

To add an attachment to a message:

1. Click the green "plus document" icon next to the Attachments field in the Compose Message table. A separate browser window opens and displays the Add table.

2. Enter the path and filename of the file that you want to attach.

3. You can also browse for the file on your computer. Click **Browse**. A dialog opens in which you locate the file. See Figure 20.

4. Locate the file and click **Open**. The dialog closes. The path and filename of the file you selected appear in the Add File field.

5. Click **Submit**. The file is added to the Attachments field in the message.

6. If you want to remove a file that you have added, click the file name once in the Attachments field to highlight it and then click the red "minus document" icon.

7. Continue with your message.

Figure 20. Email Attachment screen
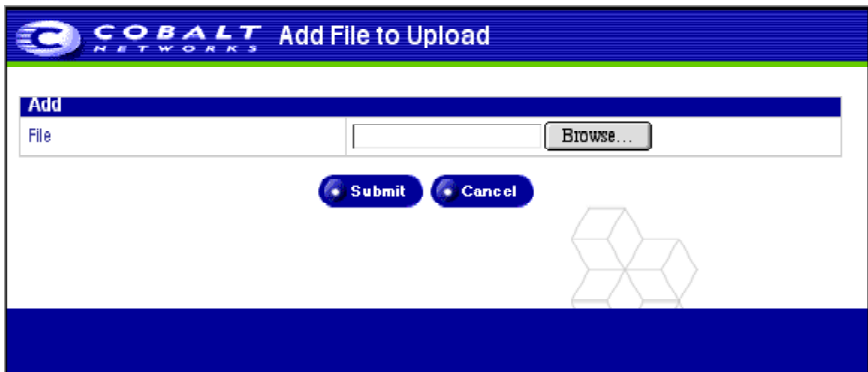
Folder List

You can review the messages in your folders.

> *Note:* To add or delete folders, see "Manage Folders" on page 75.

There are two standard folders in WebMail. A user cannot delete these folders.

• **Inbox** contains the incoming messages to your Qube 3 email account.

• **Sent-mail** contains the outgoing messages from your Qube 3 email account.

If you have created any other folders, they show up in this list as well.

Viewing a folder

To view a folder:

1. Click **Folder List** on the left. A sub-menu of the two standard folders and any others that you have created appears underneath.

2. Click on the name of the folder that you want to view. The folder table for that folder appears in the browser window. For more information on the folder table, see "Folder table" on page 71.

Folder table

In a folder table, the title bar displays the name of the folder. Figure 21 shows a sample of a folder table.

Figure 21. Folder table

In the second row, there is a **Remove** button for deleting messages and a "Move to..." pull-down menu for moving the messages between folders. The number of messages in the table is also shown.

Above the table is a legend explaining the status icons:

- A solid blue circle indicates that the message has not been read yet.

- A hollow blue circle indicates that the message has been read.

- A left-pointing blue arrow indicates the message has been replied to or forwarded (either by the Send, Reply, Reply All or Forward command).

The table has five columns (see Figure 21):

- **Check box column.** This column allows you to manipulate your email messages. Click the check box to select one or more messages. You can delete selected messages with the **Remove** button or move them to another folder with the "Move to..." pull-down menu.

  Another check box above this column allows you to select all of the messages in the table. Click the check box a second time to de-select all of the messages.

- **Status column.** This column indicates the status of a message. A blue circle indicates that the message has not been read yet. A hollow blue circle indicates that the message has been read. A left-pointing blue arrow indicates the message has been replied to or forwarded (either by the Send, Reply, Reply All or Forward command).

- **Subject.** This column displays the subject of the message as a hypertext link. To view the message, click on this link. The browser window refreshes and the full message appears, with all the fields from the Compose section displayed (To, CC, Date, Subject, Message). If the message has an attached file, the file name appears as a hypertext link.

- **Recipient or Sender.** Depending on which folder you are in, this column indicates who received the message or who sent the message.

- **Date.** This column displays the date that the message was sent.

Sorting the messages

Users can sort the messages in a folder according to Subject, Recipient or Sender, or Date. The messages can be sorted in ascending or descending order.

To sort the messages, click on the triangle next to the column heading to sort the messages by that column. To reverse the order of the sort, click on the triangle a second time.

Messages in a folder

In each of the tables, you can

- sort the messages according to different criteria; see "Sorting the messages" on page 72

- move a message between folders; see "Moving a message" on page 73

- delete a message; see "Deleting a message" on page 74

As well, you can perform a number of operations on a message. The subject line of each message is a hypertext link. Click on the link to open the message.

Depending on which folder you are in, you can reply to the message, reply to all recipients of the original message, forward the message or delete the message. The following list explains each of these options.

- **Reply.** You can reply to the original sender (the address in the From field).

- **Reply All.** You can reply to the original sender and all other recipients of the original message. BCC recipients on the original message do not receive a Reply All message.

- **Forward.** You can forward the message to another email address.

- **Remove.** You can delete the message.

- **Back.** The browser returns to the Inbox table.

Moving a message

To move a message:

1. In the folder table, click the check box next to the message or messages that you want to move.

2. From the "Move to..." pull-down menu in the title bar, select the folder to which you want to move the message. The message moves as soon as you select the folder.

3. The folder table appears, minus the moved message.

Replying to a message

To reply to a message:

1. In a folder, click on the subject (a hypertext link) of the message. The browser window refreshes and the full message appears, with all the fields displayed (To, CC, Date, Subject, Message).

2. Click **Reply** or **Reply All**. The Reply or Reply All table appears and you can fill in the fields. For an explanation of these fields, see "To compose a message:" on page 67.

    Reply sends the reply to the sender only; **Reply All** sends the reply to everyone in the To: and CC: fields. You can add other recipients as well.

3. The Message field appears with the original header and text, separated from your reply by a divider at the top of the text window. You can edit this text if you want and add your own text.

4. Click **Send** at the bottom. The Message Sent table appears and lists the recipient or recipients of the reply.

Forwarding a message

To forward to a message:

1. In a folder, click on the subject (a hypertext link) of the message. The browser window refreshes and the full message appears, with all the fields displayed (To, CC, Date, Subject, Message).

2. Click **Forward**. The Forward table appears and you can fill in the fields. For an explanation of these fields, see "To compose a message:" on page 67.

3. The Message field appears with the original header and text, separated from your new message by a divider at the top of the text window. You can edit this text if you want and add your own text.

4. Click **Send** at the bottom. The Message Sent table appears and lists the recipient or recipients of the forwarded message.

Deleting a message

There are two ways to delete a message: from the folder table or while viewing the message.

To delete a message from the folder table:

1. In the folder, click the check box next to the message or messages that you want to delete.

2. Click **Remove** in the title bar. A confirmation dialog verifies the deletion.

3. Click **OK**.

4. The browser window refreshes. The folder from which you deleted the message or messages appears, minus the deleted message.

To delete a message while viewing the message:

1. In the folder, click on the subject (a hypertext link) of the message. The browser window refreshes and the full message appears, with all the fields displayed (To, CC, Date, Subject, Message).

2. Click **Remove**. A confirmation dialog verifies the deletion.

3. Click **OK**.

4. The browser window refreshes. The folder from which you deleted the message(s) appears, minus the deleted message(s).

Manage Folders

In the Manage Folder section, you can add or delete personal folders within your WebMail account.

There are two standard folders in WebMail. A user cannot delete these folders.

>   a. **Inbox** contains the incoming messages to your Qube 3 email account.

>   b. **Sent-mail** contains the outgoing messages from your Qube 3 email account.

You can add any number of folders. Folders added by a user can be deleted.

Figure 22 shows a sample Folder List table.

Figure 22. Folder List table

Adding a folder

To add a folder:

1. Click **Manage Folders** on the left. The Folder List table appears with the two standard folders and any others you have created. The title bar indicates the number of folders in the table.

2. Click **Add** in the top row. The Add Folder table appears.

3. Enter the name of the folder in the Name field.

4. Click **Save**. The Folder List table refreshes with the new folder at the bottom of the list.

   Folders added by a user have a green pencil and a red trashcan icons next to it so that you can modify or delete the folder.

Modifying a folder

To modify a folder:

1. Click **Manage Folders** on the left. The Folder List table appears with the two standard folders and any others you have created.

2. Click the green pencil icon next to the folder that you want to modify. The Modify Folder - <folder name> table appears.

3. Enter the new folder name in the field.

4. Click **Save**. The Folder List table refreshes with the renamed folder.

Deleting a folder

To delete a folder:

1. Click **Manage Folders** on the left. The Folder List table appears with the two standard folders and any others you have created.

2. Click the red trashcan icon next to the folder that you want to delete. A confirmation dialog verifies the deletion.

3. Click **OK**. The Folder List table refreshes, minus the deleted folder.

Mailing Lists

When the Qube 3 Administrator creates a mailing list, he or she can enable the Archive option. The archive provides members of the mailing list access to all of the email messages addressed to the mailing list as well as the responses.

By default, the Archive option is OFF. You can enable the Archive option when you create a new mailing list or you can modify an existing mailing list to enable the Archive option. This applies to mailing lists created separately or to mailing lists generated automatically as part of a Group.

When the Qube 3 Administrator enables the Archive option for a mailing list, the system generates an email to each member of the list, notifying them that the archive option has been enabled for that list.

> *Note:* If a user does not belong to any mailing lists that have the Archive option enabled, the Mailing Lists menu item does not appear on the WebMail screen for that user.

For more information on enabling this option, see "Modifying a mailing list" on page 127; the Archive option is found under the **Advanced** tab of the mailing list table.

Viewing an archive

To view the archive of a mailing list:

1. Click **Mailing Lists** on the left. The lists for which there is an archive are shown under this menu item. The Mailing List Archive - <mailing list> table appears for the first mailing list in the sub-menu. Figure 23 shows a sample.

2. In the sub-menu, select the archive that you want to view. The archive table for that mailing list appears.

3. The archive table has three columns:

    • **Subject.** The subject line of the message shows up as a hypertext link.

    • **Sender.** The name or email address of the sender.

    • **Date.** The date the message was received.

4. To view the text of a message, click on the subject line of that message. The individual message appears in a table showing the sender, date, subject and message. Figure 24 shows a sample of an archived message.

Figure 23. Sample of a Mailing List Archive

Figure 24. Sample of an archived message

Replying to a message in the archive

To reply to a message in the archive:

1. Click **Mailing Lists** on the left. The lists for which there is an archive are shown under this menu item. The Mailing List Archive - <mailing list> table appears for the first mailing list in the sub-menu. Figure 23 shows a sample.

2. In the sub-menu, select the archive that you want to view. The archive table for that mailing list appears.

3. Click on the subject line of the message (shown as a hypertext link). The individual message appears in a table showing the sender, date, subject and message.

4. Click **Reply**. The Compose table appears. For more information on this table, see "Replying to a message" on page 73.

5. When you have completed the message, click **Send**. The Message Sent table appears.

6. Click on the name of mailing list in the sub-menu to return to the Mailing List archives.

Address book

The Address Book feature is closely integrated with WebMail. Using the Address Book, users can

- view the registered users and groups on the Qube 3

- view personal contacts that you have added

- send email messages to other registered users or groups on the Qube 3 or to personal contacts

- view the Web pages of individual users or of groups.

For more information on the WebMail program, see "Overview of WebMail" on page 66.

To access the Address Book:

1. From the Server Desktop, select **Programs**. The Programs screen appears, with a menu list on the left.

2. Click **Address Book**. Three options appear in a sub-menu.

   - **Users.** This screen displays all the registered users on the Qube 3.

   - **Groups.** This screen displays all the registered groups on the Qube 3.

   - **Personal.** This section contains your personal contacts that you have added to your address book.

Sorting the entries

In the Users Address Book, you can sort the entries according to the full name or user name of the registered user.

In the Personal Address Book, you can sort the entries according to the full name, email address or phone number of the person.

The entries can be sorted in ascending or descending order.

To sort the messages, click on the triangle next to the column heading to sort the entries by that column. To reverse the order of the sort, click on the triangle a second time.

Users

The Users section of the Address Book lists the registered users on the Qube 3. As the Qube 3 Administrator adds new users, the new users appear in the Address Book.

For each user, you can view the user's contact information, send an email to the user or view the user's personal Web page.

Viewing the users on the Qube 3

To view the registered users on the Qube 3:

1. Click **Users** in the sub-menu. The Users Address Book appears; see Figure 25. The table comprises four columns:

    • **Full Name** displays the full name of the registered user.

    • **User Name** displays the user name of the registered user.

    • **Remarks** provides additional information about the user.

    • **Actions** displays icons for sending email to a user, viewing the user's Web page and viewing the user's contact information.

    The number of registered users on the Qube 3 is displayed above the Actions column.

Viewing the contact information for a user

To view a user's contact information:

1. Click **Users** in the sub-menu. The Users Address Book appears.

2. Click the green magnifying glass next the user whose contact information you want to see. The View Contact Information table appears.

3. Click **Back** to return to the Users Address Book.

Figure 25. Users Address Book

Sending an email to a user

To send an email to the user:

1. Click **Users** in the sub-menu. The Users Address Book appears.

2. Click the yellow email icon next the user to whom you want to send an email. The Compose table appears.

   For more information on this table, see "Replying to a message" on page 73.

3. When you have completed the message, click **Send**. The Message Sent table appears.

4. Click **Users** in the sub-menu to return to the Users Address Book.

Viewing a user's Web page

To view the user's personal Web page:

1. Click **Users** in the sub-menu. The Users Address Book appears.

2. Click the globe icon next the user to whose personal Web page you want to view. A separate browser window opens to a default Web page for the user; see Figure 26.

   The user can replace this Web page.

3. Close the browser window to return to the Users Address Book.

Figure 26. Default User Web Page
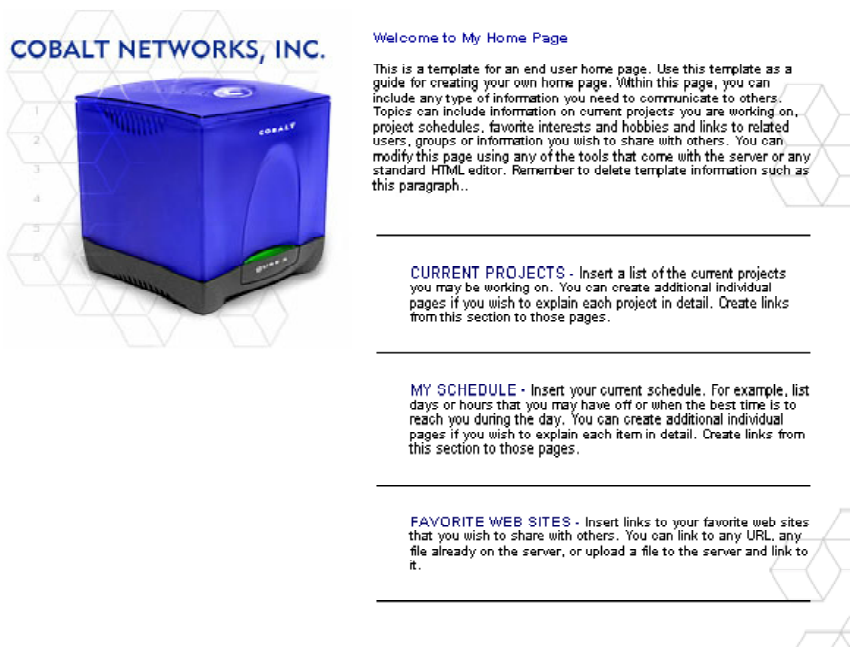
Groups

The Groups section of the Address Book lists the registered groups on the Qube 3. As the Qube 3 Administrator adds new groups, the new groups appear in the Address Book.

For each group, you can send an email to the group or view the group's Web page.

Viewing the groups on the Qube 3

To view the groups on the Qube 3:

1. Click **Groups** in the sub-menu. The Groups Listing table appears; see Figure 27. The table comprises four columns:

    • **Name** displays the name of the group.

    • **Members** displays the user names members of the group.

    • **Remarks** provides additional information about the group.

    • **Actions** displays an icon for sending email a group or viewing the group's Web page.

    The number of groups on the Qube 3 is displayed above the Actions column.

Figure 27. Groups Listing table

Sending an email to a group

To send an email to a group:

1. Click **Groups** in the sub-menu. The Groups Listing table appears.

2. Click the yellow email icon next the group to whom you want to send an email. The Compose table appears.

   For more information on this table, see "Replying to a message" on page 73.

3. When you have completed the message, click **Send**. The Message Sent table appears.

4. Click **Groups** in the sub-menu to return to the Groups Listing table.

Viewing a group's Web page

To view the group's page:

1. Click **Groups** in the sub-menu. The Groups Listing table appears.

2. Click the globe icon next the group to whose Web page you want to view. A separate browser window opens to a default Web page for the group; see Figure 28.

   The group can replace this Web page.

3. Close the browser window to return to the Groups Listing table.

Figure 28. Default Group Web Page

Personal

The Personal section of the Address Book contains contact information of a person that a user has added. You can enter a person's name, email address, telephone and facsimile numbers, a URL for a Web page, mailing address and remarks. You must complete the field for the person's name; all other fields are optional.

> *Note:* You do not have to enter an email address for a person; you can simply enter the contact information. However, if the entry does not include an email address, you will not be able to send email to that person from your Personal Address Book.

Viewing the entries in the Personal Address Book

To view the entries in the Personal Address Book:

1. Click **Personal** in the sub-menu. The Personal Address Book appears; see Figure 29. The table comprises four columns:

   • **Full Name** displays the name of the personal contact.

   • **Email Address** displays an email address for that person.

   • **Phone Number** displays the telephone number for that person.

   • **Actions** displays an icon for sending email to the person, modifying the entry or deleting the entry from the Personal Address Book.

   The number of entries in the Personal Address Book is displayed above the Actions column.

Figure 29. Personal Address Book

Full Name ▼	Email Address ▽	Phone Number ▽	Actions
Beatrice Gooddpenny	bgoddpen@lesterway.com		
Glenn Henriquez	glennh@myhouse.com		
Morgan Ecklund Gustavson	morgan@hello.org	462-555-1212	
Sheldon Shammmmu	sheldon@shammmmu.net		

Adding a personal contact

To add a personal contact to the Personal Address Book:

1. Click **Personal** in the sub-menu. The Personal Address Book appears.

2. Click **Add** at the top of the table. The Add Contact table appears; see Figure 30.

3. Complete the following fields.

    •   **Full Name.** This field is mandatory. Enter the full name of the person.

    •   **Email Address.** This field is optional. Enter an email address in the format <xxxxx@yyy.zzz>.

    •   **Phone Number.** This field is optional. Enter a telephone number.

    •   **Fax Number.** This field is optional. Enter a number for a facsimile machine.

    •   **Web Page Address.** This field is optional. Enter a URL for a Web page.

    •   **Address.** This field is optional. Enter a mailing address email.

    •   **Remarks.** This field is optional.

4. Click **Save**.

Figure 30. Add Contact table

Modifying a personal contact

To modify a personal contact in the Personal Address Book:

1. Click **Personal** in the sub-menu. The Personal Address Book appears.

2. Click the green pencil icon next to the entry that you want to modify. The Modify Contact table appears.

3. Modify any of the following fields.

    • **Full Name.** This field is mandatory. Enter the full name of the person.

    • **Email Address.** This field is optional. Enter an email address in the format <xxxxx@yyy.zzz>.

    • **Phone Number.** This field is optional. Enter a telephone number.

    • **Fax Number.** This field is optional. Enter a number for a facsimile machine.

    • **Web Page Address.** This field is optional. Enter a URL for a Web page.

    • **Address.** This field is optional. Enter a mailing address email.

    • **Remarks.** This field is optional.

4. Click **Save**.

Sending an email to a personal contact

To send an email to a personal contact from the Personal Address Book:

1. Click **Personal** in the sub-menu. The Personal Address Book appears.

2. Click the yellow email icon next the person to whom you want to send an email. The Compose table appears.

    For more information on this table, see "Replying to a message" on page 73.

3. When you have completed the message, click **Send**. The Message Sent table appears.

4. Click **Personal** in the sub-menu to return to the Personal Address Book.

Deleting a personal contact

To delete a personal contact from the Personal Address Book:

1. Click **Personal** in the sub-menu. The Personal Address Book appears.

2. Click the red trashcan icon next to the entry that you want to delete. A confirmation dialog verifies the deletion.

3. Click **OK**. The Personal Address Book table refreshes, minus the deleted entry.

Personal profile

The Personal Profile section allows you to view your user account information.

On the Server Desktop, click **Personal Profile** at the top. The menu items for your account appear on the left.

• Account

• Email

• Disk Usage

• Personal Information

Account

In the Account section, you can change the name on your account, select a language and change your password

Modifying account information

To modify your account information:

1. Click **Personal Profile** at the top.

2. Click **Account** on the left. The Account Settings - <username> table appears; see Figure 31.

3. Modify any of the following fields.

   a. **Full Name**. This field is mandatory. Modify the name for your account.

   b. **Language Preference.** You can select a language from the pull-down menu.

   You can also have the Qube 3 use the language option selected in your browser software (as long as the text strings for that language are available on the Qube 3). If the language selected in your browser is not available, the Qube 3 defaults to English.

   c. **New Password.** *(optional)* You can change your password. Enter the password twice for confirmation.

   For more information on choosing a password, see "Password guidelines" on page 26.

4. Click **Save**.

Figure 31. Account Settings table

Email

There are two options available in the Email section: Email Forwarding and Vacation Message.

Forwarding

The Forwarding feature allows you to forward incoming messages to another email address.

Enabling email forwarding

To enable email forwarding:

1. Click **Personal Profile** at the top.

2. Click **Email** on the left. The Email Settings - <username> table appears; see Figure 32.

3. In the Email Forwarding section of the table, click the check box Enable.

4. In the scrolling text window labeled Email Addresses, enter an email address in the format <xxxxx@yyy.zzz>.

    For more than one email address, separate the addresses with a comma or enter each address on a separate line.

5. You can save a copy of the email messages that you forward.

    Click to enable the check box Save Copy.

6. Click **Save**.

Disabling email forwarding

To disable email forwarding:

1. Click **Personal Profile** at the top.

2. Click **Email** on the left. The Email Settings - <username> table appears; see Figure 32.

3. In the Email Forwarding section of the table, click to disable the check box Enable.

4. Click **Save**.

Vacation message

The Vacation Message feature allows you to enter 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.

Enabling the vacation message

To enable the vacation message:

1. Click **Personal Profile** at the top.
2. Click **Email** on the left. The Email Settings - <username> table appears; see Figure 32.
3. In the Vacation Message section of the table, click to enable the check box Enable.
4. In the scrolling text window labeled Auto-Reply, type the text of the message you want to send to users while you are away.
5. Click **Save**.

Disabling the vacation message

To disable the vacation message:

1. Click **Personal Profile** at the top.
2. Click **Email** on the left. The Email Settings - <username> table appears; see Figure 32.
3. In the Vacation Message section of the table, click to disable the check box Enable.
4. Click **Save**.

Figure 32. Email Settings table
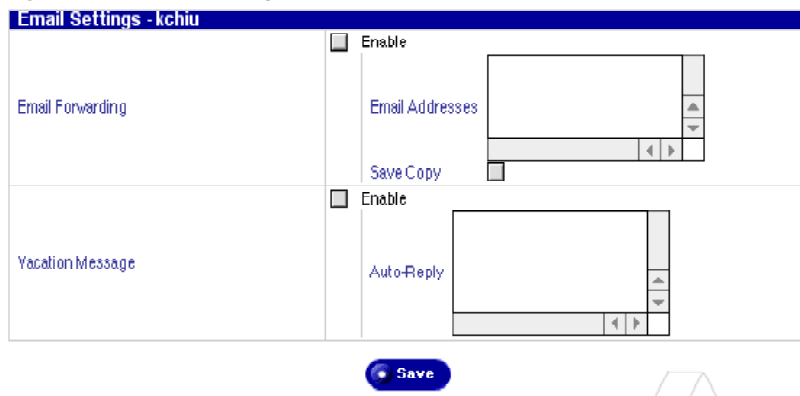
Disk Usage

In the Disk Usage section, you can view the amount of disk space in use, the amount of disk available and the percentage of the disk in use.

Viewing the disk usage statistics

To view the Disk Usage statistics:

1. Click **Personal Profile** at the top.

2. Click **Disk Usage** on the left. The Disk Usage table appears with the usage statistics; see Figure 33.

    The table displays the amount of disk space used (MB), the amount of disk space free (MB) and the percentage of disk space used.

Figure 33. Disk Usage table

Disk Usage - kchiu	
Disk Space Used (MB)	0.01
Disk Space Free (MB)	99.99
Percentage Used	0%

Personal Information

In the Personal Information section, you can enter and manage your personal contact information.

1. Click **Personal Profile** at the top.

2. Click **Personal Information** on the left. The Personal Information table appears.

3. Fill in the following fields (all of the fields are optional):

   • Web page address

   • Telephone number

   • Fax number

   • Address

   • Remarks

4. Click **Save**.

Figure 34. Personal Information table

Administration Site

This chapter describes the administrative functions that only the Cobalt Qube 3 Administrator is allowed to perform. The Qube 3 Administrator, with the user name *admin*, has full control of the Qube 3. The Qube 3 Administrator:

• enters the network settings

• enables or disables the various services

• adds and deletes users, groups and mailing lists

• performs maintenance functions

• receives system alerts and warnings by email

> *Note:* In most of the short procedures in this chapter, the first step is to click the **Administration** tab in the top menu bar and the second step is to click on a selection from the left menu bar.
>
> To reduce the number of steps in each procedure, the menu commands are grouped together and shown in **bold** type face. Right angle brackets separate the individual items.
>
> For example, select **Administration > Users and Groups > User List** means to click the **Administration** tab in the top menu bar, click the **Users and Groups** menu category in the left menu bar and finally click the **User List** sub-menu item.

> *Note:* You cannot use accented characters (for example, ä, é, ñ) in
> the following items:
>
> • user names
>
> • group names
>
> • email addresses and email aliases
>
> • host names and domain names
>
> • the names of email folders in the WebMail program
>
> You can use accented characters.in descriptive fields, for example,
> in the Full Name field for a user or in the Remarks field describing a
> group.

Administration site

The Administration site on the Server Desktop is available only when you log in
under the user name *admin*. Besides the options on the standard Server Desktop,
there are two other options: the Administration menu and the BlueLinQ. See
Figure 35.

Accessing the Administration site

To access the Qube 3 Administration Site:

1. Enter the following URL into your browser:

   ```
   http://<hostname>.<domainname>/login/
   ```

2. At the login screen that appears, enter the user name:

   ```
   admin
   ```

   Only this user name allows access to the Administration site. Any other user
   name brings up the normal Qube 3 interface.

3. Enter the admin password.

4. If you want to establish a secure connection when you log in to the Qube 3,
   click the Secure Connect check box. This establishes a Secure Sockets Layer
   (SSL) connection between your browser and the Qube 3. Cobalt
   recommends that you enable the secure connection so that any data sent to or
   received from the Qube 3 is encrypted.

   If your browser does not support SSL or has problems accessing the Qube 3,
   try connecting without enabling the secure connection. Some browsers do
   not handle SSL properly and the only option is not to use SSL.

5. Click **Login**. If you enabled the Secure Connect option, your browser may
    prompt you to accept a self-signed certificate. This certificate is generated
    automatically for you and is required for SSL encryption. If you do not
    accept the certificate, you cannot use the Secure Connect option.

> *Note:* The Qube 3 generates a self-signed certificate during
> configuration. A self-signed certificate encrypts the data but it does
> not authenticate the identity of the server at the other end of the
> connection.
>
> For more information, see the entries for *Authentication*,
> *Encryption* and *Secure Sockets Layer* in Appendix G, "Glossary".

6. The **Administration** screen of the Server Desktop appears; see Figure 35.

Figure 35. Administration screen
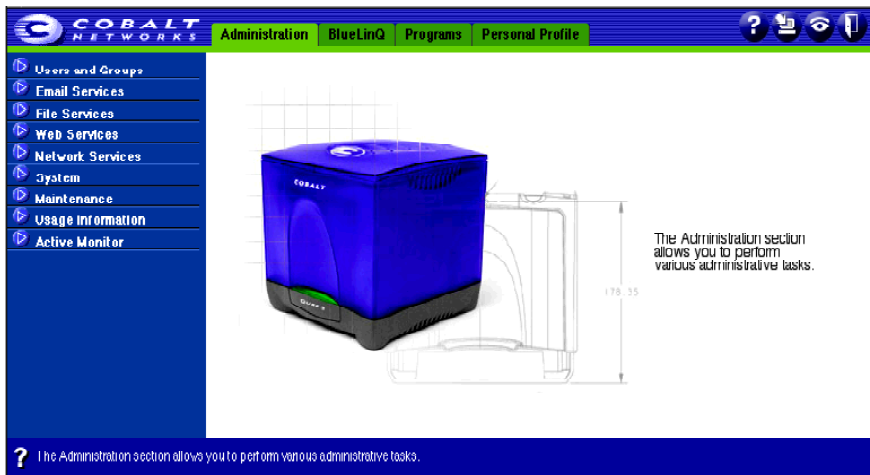
Administration screen

The following bullet items represent the fully expanded Administration menu on the left side of **Administration** screen. These are the functions and services that the Administrator can manage from the Administration screen. They are explained in this chapter.

- Users and Groups (see page 104)

    - User List

    - Group List

    - LDAP Directory

    - Import

- Email Services (see page 123)

    - Mailing Lists

    - Email Servers

    - Remote Retrieval

- File Services (see page 137)

    - Windows

    - FTP

    - Apple

    - Guest Share

- Web Services (see page 141)

    - Web

    - Web Caching

- Network Services (see page 145)

    - DNS

    - DHCP

    - Basic Firewall

    - SNMP

    - Telnet

- System (see page 162)

    - TCP/IP

    - Internet

    - Power

    - Time

    - Information

- Maintenance (see page 175)

    - Backup

    - Restore

- Usage Information (see page 184)

    - Web

    - Disk

    - Network

- Active Monitor (see page 186)

    - Status

    - Settings

BlueLinQ screen

This screen provides tools for updating and installing the Qube 3 software. See "BlueLinQ" on page 190 for details on using these tools.

Figure 36. BlueLinQ screen
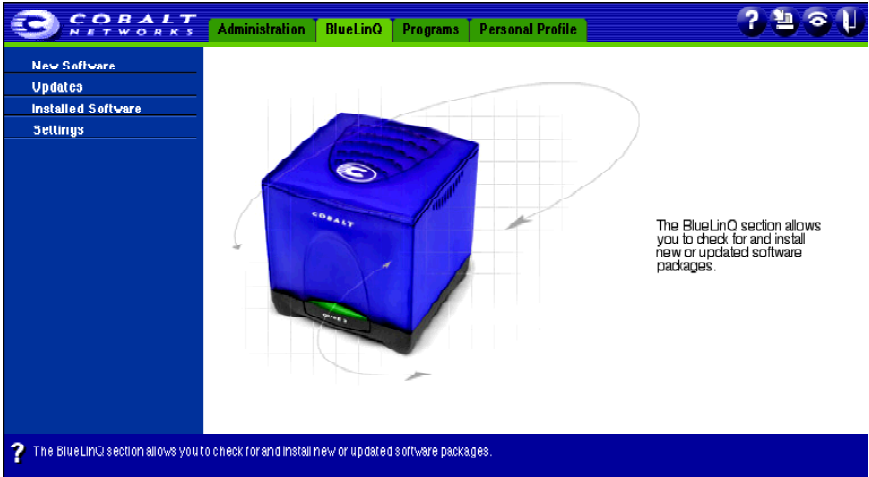
Programs screen

The Programs screen (see Figure 37) is where the Administrator accesses and manages Web Mail and the Address Book. These are described in Chapter 4.

Figure 37. Programs screen
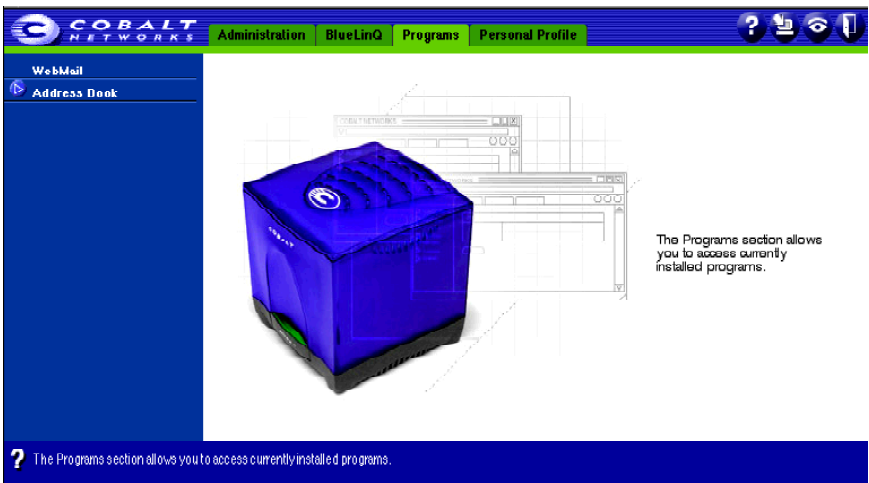
Personal Profile screen

The Personal Profile screen (see Figure 38) is where the Administrator manages
the Administrator Account, Email, Password, and disk usage settings. These are
described in "Personal profile" on page 89.

Figure 38. Personal Profile screen

Other features

There are four icons in the top right corner of the Server Desktop:

- Help

- Software Notification

- Active Monitor

- Logout

Help icon

You can access the user manual in PDF format from the Server Desktop. If you have installed third-party software on the Qube 3, the relevant documentation is available on this screen.

To access the PDF file for the user manual, click on the help icon in the top right corner. A separate browser window opens displaying a list of PDF files in the languages available. Click the link for the PDF in your preferred language; you can open the PDF file in the browser window or save it to your personal computer.

Software Notification

The Software Notification icon allows you to check for new or updated software packages and to install them if any are found. The icon changes color when new or updated software packages are available.

For more information on installing software, see "BlueLinQ" on page 190.

Active Monitor

The Active Monitor icon allows you to view status information. The icon turns red if any of the components monitored by Active Monitor have severe problems.

For more information on the Active Monitor feature, see "Active Monitor" on page 186.

Logout

Click the Logout icon to log out of the system.

Resetting the Qube 3 Administrator password

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

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

If you forget the password for the Qube 3 Administrator, you can reset the password:

1. Push and hold a paper clip in the recessed Reset Password button (on the back of the Qube 3; see Figure 1). Hold the button in for approximately 2 seconds.

    The LCD screen displays

    ```
    RESETTING ADMIN
        PASSWORD
    ```

2. Enter the following URL in your Web browser to access the Administration Site:

    ```
    http://<hostname>.<domainname>/login/
    ```

3. If a prompt appears asking for a username or password, enter *admin* as the username and "admin" as the password. Click **OK**. The **Administration Site** screen opens as shown in Figure 35.

    ✍️ *Note:* The system automatically sets the *admin* password to "admin" when you use the Password Reset button.

4. To modify the Administrator password, follow the steps in "Account" on page 89.

Users and Groups

The Users and Groups section is where you administer user and group settings for all Qube 3 users including the Qube 3 Administrator.

To access the Users and Groups section, select **Administration** in the top menu bar and **Users and Groups** in the left menu bar. The Users and Groups sub-menu items are as follows:

- User List
- Group List
- LDAP Directory
- Import

These are described below.

User List

To access the User List section on the Administration Site:

Select **Administration > Users and Groups > User List** to open The User List table; see Figure 39.

The User List table displays the full name of each user (for example, Jessica Smith) and the name used to log in to the Qube 3 (for example, jsmith).This is called the "user name" or "userID".

The Qube 3 Administrator can use the User List to perform the following:

- Configure the default user settings
- Add or remove a user
- Modify a user's account and email settings

Figure 39. User List table

Full Name ▼	User Name ▽	Remarks	Action
Adrian Sun	asun	Call me "Blendor"... please.	🖊 🗑
Alan Williams	awilliams	I just need sleep...	🖊 🗑
Andrew Bose	abose		🖊 🗑
Chanda Ouimet	couimet		🖊 🗑
Denise Coe	dcoe	Sales person extraordinaire!	🖊 🗑
Eric Wilcox	ewilcox		🖊 🗑
Grace Ecklund Gustavson	ggustavson	Newest addition to the team.	🖊 🗑
Holly Hodges	hhodges	Belgium was beautiful...	🖊 🗑
Jeff Kamradt	jkamradt		🖊 🗑
Jim Britton	jbritton		🖊 🗑
Jonathan Mayer	jmayer		🖊 🗑
Kevin Chiu	kchiu		🖊 🗑
Lauren Britton	lbritton		🖊 🗑
Michelle Tanaka	mtanaka	How's that working out for you?	🖊 🗑
Mike Waychison	mwaychison		🖊 🗑
Patrick Baltz	pbaltz	The Amazing Buildmeister	🖊 🗑
Tim Hockin	thockin		🖊 🗑

Configuring the default user settings

To configure the default user settings:

1. Select **Administration > Users and Groups > User List** to open The User List table (see Figure 39).

2. Click **Edit User Defaults**.

    The User Defaults table appears as shown in the following figure.

Figure 40. Edit User Defaults table

3. Configure the following default settings:

    •   **Maximum Allowed Disk Space (MB).** This value is the default amount of disk space available to a newly created user for file storage and Web pages. The default value is 100 MB. The value entered must be a whole number greater than zero (you cannot enter zero).

        If you leave this field blank, the user has unlimited disk space.

    •   **User Name Generation.** You can specify one of the following formats for the Qube 3 to automatically format user names.

        •   Initial of first name & last name

        •   First name & initial of last name

        •   Only first name

        •   Only last name

4. Click **Save**.

Adding a user

To add a user:

1. Select **Administration > Users and Groups > User List** to open The User List table (see Figure 39).

2. Click **Add.**

   The Add New User table appears as shown in the following figure.

Figure 41. Add New User table

3. Fill in the fields:

- **Full name.** Enter the first and last names of the user, separated by a space (for example, Alan Williams).

- **User name.** The user name is generated automatically from the user's full name, according to the user name format specified in the default settings.

    If the automatically generated user name is already taken by another user, you cannot save the information that you entered in the Add New User table and you have to enter a different user name manually.

- **Password.** Enter the password twice to ensure that you have entered it as intended. For guidelines on choosing a password, see "Password guidelines" on page 26.

- **Maximum allowed disk space (MB).** This value is the amount of disk space available to a user for file storage and Web pages. The value entered must be a whole number greater than zero (you cannot enter zero).

    If you leave this field blank, the user has unlimited disk space.

- **Group Membership.** *(optional)* Use the green left and right arrows to move selected group names between the Groups Affiliated and the Groups Not Affiliated lists.

- **Email aliases.** *(optional)* Enter additional names for which the user can receive email. To add more than one alias, enter each alias on a separate line or separate the aliases with spaces.

    If you enter a first name (Alan) and last name (Williams) in the Full Name field, the system automatically generates an alias of "alan.williams".

    For more information on email aliases, see "Email aliases" on page 40.

- **Remarks.** *(optional)* You can enter additional information about the user in this field.

4. Click **Save**.

Modifying a user account

To modify the information for a user's account:

1. Select **Administration > Users and Groups > User List**. The User List table appears.

2. Click the green pencil icon next to the user whose account you want to modify. The Modify User table appears (see Figure 42).

3. Modify one or all of the following fields. You cannot modify the user name.

    •   **Full name.** Enter the first and last names of the user, separated by a space (for example, Grace Ecklund Gustavson).

    •   **New password.** Enter the new password twice to ensure that you have entered it as intended. For guidelines on choosing a password, see "Password guidelines" on page 26.

    •   **Maximum allowed disk space (MB).** This value is the amount of disk space available to a user for file storage and Web pages. The value entered must be a whole number greater than zero (you cannot enter zero).

        If you leave this field blank, the user has unlimited disk space.

    •   **Group Membership.** You can edit the groups to which the user belongs. Select one or more group names and click on the arrows to move the name(s) between the Groups Affiliated and Groups Not Affiliated lists.

    •   **Remarks.** You can enter additional information about the user in this field.

4. Click **Save**.

Figure 42. Modify User Account Settings table

Modifying a user's email settings

To modify a user's email settings:

1. Select **Administration > Users and Groups > User List**. The User List table appears.

2. In the User List table, locate the user whose email settings you want to modify.

3. Click the green pencil icon next to that user's name. The Modify User Settings - <username> table appears (see Figure 43).

4. Click the Email tab in the upper right corner of the table. The email settings appear.

Figure 43. Modify User Email Settings table

5. Modify the following fields in the Modify User Settings table.

   • **Email Aliases.** *(optional)* There may already be an alias entered from when you first added the user.

     Enter additional names for which the user can receive email. To add more than one alias, enter each alias on a separate line or separate the aliases with spaces.

     For more information on email aliases, see "Email aliases" on page 40.

   • **Email Forwarding.** Enter the email address to which you want to forward automatically your email messages.

   • **Vacation Message.** If you want to automatically send a custom email message to everyone who sends you email, check the Enabled check box and enter the response message in the Automatic Reply box. This feature is useful if you want to send an automatic response message to the sender, or when you know that you will not be reading or responding to incoming email messages for a period of time.

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

6. Click **Save**.

Adding an email alias for a user

To add an email alias for a user:

1. Select **Administration > Users and Groups > User List.** The User List table appears.

2. In the User List table, locate the user for whom you want to add an email alias.

3. Click the green pencil icon next to that user's name. The Email Settings table appears.

4. Click the Email tab in the upper right corner of the table. The email settings appear; see Figure 43.

5. In the Email Aliases field, enter additional name(s) for which the user can receive email. To add more than one alias, enter each alias on a separate line or separate the aliases with spaces.

   For more information on email aliases, see "Email aliases" on page 40.

6. Click **Save**.

Deleting a user

To delete a user:

> ⚠️ *Caution:* **You cannot undo this action**.
>
> If you remove a user, you delete the user account and all of the associated files.

1. Select **Administration > Users and Groups > User List.** The User List table appears.

2. Click the red trash can icon next to the user that you want to delete. A confirmation dialog box verifies the deletion.

3. Click **OK** in the confirmation dialog box.

    The User List table updates with the deleted user removed from the table.

Group List

In the Group List section, the Qube 3 Administrator can:

*   configure the default group settings

*   add a group

*   modify the members of a group

*   specify the maximum allowed disk space for the group

*   remove a group

To access the Group List, select **Administration > Users and Groups > Group List** to open the Group List table. The table displays the group name and the members of each group. See Figure 44.

Figure 44. Group List table

Configuring the default group settings

To configure the default settings for a group:

1. Select **Administration > Users and Groups > Group List**. The Group List table appears.

2. Click the **Edit Group Defaults** button. The Edit Group Defaults table appears; see Figure 45.

Figure 45. Edit Group Defaults table

3. Enter a whole number greater than zero (in MB) for the maximum amount of disk space available to a group for file storage and Web pages. You cannot enter zero in this field.

    If you leave this field blank, the group has unlimited disk space.

4. Click **Save**.

Adding a group

To add a group:

1. Select **Administration > Users and Groups > Group List**. The Group List table appears.

2. Click **Add**. The Add New Group table appears; see Figure 46.

Figure 46. Add New Group table

3. Fill in the fields:

   • **Group name.** Enter the name of the group. The name can be a maximum of 12 characters long; you can only use lowercase English letters, numbers, and the hyphen (-) and underscore (_) characters.

   • **Maximum allowed disk space (MB).** This value is the amount of disk space available to a group for file storage and Web pages. The value entered must be a whole number greater than zero (you cannot enter zero).

     If you leave this field blank, the user has unlimited disk space.

   • **User Membership.** The lower part of the Add New Group table lists all the Qube 3 users. Select one or more names and click on the arrows to move the name(s) between the Users Affiliated and Users Not Affiliated lists.

   • **Remarks.** You can enter additional information about the group in this field.

4. Click **Save**.

Modifying a group

To modify the members of a group or the maximum allowed disk space for the group:

1. Select **Administration > Users and Groups > Group List**. The Group List table appears.

2. Click the green pencil icon next to the group that you want to modify. The Modify Group Settings table appears; see Figure 47.

Figure 47. Modify Group Settings table

3. Modify one or both of the following fields.

    • **Maximum allowed disk space (MB).** This value is the amount of disk space available to a user for file storage and Web pages. The value entered must be a whole number greater than zero (you cannot enter zero).

      If you leave this field blank, the group has unlimited disk space.

    • **User Membership.** Add members to or remove members from the group. Use the arrows to move user names between the Users Affiliated and Users Not Affiliated lists.

    • **Remarks.** You can enter additional information about the group in this field.

4. Click **Save**.

Deleting a group

To delete a group:

> ⚠ | *Caution:* **You cannot undo this action**.
> --- | ---
> | If you remove a group, you delete the group, all of the files in the group directory, the group directory itself, the associated mailing list for that group, and the Windows file sharing and AppleShare settings.

1. Select **Administration > Users and Groups > Group List**. The Group List table appears.

2. Click the red trash can icon next to the group that you want to delete. A confirmation dialog verifies the deletion.

3. Click **OK** in the confirmation dialog box. The Group List table updates to show the new groups; the deleted group is deleted from the table.

LDAP Directory

To provide a user directory listing by using the Lightweight Directory Access Protocol (LDAP) server:

1. Select **Administration > Users and Groups > LDAP Directory**. The LDAP Directory table appears; see Figure 48.

Figure 48. LDAP Directory table

2. Configure the settings in the LDAP Import table.

   - **Enable.** Click the check box to enable the Qube 3 as an LDAP server.

   - **Base Distinctive Name.** The base distinctive name (Dn) of your user directory. For example, o=My Organization, c=US.

   - **Email Domain Name.** *(optional)* This option allows you to alter the domain name of the email messages exported in your directory. If the name of this machine is mail.company.com, but receives mail for @company.com, you can set the email domain name to company.com.

3. Click **Save**.

Configuring your LDAP client

When your standard LDAP client is correctly configured, you can access user and group information on the Qube 3. You must set up your client to authenticate with the Qube 3 as a valid user.

In **Administration > Users and Groups > LDAP Directory**, select a Base Distinctive Name (DN) under which to export. For example, you could enter "o=Cobalt, c=US".

The following procedures describe two sample setups. It should be a similar procedure to configure other LDAP clients.

Netscape Messenger on Macintosh

To configure your Netscape LDAP client:

1. Open the Netscape Messenger window.

2. Select **Communicator > Address Book**. The Address Book window opens.

3. With the Address Book window active, select **File > New Directory**. The LDAP Server Properties window opens.

4. Fill in the following fields:

   - **Description.** Enter a name for the directory.

   - **LDAP Server.** Enter the fully qualified domain name of the Qube 3.

   - **Search Root.** Enter the value(s) that you entered in the Base Distinctive Name field in the **Administration > Users and Groups > LDAP Directory** on the Qube 3.

5. Click to enable the check box "Log in with name and password". You need to authenticate yourself as a user on the Qube 3 with:

    •   <username>@<hostname.domainname>

    •   your password

    You can click to enable the check box "Save password" if you want.

6. You can leave the other settings as they are.

7. Click **OK**.

Microsoft Outlook Express on Windows

To configure your Microsoft Outlook LDAP client:

1. Open Microsoft Outlook.

2. Select **Tools > Accounts**. The Internet Accounts window opens.

3. Select **Directory Service**. A list of directory services appears.

4. On the right, click **Add > Directory Service**. An Internet Connection Wizard appears in a popup window.

5. In the field Internet directory (LDAP) server, enter the fully qualified domain name of the Qube 3.

    Click to enable the check box "My LDAP server requires me to log on".

6. Click **Next**.

7. Click the radio button Log on using

    •   **LDAP account name.** Enter cn=username, o=Cobalt, c=US

    •   **Password.** Enter your password for your Qube 3 account.

> *Note:* o=Cobalt, c=US must match the value entered in the Base Distinctive Name field in **Administration > Users and Groups > LDAP Directory on the** Qube 3.

8. Click **Next**.

9. For Check Email Addresses, you can select Yes or No. Click **Next**.

10. For Friendly Name, enter an easy-to-remember name for the directory service. For example, enter *Eric Braswell's Directory.*

11. Click **Next**.

12. Click **Finish**. You return to the Internet Accounts window.

13. Double-click on the account you just created. The Properties - General window for that account opens. This window displays the information you entered through the Wizard.

14. Click **Advanced** at the top.

15. In the field Search base, enter the value(s) that you entered in the Base Distinctive Name field in the **Administration > Users and Groups > LDAP Directory** on the Qube 3.

16. Click **OK**.

LDAP Import

Use this function to Import users from an LDAP directory as follows:

1. Select **Administration > Users and Groups > Import**. The File Import table appears; see Figure 49.

Figure 49. File Import table

2. In the pull-down menu, select Lightweight Directory Access Protocol (LDAP) Import to open the following table.

Figure 50. LDAP Import table

3. Configure the settings in the LDAP Import table.

    - **Server Network Address.** The IP or hostname of the server from which you wish to import.

    - **Base Distinctive Name (Dn).** The base of the LDAP entries to import.

    - **Binding Distinctive Name (Dn).** This is the binding distinctive name (Dn) of the admin user on the LDAP server. This value along with its respective password are needed to authenticate and acquire the appropriate information for importing users.

    - **Password.** This is the password for the binding distinctive name (Dn).

    - **User Filter.** *(optional)* Enter the filter used for determining which object classes to import as users. If the field is left blank, the system uses the value (|(objectClass=cobaltAccount)(objectClass=posixAccount)).

    - **Group Filter.** *(optional)* Enter the filter used for determining which object classes to import as groups. If the field is left blank, the system uses the value (|(objectClass=cobaltGroup)(objectClass=posixGroup)).

4. Click **Save**.

File Import

The Import feature allows you to upload a tab-delimited file containing user information to the Qube 3, saving you the time and effort of adding a large list of users individually through the Add New User function.

The tab-delimited file must have the following information for each user; this information replicates a number of the fields on the Add New User table:

- user name
- full name
- a plain-text password
- email alias(es) (optional)

> *Note:* If a user has more than one email alias, separate the aliases with a comma or a space.

The information in the tab-delimited file must be in the following format:

```
username[tab]fullname[tab]password[tab]email alias[newline]
```

To import users and groups onto the server:

1. Select **Administration > Users and Groups > Import.** The File Import table opens. See Figure 51.

Figure 51. File Import table
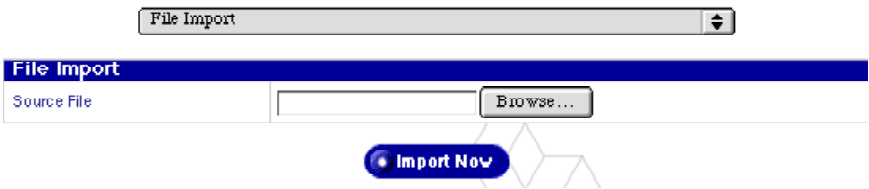
2. Enter the directory path and file name in the Source File field, or click **Browse** to locate the tab-delimited file on your computer.

3. Click **Import Now**. Depending on the number of users to import, this operation may take several minutes.

    Once the import operation is complete, you can modify the individual users. See "Modifying a user account" on page 109.

Email Services

This section describes how the Qube 3 administrator configures the Qube 3 email settings. For additional information about setting up your email client to access email on the Qube 3, see "Using email on the Qube 3" on page 38. In addition, Chapter 4, "Users Site," on page 63 describes how to use Web Mail.

Mailing Lists

In the Mailing Lists section, you can create and manage mailing lists. A mailing list can receive email from an address that is external to the Qube 3.

The Qube 3 Administrator can:

*   add a mailing list

*   modify a mailing list

*   remove a mailing list

Adding a mailing list

To add a mailing list:

1.   Select **Administration > Email Services > Mailing Lists**. The Mailing Lists table appears; see Figure 52.

Figure 52.   Mailing Lists table

2. Click **Add**. The Add Mailing List table appears in the Basic section; see Figure 53.

Figure 53.   Add Mailing List - Basic table

3. Enter a name for the mailing list in the List Name field.

    You can only use lowercase English letters, numbers, and the hyphen (-) and underscore (_) characters. There is no limit on the number of characters in the name.

4. Add local subscribers to the mailing list.

    To add an existing Qube 3 user, select a name in the not subscribed list and click the left arrow to move the subscriber to the subscribed list.

5. Add remote (external) subscribers to the mailing list.

    To add an external subscriber to the mailing list, enter the complete email address in the External Subscribers field (for example, tstonis@xyz.com).

6. You can enter additional information about the mailing list in the Remarks field.

7. Click **Advanced** in the top right corner. The Advanced section appears; see Figure 54.

Figure 54. Add Mailing List - Advanced table

8.   Fill in the fields.

*   • **Owner/Moderator.** Enter a properly formatted email address or the user name of the Qube 3 user performing all the administrative duties for the mailing list. For example, user@cobalt.com is a valid entry.

    The default value is *admin*.

*   • **Password.** This password is used when performing certain list administration tasks through email, such as approving subscriptions or moderating messages. If you do not plan to use these features, leave this field blank.

*   • **Posting Policy.** Use the pull-down menu to select a policy for sending messages to the mailing list.

    *   • **Only Subscribers Can Post Messages.** Only members of the mailing can post messages to the mailing list.

    *   • **All Users Can Post Messages.** This means that anyone with access to email can post messages if they know name of the mailing list.

    *   • **Moderator Confirms All Messages.** The moderator indicated in the first field must approve the messages sent to the mailing list before they are posted.

- **Subscription Policy.** Use the pull-down menu to select a policy for subscribing to the mailing list.

    - **Open: any user may subscribe.** Anyone with an email address can subscribe herself or himself to the mailing list; that person is automatically subscribed. This is not restricted to registered Qube 3 users.

    - **Confirm: Email confirmation is required for subscription.** The system sends a confirmation message to the requestor who must then reply to that message, confirming the subscription request. The email is automatically generated by the system.

    - **Closed: List owner approval is required for subscription.** Anyone with an email address can subscribe herself or himself but the list owner/moderator must approve all subscription requests.

- **Reply Policy.** Specify whether a reply to a message is sent to all members of the mailing list or just to the original sender of the email

- **Maximum Message Length.** From the pull-down menu, select the maximum size allowed for messages sent to this mailing list. Messages exceeding this size will be rejected. The default is 50 KB.

    If the message is too large, the list owner receives the posting. It is up to the list owner to decide whether to send the message along to the rest of the mailing list.

- **Archiving.** Check the enable box to archive the messages for this mailing list. Local users can access these archives in their WebMail account.

- **Keep Period (Days)** Enter a number specifying the number of days that messages are kept in the archive. Enter a zero to keep archived messages indefinitely.

    The default value is 30 days.

9. Click **Save**.

Modifying a mailing list

To modify a mailing list:

1. Select **Administration > Email Services > Mailing Lists**. The Mailing Lists table appears.

2. Click the green pencil icon next to the group whose mailing list you want to modify.

3. The Modify Mailing List table appears. There are basic and advanced tables. Except for the screen titles, these tables are contain the same fields as the Add New Mailing List tables. See Figure 55 and Figure 56.

   For details on how to enter data in these tables, refer to "Adding a mailing list" on page 123.

4. Click **Save**.

Figure 55. Modify Mailing List - Basic table

Figure 56. Modify Mailing List - Advanced table

Deleting a mailing list

To delete a mailing list:

1. Select **Administration > Email Services > Mailing Lists**. The Mailing Lists table appears.

2. Click the red trash can icon next to the mailing list that you want to delete. A confirmation dialog box verifies the deletion.

> *Note:* A mailing list with a dimmed trash can is a mailing list created as part of a group on the Qube 3. To remove this mailing list, you must remove the corresponding group. See "Deleting a group" on page 117.

3. Click **OK** in the confirmation dialog box.

    The screen refreshes and the Mailing Lists table appears with the deleted mailing list removed from the table.

Email server overview

The Qube 3 supports email for entire domains such as www.mydomain.com. By default, each registered user has an email account created on the Qube 3.

The Qube 3 supports multiple client and server email protocols but does not implement virtual email users. This means that for the entire Qube 3, each user must have a unique username.

The Qube 3 can act as a Simple Mail Transfer Protocol (SMTP) server for sending and receiving Internet email.

Users can retrieve their email using the Post Office Protocol 3 (POP3) and the Internet Message Access Protocol 4 (IMAP4). Users can send mail using the Simple Mail Transfer Protocol (SMTP).

> *Note:* WebMail uses the IMAP email server. If the Qube 3 Administrator disables the IMAP server; users cannot access WebMail.
>
> The IMAP server is enabled by default.

> *Important:* If your Internet service provider (ISP) also provides your Domain Name System (DNS) service, the ISP must create a Mail Server (MX) record specifying your Qube 3 as the mail server for your registered domain in order for the Qube 3 to receive email.
>
> If your Qube 3 is integrated into a larger network, consult with your network administrator for this information.
>
> The IP address of the DNS server must be entered in the network settings for the Qube 3 or the SMTP protocol will not work.
>
> For more information, see "Network Integration" on page 31.
>
> If you are providing your own DNS service through the Qube 3, you need to create an MX record for the Qube 3. For more information on DNS, see Appendix E, "Domain Name System," on page 227.

Enabling the email server

By default, all three options are enabled. To enable or disable an email server:

1. Select **Administration > Email Services > Email Servers**. The Email Settings table opens in Basic mode; see Figure 57.

2. Use the check boxes to enable or disable the following email servers.

    •   **SMTP.** The Simple Mail Transfer Protocol server

    •   **IMAP.** The Internet Message Access Protocol server

    •   **POP.** The Post Office Protocol server

3. Click **Save**.

Figure 57. Email Servers Settings - Basic table

Configuring the email settings

To configure the Email settings:

1. Select **Administration > Email Services > Email Servers**. The Email Settings table opens in the Basic mode.

2. Click **Advanced** to enter the Advanced mode; see Figure 58.

Figure 58. Email Servers Settings - Advanced table

3. Fill in the fields in the Advanced Email Settings table.

- **Delivery Schedule.** This setting specifies how frequently email is delivered by the email server on the Qube 3. The Qube 3 queues the messages, sending them at the specified frequency.

  If you connect to the Internet through a dedicated phone line or by ethernet (through the secondary network interface), then you can choose to have your email delivered and retrieved more often. If you connect to the Internet through a modem that shares a phone line with other functions, or if your Internet access is charged by the minute, then you should specify less-frequent mail delivery and pickup.

- **Maximum Email Message Size.** This sets the maximum size of email messages this server will send or receive. The default value is to leave this field empty to allow this server to send and receive email messages of any size. You may optionally enter an integer greater than zero.

- **Force Senders Domain.** An optional domain name can be specified to override the From: address of mail sent by users of this server. This feature is also called Domain Masquerade.

- **Smart Relay Server**. You can enter an optional host name in this field. With this feature, you can configure the Qube 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 Qube 3 does not have direct Internet access (for example, the Qube 3 is subject to a restrictive firewall), but can communicate with an email server that has direct Internet access.

- **POP Authenticated Relaying.** Check this box to enable SMTP relay trusts by POP authentication. If checked, any user who successfully uses POP to check mail is trusted for 15 minutes to send email using the SMTP service. This feature is useful for users who frequently travel.

- **Relay Email from Hosts/Domains/IP Addresses.** Enter the IP addresses, host names, or domain names that are allowed to relay email through this Cobalt Qube 3 server. For more information, see "Email relaying" on page 41.

  A user cannot send outgoing email through this server unless the IP address, host name or domain name of the machine from which they they are connecting is entered in this field. Networks may be specified in addition to IP addresses. For example, to allow relaying for a network 192.168.1.1 with subnet mask 255.255.0.0, specify the address 192.168.0.0.

⚠️ *Caution:* Some users advise you to open relay to all com, edu, net and other top-level domain addresses. However, 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.

✏️ *Note:* By default, the domain name for the Qube 3 is allowed to relay email.

If you do not want to allow email to be sent through the Qube 3, enter the domain name of the Qube 3 in the "Block Email From Hosts/Domains" field. You will be able to download email but not be able to send outgoing email messages through Qube 3.

For more information, see "Configuring the email settings" on page 131.

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 192.168.1.0 in the "Relay email from these hosts/domains" field trusts all IP addresses from 192.168.1.0 through 192.168.1.254.

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.

- **Receive Email Addressed to Hosts/Domains.** In this field, enter the IP addresses or domain names for which you receive email. Email addressed to the <hostname.domainname> of the Qube 3 is automatically accepted.

  For example, if you want to receive email addressed to you at "username@domain.com", then you must enter "domain.com" in this field. Otherwise, a sender will have to include the host name in your email address (for example, username@hostname.domain.com).

- **Block Email from 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.

- **Block Email from Users**. In this field, enter email addresses of users which you want to block any email. Anyone trying to send you messages from one of these addresses will receive an error message in return.

4. Click **Save** in the Email Servers Settings table.

Remote Retrieval (Multidrop)

ISPs often arrange for all messages to an organization to be retrieved from a single mailbox. This mailbox is usually referred to as a "multidrop mailbox" because it contains email messages addressed to more than one person. Your ISP must configure your multidrop mailbox at the ISP to accept all email for your domain. The domain of the Qube 3 must match the domain of the email that is to be collected.

The Qube 3 retrieves the email and then distributes it to the users on the Qube 3. Email messages that are addressed to recipients who are not listed as users on the Qube 3 are forwarded to the Qube 3 Administrator.

To setup Remote Retrieval:

1. Select **Administration > Email Services > Remote Retrieval**. The Remote Retrieval table appears; see Figure 59.

Figure 59. Remote Retrieval table

2. Configure the fields in the Remote Retrieval table.

- **Enable Remote Retrieval.** Click the check box to enable remote retrieval.

- **Remote Email Server.** Enter the network address or fully qualified domain name of the remote email server from which to retrieve your entire domain's email messages. Enter a properly formatted network address or fully qualified domain name for the Remote Email Server. For example, 192.168.1.100 and mail.cobalt.com are valid entries.

- **User Name.** Enter the user name of the account on the remote email server from which to retrieve your entire domain's email messages.

- **Password.** Enter the password of the account on the remote email server from which to retrieve your entire domain's email messages.

- **Message Retrieval Protocol.** Select a method of retrieving incoming email messages from the remote email server. The ETRN method should only be used if your remote email server is ESMTP-compliant. The default setting, POP3, should work for most users. (for an explanation of the various email protocols, see Appendix G, "Glossary".)

- **Retrieval Frequency.** Specifies how often email is retrieved.

Note: If you set the same frequency for email delivery and retrieval, then both take place at the same time, saving you access time and charges. (See "Configuring the email settings" on page 131 for setting the email delivery schedule.)

3. Click **Save**.

File Services

See "Sharing files and transferring data" on page 46 for further information on Qube 3 file sharing. This section describes how to setup the Qube 3 file sharing settings.

> *Note:* Windows File Sharing (SMB), FTP and Appleshare are enabled by default; guest share is not enabled by default.

Windows file sharing (SMB)

Windows-based machines use a file-sharing protocol called Server Message Block (SMB) or Windows file sharing. Once Windows file sharing is set up, the Qube 3 appears in your Network Neighborhood as a machine named <hostname> (the name that the Qube 3 Administrator assigned to the Qube 3 in the Setup Wizard or the Control Panel screen). For additional information on setting up Windows file sharing, see "Using Windows file sharing (SMB)" on page 46.

To set the Windows file sharing settings:

1. Select **Administration > File Services > Windows**. The Windows File Sharing Settings table appears; see Figure 60 for the Basic settings and Figure 61 for the Advanced settings.

Figure 60. Windows File Sharing Settings - Basic table

Figure 61. Windows File Sharing Settings - Advanced table

2. Configure the following settings:

   - **Enable Server**. Check this box to enable Windows File Sharing.

   - **Maximum Simultaneous Users**. The default value is 25 users but you can change this value.

   - **Workgroup**. Enter a workgroup or NT domain to which you want the Qube 3 to belong. This entry determines how the Qube 3 appears in the Network Neighborhood on a Windows client machine.

   - **Windows 95/98 Network Login Authentication. E**nable this option if you want the Qube 3 to act a Windows logon server, authenticating users when they begin a session on a Windows 95 or Windows 98 machine. This means that when Windows users log into the network, they are authenticated using their Qube 3 account.

   - **Windows Internet Naming Service (WINS) Server**. If your Windows network spans more than one TCP/IP subnet, you must use a WINS server for NetBIOS name resolution. To use your Qube 3 as a WINS server, click the radio button "Be a WINS Server." If you do have a WINS server on your network, be sure to specify the IP address of the WINS server in the "Other machine" field. If you do not have a WINS server on your network, choose "Other machine" field and leave the field blank.

3. Click **Save**.

FTP

As the Qube 3 Administrator, you can enable the File Transfer Protocol (FTP)
server and specify the number of simultaneous users.

> Note: To enable anonymous FTP access, see "Guest Share" on
> page 140.

To set the FTP settings for your Qube 3:

1. Select **Administration > File Services > FTP**. The File Transfer Protocol
   (FTP) Settings table appears; Figure 62.

Figure 62. File Transfer Protocol (FTP) Settings table

2. Click the Enable Server check box.

3. Specify the maximum number of simultaneous users.

4. Click **Save**.

Apple file sharing (AppleShare)

AppleShare is the Macintosh file-sharing protocol. This option allows you to share files between the Qube 3 and Macintosh computers on your network. In the Qube 3, AppleShare works over IP networks, which makes Macintosh-to-Qube 3 file sharing faster (even on your internal network).

To enable Apple file sharing:

1. Select **Administration > File Services > Apple**. The Apple File Sharing Settings table appears; see Figure 63.

Figure 63. Apple File Sharing Settings table

2. Click the Enable Server check box.

3. Specify the maximum number of simultaneous users.

4. Click **Save**.

Guest Share

When you enable the Guest Share feature, you provide guest access to Windows File Sharing and Appleshare. You also enable anonymous FTP access which allows a user without a password to download files through FTP.

You can also enable guest users to upload files to the guest share and set a limit on amount of disk space allowed for uploaded files.

To enable Guest Access:

1. Select **Administration > File Services > Guest Share**. The Guest Share Settings table appears; see Figure 64.

2. Click the check the Enable Guest Access.

3. You can allow a guest user to upload files to the guest share.

   Click the Enable check box and enter a value (in MB) for the maximum disk space allowed for incoming files.

4. Click **Save**.

Figure 64. Guest Share Settings table

Web Services

Web settings

To set the Web settings:

1. Select **Administration > Web Services > Web**. The Web Settings table
    appears; see Figure 65.

2. To enable the FrontPage Extensions, click the Enable check box and enter a
    webmaster password.

Figure 65. Web Settings table

3.   Specify the CGI access settings.

   •   **Do not allow access to any user.** Only the Qube 3 Administrator is
       allowed to run CGI scripts.

   •   **Allow access to all users.** All users are allowed to run CGI scripts.

   •   **Allow access to specified users only.** You can specify the users who are
       allowed to run CGI scripts.

       If you select this option, click on the user names to transfer between the
       Users Allowed Access and Users Not Allowed Access windows. For
       more information on using CGI scripts, see "CGI scripts" on page 44
       and "Directory structure" on page 224.

> **⚠** *Caution:* Poorly written CGI scripts can cause performance
> problems on the server.

4.   Click **Save**.

Restricted Web access

As the Qube 3 Administrator, you can control Web sites accessed through the
Qube 3 server. You can restrict user access to specific Web sites only, block users
from accessing specific Web sites or apply no restrictions at all.

> *Note:* This feature affects access to Web sites only. FTP and other
> protocols are not affected by this feature.

You can specify the sites by a host name and domain name or by IP address.

To configure the settings for the Restricted Access feature:

1.   Select **Administration > Web Services > Restricted Access**. The Restricted
     Web Access table appears; see Figure 66.

2.   Choose a Restriction Policy from the pull-down menu:

   •   **Permitted Access.** If you choose the Permitted Access policy, users can
       access only the Web sites specified in the following fields. They cannot
       access any other sites.

   •   **Blocked Access.** If you choose the Blocked Access policy, users are
       blocked from accessing the Web sites specified in the following fields.

   •   **Unrestricted.** If you choose the Blacklist policy, users can access all
       Web sites on the Internet.

3. (*optional*) Enter the host name(s) or domain name(s) to which you want to apply the policy chosen in the pull-down menu. Blanket domain names may be used by including a leading period character before a domain name.

    For example, if you enter "www.sun.com", the restriction policy applies to this host only. However, if you enter ".sun.com", the policy applies to "www.sun.com", "cobalt.sun.com" and all other Web sites sharing the "sun.com" domain.

4. (*optional*) Enter the list of IP addresses to which you want to apply the policy chosen in the pull-down menu.

5. Click **Save**. The new configuration settings are saved and the Restricted Web Access table refreshes.

Figure 66. Restricted Web Access table

Web Caching

Web Caching is available on the Qube 3 Professional Edition and Business Edition only.

The Qube 3 offers a caching feature. When the caching feature is enabled, all Web traffic (http://) routed through the Qube 3 is cached; the Qube 3 acts as a caching proxy server for Web clients. This is known as "transparent caching".

Alternatively, if network traffic is not routed through the Qube 3, clients can take advantage of the Web Caching feature by configuring their Web browser to use the IP address of the Qube 3 as its HTTP proxy and by setting the proxy port number to 3128.

Note: The Web Caching feature on your Qube 3 relies on the Basic Firewall feature to operate. If you enable the Web Caching feature, the Basic Firewall feature is enabled automatically.

If you disable the Basic Firewall feature, the Web Caching feature is still enabled but will not function. To ensure that the Web Caching feature is functioning, re-enable the Basic Firewall feature.

For more information, see "Basic Firewall" on page 57.

To enable the Web caching feature:

1. Select **Administration > Web Services > Web Caching**.

    The Web Caching Settings table appears.

2. Click the Enable Caching check box.

3. Click **Save**.

Network Services

In the Network section, you can enter the network configuration settings for the Qube 3. The network settings make the Qube 3 visible to other computers.

> ☞ *Important:* Coordinate any changes to the network configuration information with your Internet service provider (ISP) to ensure the integrity of your network. If your Qube 3 is integrated into a larger network, consult with your network administrator for this information.
>
> Incorrect network settings can result in a loss of connectivity.

There are three ways to set up the Qube 3 network access:

- Both intranet and Internet communication is provided through the primary network interface.

- Intranet access is provided through the primary network interface; Internet access is provided through the secondary network interface. The Qube 3 acts as a gateway.

- Intranet access is provided through the primary network interface; Internet access is provided by an analog modem or an ISDN terminal adapter connected to the high-speed serial port. Modem settings are covered in "Configuration for an analog modem or ISDN" on page 169

DNS server

The Domain Name System (DNS) is a vital and integral part of the Internet. Setting up DNS correctly on your Qube 3 is very important. For this reason, we have created an appendix solely for explaining DNS. See Appendix E, "Domain Name System," on page 227.

The appendix covers the following items:

- basic DNS issues

- advanced DNS issues

- a quick start guide detailing a sample setup of DNS for a Qube 3

- a brief history of the DNS service

Dynamic Host Configuration Protocol (DHCP) server

Caution: If a DHCP server is already present on your network, do not configure the Qube 3 to act as a DHCP server.

The Dynamic Host Configuration Protocol (DHCP) feature allows the Qube 3 to assign automatically the network configuration information to network devices that support DHCP, including Macintosh and Windows desktop computers. This information includes the domain name, DNS server(s), IP address, subnet mask and gateway.

To configure the DHCP settings:

1.   Select **Administration > Network Services > DHCP** to open the following table.

Figure 67.   DHCP Settings table

2. Specify the settings in the DHCP Settings table:

    •   **Enable Server.** This check box enables or disables the feature of DHCP server. If you enable this feature, the Qube 3 automatically provides the network configuration information to a client machine when you power up the client machine.

    •   **Client Domain Name.** Enter the domain name that the Qube 3 will automatically serve to these clients. This domain name is usually the same as the domain name of your Qube 3. Enter only lowercase alphanumeric characters, dashes or periods. For example, cobalt.com is a valid entry.

    •   **Client DNS Address.** Enter the IP address or addresses of your local DNS server or servers that the Qube 3 will automatically serve to these clients. A DNS server translates text-based host names and domain names into numeric IP addresses and vice-versa. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.10.10 is a valid entry.

        For more information on DNS, see Appendix E, "Domain Name System".

    •   **Client Subnet Mask.** Enter the subnet mask that the Qube 3 will automatically serve to these clients. Enter a series of four numbers between 0 and 255 separated by periods. For example, 255.255.255.0 is a valid entry.

    •   **Client Default Gateway.** Enter the IP address of your local network gateway that the Qube 3 will automatically serve to these clients. A network gateway allows you to connect to the world outside of your local network. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.10.10 is a valid entry.

    •   **Maximum Lease Time.** The networking information assigned by a DHCP server expires after a fixed period of time. Enter the maximum period of time in seconds before a lease expires. Enter an integer greater than zero. The default value is 86400 seconds (24 hours).

3. Click **Modify Address Assignments**. The Address Assignment List tables appear; see Figure 68.

Figure 68. Address Assignments List tables
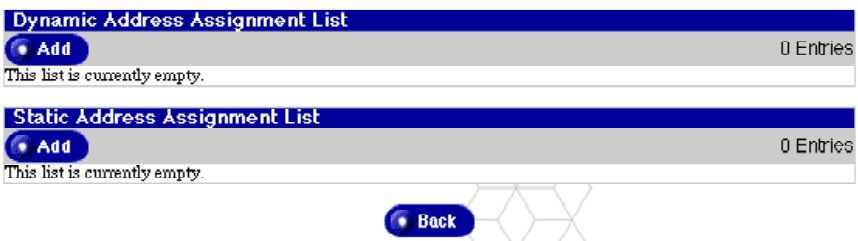
4. Click **Add** for the Dynamic Address Assignments List to open the table shown Figure 69.

Figure 69. Add New Dynamic Address Assignment table

5. Specify the following settings:

    •   **IP Address Range (From).** Enter the first or lowest IP address in the range of IP addresses to be dynamically assigned by this server. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.100 is a valid entry.

    •   **IP Address Range (To).** Enter the last or highest IP address in the range of IP addresses to be dynamically assigned by this server. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.110 is a valid entry.

6. Click **Save**.

7. Click **Add** for the Static Address Assignments List to open the table shown in Figure 70.

Figure 70. Add New Static Address Assignment table

8. Specify the following settings:

    •   **IP Address.** Enter the IP address to be statically assigned by this server to a specific computer; the computer is identified by its Media Access Control (MAC) address entered in the second field.

    •   **MAC Address.** Enter the MAC address of the computer that receives a static IP address from this DHCP server. A MAC address is the hardware address of the network interface card. This hardware address is a unique identifier and cannot be changed after manufacture.

        Enter a series of 12 hexadecimal digits separated by a colon between every 2 digits. For example, 00:10:E0:01:33:AB is a valid entry.

9. Click **Save**.

Basic Firewall

⚠️ *Caution:* Basic Firewall is an advanced feature of your Qube 3 server. This feature is not recommended for novice users.

A firewall provides network security through a set of rules that restrict the flow of information between your Qube 3 and your network. It is also used to control the information that your Qube 3 allows to pass between different networks (such as your company's intranet and the public Internet.

For more information on how the Basic Firewall feature on the Qube 3 functions, see "Basic Firewall" on page 57.

On this screen, the Qube 3 Administrator can:

- enable and disable your firewall

- create and edit rules for each of the three rule chains

- re-order your rules within each rule chain

- change the default policy for each rule chain

✎ *Note:* The Web Caching feature on your Qube 3 (available on the Qube 3 Professional Edition and Business Edition only) relies on the Basic Firewall feature to operate. If you enable the Web Caching feature, the Basic Firewall feature is enabled automatically.

If you disable the Basic Firewall feature, the Web Caching feature is still enabled but will not function. To ensure that the Web Caching feature is functioning, re-enable the Basic Firewall feature.

For more information, see "Web Caching" on page 60.

Firewall Safeguard

When enabling your firewall for the first time or applying changes to the configuration of the firewall currently functioning, the Qube 3 verifies that the Web browser that the Qube 3 Administrator is currently using is still able to communicate with the Qube 3 after the firewall settings have been applied.

The purpose of this verification is to prevent the Qube 3 Administrator from accidentally misconfiguring the firewall and locking herself or himself out of the Qube 3 completely, rendering the Qube 3 inaccessible.

If, sixty seconds after the new firewall settings have been applied, the Qube 3 has not received any communication from the Qube 3 Administrator's Web browser, the Qube 3 automatically disables the firewall feature.

Applying changes

If you make changes to the Basic Firewall settings when the firewall is already enabled, the changes are not immediately reflected in the state of the firewall that is currently functioning.

You must click **Apply Changes Now** to make your changes take effect. The changes do not take effect in real time because that could cause the firewall to enter a temporary, insecure state while you are in the process of editing the firewall configuration.

If Basic Firewall is not enabled, the **Apply Changes Now** button is greyed out.

Enabling the firewall feature

To enable the firewall feature:

1.   Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears; see Figure 71.

2.   Click to enable the check box Enable Firewall.

3.   Click **Save**. A popup window notifies you that you are about to enable packet filtering on your firewall.

4.   Click **OK**.

Figure 71.   Firewall Settings table

Configuring the firewall settings

To configure the Basic Firewall settings:

1. Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears.

2. The Firewall Settings table consists of three more sections that you access with the **Select Section** pull-down menu. These are shown in Figure 72, Figure 73 and Figure 74.

    The rule tables list the IP filtering rules for the firewall currently functioning. You can perform the following actions in the Rules tables:

    •   Click **Add** to add a new rule. See "Adding a firewall rule" on page 155.

    •   Click the green pencil icon to edit a rule. See "Modifying a firewall rule" on page 156.

    •   Click the red trash can icon to delete a rule. See "Deleting a firewall rule" on page 159.

    •   Click **Apply Changes Now** to apply rule changes to the firewall currently functioning. The **Apply Changes Now** button is greyed out until you modify rules that define your firewall. Your changes do not take effect until you click this button.

3. After making changes in one of the Firewall Settings tables, click **Save**.

Figure 72. Firewall Input Rules

Figure 73. Firewall Forwarding Rules

Figure 74. Firewall Output Rules

Policy definitions

In the Add and Modify Firewall Rule tables, the Qube 3 Administrator selects an action in the Policy pull-down menu. The policy determines the action taken if a packet matches the rule's criteria.

The following policies are supported:

- **ACCEPT** accepts the packet into the system. The packet "passes" the rule chain and no further rules within this chain are applied.

- **DENY** discards the packet. The packet is dropped from the system; the originator of the packet in not notified that the packet was discarded.

- **REJECT** rejects the packet. Like DENY, the packet is dropped from the system. However, unlike DENY, the sender of the packet is notified that the packet was discarded.

- **MASQ** masquerades the packet. Masquerading rewrites the packet as it passes through the Qube 3 to make it appear that the packet originated at the firewall. This is the same effect as enabling Network Address Translation (NAT).

    Note: The MASQ policy is applicable only when configuring forwarding rules.

- **REDIRECT** redirects the packet to a local port number. Regardless of the to which port number or IP address the packet is actually addressed, the packet is instead routed to a port number on the Qube 3 itself. This port is specified in the "Redirect to Port Number" field. This feature is primarily used for features such as transparent proxy servers.

    Note: The REDIRECT policy is applicable only when configuring input rules.

Viewing a chain of rules

To view a chain of rules:

1.   Select **Administration > Network Services > Basic Firewall**. The Firewall
     Settings table appears; see Figure 75.

2.   From the Select Section pull-down menu, select Input Rule Chain, Forward
     Rule Chain or Output Rule Chain.

     The rules table for that chain appears, displaying the list of rules currently
     configured for that rule chain.

Figure 75.   Sample of a list of Firewall rules

Changing the default policy for a chain

To change the default policy for a chain of rules:

1.   Select **Administration > Network Services > Basic Firewall**. The Firewall
     Settings table appears.

2.   From the Select Section pull-down menu, select Input Rule Chain, Forward
     Rule Chain or Output Rule Chain.

     The rules table for that chain appears, displaying the list of rules currently
     configured for that rule chain.

3.   In the Default Policy pull-down menu, select the default policy you want to
     apply to this rule chain. For definitions of the policies, see "Policy
     definitions" on page 153.

4.   Click **Save**.

Adding a firewall rule

To add a firewall rule:

1. Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears.

2. From the Select Section pull-down menu, select Input Rule Chain, Forward Rule Chain or Output Rule Chain. The rules table for that chain appears.

3. Click **Add**. The Add New Firewall Rule table appears; see Figure 76.

Figure 76. Add New Firewall Rule table

4. Configure the following settings:

*   **Source IP Address (Low).** Enter the first or lowest source IP address in the range of IP addresses to be matched by this rule.

*   **Source IP Address (High).** Enter the last or highest source IP address in the range of IP addresses to be matched by this rule.

> *Note:* To match any source IP address, leave both the Low and High Source IP Address fields empty.

- **Source Port Number(s).** Enter the first and last source port number in the range of source IP addresses to be matched by this rule. To match any source port number, leave the Source Port Number fields empty.

- **Destination IP Address (Low).** Enter the first or lowest destination IP address in the range of IP addresses to be matched by this rule.

- **Destination IP Address (High).** Enter the last or highest destination IP address in the range of IP addresses to be matched by this rule.

> *Note:* To match any destination IP address, leave both the Low and High Destination IP Address fields empty.

- **Destination Port Number(s).** Enter the first and last destination port number in the range of destination IP addresses to be matched by this rule. To match any destination port number, leave the Destination Port Number fields empty.

- **Network Protocol.** Enter the network protocol of the packets to be matched by this rule. The options are: Any Network Protocol, TCP, UDP, ICMP, IPIP and Encap.

- **Network Interface.** Enter the network interface of the packets to be matched by this rule. The options are: Any Network Interface, Primary Network Interface, Secondary Network Interface or PPP Dialup Interface.

- **Policy**. Select the policy for this rule chain. The policy determines the action applied to a packet that meets the criteria of this firewall rule. For definitions of the policies, see "Policy definitions" on page 153.

- **Redirect to Local Port Number.** If the REDIRECT policy has been selected, enter a local port number to which packets that meet the criteria of this firewall rule are redirected.

  If the REDIRECT policy has not been selected, this field is ignored.

5. Click **Save**.

Modifying a firewall rule

To modify a firewall rule:

1. Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears.

2. From the Select Section pull-down menu, select Input Rule Chain, Forward Rule Chain, or Output Rule Chain. The rules table for that chain appears.

3. Click the green pencil icon next to the rule you want to modify. The Edit Firewall Rule table appears; see Figure 77.

> *Note:* Rules in the Input Chain table that display a greyed-out pencil and trash can are related to the Web Caching feature. You cannot modify or delete these rules.

Figure 77. Edit Firewall Rule table

4. Modify one or all of the following fields. For a description of each field, see the procedure in "Adding a firewall rule" on page 155.

- Source IP Address (Low)
- Source IP Address (High)
- Source Port Number(s)
- Destination IP Address (Low)
- Destination IP Address (High)
- Destination Port Number(s)
- Network Protocol
- Network Interface
- Policy
- Redirect to Local Port Number

5. Click **Save**.

Changing the order of rules in a chain

To re-order the firewall rules in a chain:

1. Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears.

2. From the Select Section pull-down menu, select Input Rule Chain, Forward Rule Chain, or Output Rule Chain. The rules table for that chain appears.

    The first column in the table displays the order in which the system applies the firewall rules. Number 1 is the top-priority rule. For a sample chain of rules, see Figure 75.

3. To change the position of a rule in the hierarchy, simply enter the number of of the position that you want the rule to occupy in the small window in the first column.

    For example, let us say that a table holds five rules. If you want to move the rule at position 4 to position 2, enter "2" in the window for the rule at position 4.

    > *Note:* You can change the position of more than one rule at a time.

4. Click **Save**. The rules within this chain are sorted according to the values you entered into the Order column and the table refreshes with the re-numbered rules.

    Using the same example, the rule at position 4 now occupies position 2; the rule at position 2 shifts down to position 3 and the rule at position 3 shifts down to position 4. The rule at position 5 does not shift.

5. If you have finished changing the order of the rules and your firewall is currently enabled, click **Apply Changes Now** so that your changes take effect in the firewall currently functioning.

Deleting a firewall rule

To delete a firewall rule:

1. Select **Administration > Network Services > Basic Firewall**. The Firewall Settings table appears.

2. From the Select Section pull-down menu, select Input Rule Chain, Forward Rule Chain, or Output Rule Chain. The rules table for that chain appears.

3. Click the red trash can icon next to the rule you want to delete. A confirmation dialog verifies the deletion.

4. Click **OK**.

SNMP

You can specify the Simple Network Management Protocol (SNMP) communities that can have read-only and read-and-write access to this SNMP agent.

The default read-only access community is "public."

The default read-and-write access community is "private."

> *Note:* We recommend that you change the default string for the Read and Write SNMP Community to a unique value.

To specify the SNMP communities:

1. Select **Administration > Network Services > SNMP.** The SNMP Settings table appears; see Figure 78.

2. Configure the following settings:

   • **Enable Server.** Turns the Simple Network Management Protocol (SNMP) server on or off.

   • **Read Only SNMP Community.** Enter the Read Only SNMP Community to which this Qube 3 server belongs. The Read Only SNMP Community you enter can only contain alphanumeric characters along with '-' and '_'.

   • **Read and Write SNMP Community.** Enter the Read and Write SNMP Community to which this Qube 3 server belongs. The Read and Write SNMP Community you enter can only contain alphanumeric characters along with '-' and '_'.

3. Click **Save**.

Figure 78. SNMP Settings table

Telnet

> ⚠️ *Caution:* You can adversely affect the performance of your Qube 3 if you modify system configuration files. Check your warranty card for details.

> ⚠️ *Caution:* Only advanced users who need to run shell scripts or use shell commands should access the Qube 3 through the telnet function. An advanced user is someone who is proficient in using the Unix operating system.
>
> Direct root logins are not allowed on the Qube 3. To obtain a root shell, telnet to the server and log in as the user *admin*. From the command prompt, type "**su -**" and press enter. Enter the administrator's password at the password prompt.
>
> Only the Qube 3 Administrator can **su -** to root.

To specify the access settings for telnet:

1. Select **Administration > Network Services > Telnet**. The Telnet Settings table appears; see Figure 79.

Figure 79. Telnet Settings table

2. Select one of the following telnet access options to specify who has telnet access to the Qube 3.

> *Note:* The second and third options pose security risks; however, they allow the user to configure options supported by the Linux operating system that cannot be configured through the Web-based Server Desktop interface.

- **Off - Do Not Allow Logins.** No telnet access is available. This is the most secure option for the Qube 3.
- **On - Allow Only Administrator Logins.** Only the Qube 3 Administrator can telnet into the Qube 3.
- **On - Allow All User Logins.** The Qube 3 Administrator and all registered users can telnet into the Qube 3. This is the least secure option but provides the most flexibility.

3. Click **Save**.

System

This section describes how to use the following system administration screens:

- **TCP/IP.** Configure the TCP/IP settings.
- **Internet.** Configure settings specific to the type of internet connection for gateway on a LAN, cable modem or DSL, or analog modems and ISDN terminal adapters.
- **Power.** Reboot the Qube 3.
- **Time.** Set the Qube 3 time settings.
- **Information.** Display information about the Qube 3.

TCP/IP

To configure the Transmission Control Protocol/Internet Protocol (TCP/IP) settings for the Qube 3:

1. Select **Administration > System > TCP/IP**. The TCP/IP Settings table appears; see Figure 80.

Figure 80. TCP/IP Settings table

2. Configure the following fields as appropriate for your situation.

   • **Host Name.** Enter the host name of this Qube 3. The host name and the domain name combined together should uniquely identify this server. Enter only lowercase alphanumeric characters, dashes or periods. For example, www is a valid entry.

   • **Domain Name.** Enter the domain name of this Qube 3. The host name and the domain name combined together should uniquely identify this server. Enter only lowercase alphanumeric characters, dashes or periods. For example, cobalt.com is a valid entry.

   • **DNS Servers.** Enter the IP address or addresses of your local domain name server or servers. A domain name server translates textual host names and domain names into numerical IP addresses, and vice-versa. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.1 is a valid entry. Leaving this field empty will prevent this machine from finding other machines by hostname or domain name and will cause networking difficulties.

   Note: Be sure to enter the IP address of your DNS server(s) here. Otherwise, the Simple Mail Transfer Protocol (SMTP) will not work. SMTP is used for transferring electronic mail messages.

   For more information, see Appendix E, "Domain Name System," on page 227.

- **IP Address** (Primary Interface). Enter the IP address of the primary interface. If you are using only one network interface connection to the server appliance, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.1 is a valid entry.

- **IP Network Mask** (Primary Interface). Enter the network mask of the primary interface. If you are using only one network interface connection to the server appliance, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 255.255.255.0 is a valid entry.

- **MAC Address** (Primary Interface). The Media Access Control (MAC) address is the hardware address of the network interface card. This hardware address is a unique identifier and cannot be changed after manufacture.

- **IP Address** (Secondary Interface). Enter the IP address of the secondary interface. If you are using only one network interface connection to the server appliance, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 209.43.21.5 is a valid entry.

- **IP Network Mask** (Secondary Interface). Enter the network mask of the secondary interface. If you are using only one network interface connection to the server appliance, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 255.255.255.0 is a valid entry.

- **MAC Address** (Secondary Interface). The MAC address is the hardware address of the network interface card. This hardware address is a unique identifier and cannot be changed after manufacture.

3. Click **Modify Static Routes**. The Static Route List table appears; see Figure 81.

Figure 81. Static Route List table

4. Click **Add**. The Add Static Route table appears; see Figure 82.

Figure 82. Add Static Route table

Add Static Route	
Target Subnet	
Target Network Mask	
Gateway	
Network Interface	Primary Ethernet Interface (eth0)

Save   Cancel

5. Configure the Add Static Routes table fields:

    •   **Target Subnet.** Enter the IP address of the subnet to be re-routed. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.0 is a valid entry.

    •   **Target Network Mask.** Enter the network mask of the subnet to be re-routed. Enter a series of four numbers between 0 and 255 separated by periods. For example, 255.255.255.0 is a valid entry.

    •   **Gateway.** Enter the IP address of the network gateway through which the target subnet's packets will be re-routed. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.1 is a valid entry.

    •   **Network Interface.** Select the network interface through which the target subnet's packets will be re-routed. If no device is specified, a device will be selected based on the IP address of the network gateway. Your choices are:

        •   Primary Ethernet Interface

        •   Secondary Ethernet Interface

        •   Point-to-Point Protocol Interface

6. Click **Save**.

Internet

The following sections describe how to configure a connection to the Internet through the Qube 3. The Qube offers three connection methods:

•   Gateway on local area network (LAN)

•   Cable modem or Digital Subscriber Line (DSL)

•   Analog modem or Integrated Services Digital Network (ISDN) terminal adapter

Configuration for a gateway on a LAN

Complete this section only if you intend to connect the Qube 3 to the Internet through an existing gateway located on a local area network (LAN). This gateway may be connected to the outside world through a T1/E1 line or other type of leased line.

You need a network connection and the IP address for the gateway.

> *Note:* Depending on your network configuration, the gateway can be on the primary or the secondary network interface. If the gateway is on the secondary network interface, ensure that you connect the secondary network interface on the back of the Qube 3 to the network on which the gateway is located.
>
> See Figure 6 on page 12.

To configure the Qube 3 Internet settings for an existing gateway on a LAN:

1. Select **Administration > System > Internet** to open the Internet Settings table.

2. If it does not open in the desired mode, click on the **Change Internet Connection** pull-down menu and select **Gateway on Local Area Network (LAN)**. The Gateway on a LAN table appears; see Figure 83.

Figure 83. Internet Settings for Gateway on a LAN table

3. Configure the following settings:

- **Server Gateway.** Enter the IP address of your local network gateway. A network gateway allows you to connect to the world outside of your LAN. Enter a series of four numbers between 0 and 255 separated by periods. For example, 192.168.1.254 is a valid entry. Leaving this field empty prevents this machine from communicating with other networks.

- **IP Forwarding and Masquerading.** Select the method of forwarding packets through the server appliance. Choosing packet forwarding with masquerading enables network address translation (NAT) functionality. This allows your organization to share Internet access by translating all network traffic between your single publicly accessible IP address and your many privately accessible IP addresses through this server. Choosing only packet forwarding with no masquerading only allows traffic between one network interface and the other without providing NAT. Choosing no packet forwarding does not allow any traffic between one network interface and the other.

Note: This option does not appear in the Setup Wizard.

- **IP Address.** Enter the IP address of the secondary interface. If you are using only one network interface connection to the server appliance, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 209.43.21.5 is a valid entry.

- **IP Network Mask.** Enter the network mask of the secondary interface. If you are using only one network interface connection to the server, use the primary interface and leave the secondary interface empty. Enter a series of four numbers between 0 and 255 separated by periods. For example, 255.255.255.0 is a valid entry.

- **MAC Address.** The Media Access Control (MAC) address is the hardware address of the network interface card. This hardware address is a unique identifier and cannot be changed.

Note: If you configured the Qube 3 manually and want to use the Qube 3 as the Internet connection for your network, you must configure the clients on your network with the IP address of the Qube 3 as their default gateway.

4. Click **Save**.

Configuration for cable modem or DSL

Complete this section only if you intend to connect the Qube 3 to the Internet with a cable modem or digital subscriber line (DSL) modem. You need a cable modem or DSL modem, and an account with an ISP.

Ensure that you connect the modem to the secondary network interface on the back of the Qube 3; see Figure 6 on page 12.

To configure the Qube 3 Internet settings for a cable modem or for DSL service:

1. Select **Administration > System > Internet** to open the Internet Settings table.

2. If it does not open in the desired mode, click on the **Change Internet Connection** pull-down menu and select **Cable Modem or DSL**. The Cable Modem or DSL table appears; see Figure 84.

Figure 84. Internet Settings for Cable Modem or DSL table

3. This table presents three options:

    • **Obtain Automatically Using DHCP.** There are two fields: Client Host Name and Client Identifier. Depending on your ISP, they provide you with the information to enter in these fields or the fields do not need to be filled in.

    • **Obtain Automatically Using PPPoE.** If your ISP uses PPPoE and provides you with a user name and password, enter them here. Enter your password twice for confirmation.

    • **Specify Manually.** Choose this option if your ISP has provided a static IP address.

      Enter the IP address, subnet mask and gateway. Obtain this information from your ISP or network administrator.

Note: If you configured the Qube 3 manually and want to use the Qube 3 as the Internet connection for your network, you must configure the clients on your network with the IP address of the Qube 3 as their default gateway.

4. Click **Save**.

Configuration for an analog modem or ISDN

The Qube 3 is equipped with a high-speed serial port for connecting an external analog modem or an Integrated Services Digital Network (ISDN) terminal adapter. If you have (or can obtain) a standard point-to-point protocol (PPP) dial-up account with an Internet service provider (ISP) and a phone line, your Qube 3 can provide Internet access for your network — no router is required. Using the external modem or terminal adapter and the serial port, the Qube 3 can also act as a router.

Ensure that you connect the modem to the serial port on the back of the Qube 3; see Figure 6 on page 12.

To configure the Qube 3 Internet settings for an analog modem or for ISDN:

1. Select **Administration > System > Internet** to open the Internet Settings table.

2. If it does not open in the desired mode, click on the **Change Internet Connection** pull-down menu and select **Analog Modem or ISDN**. The Analog Modem or ISDN table appears; see Figure 85.

Figure 85. Internet Settings for Analog Modem or ISDN table

3. Configure the following settings:

    *   **Connection Status.** Connection status indicates whether the modem is currently connected to your ISP.

    *   **Connection Mode.** From the pull-down menu, select the Connection Mode: Always On, Always Off or On Demand only. On Demand means the Qube 3 establishes a connection to the Internet only when prompted to by the system (for example, when checking email)

- **Connection Period.** You can select certain hours of the day during which the modem cannot connect to the Internet. By default, the modem is allowed to dial out at any time of the day.

  In the scrolling window Connect Times, click on a particular hour or hours, and then click the green arrow to move that time period into the scrolling window Do Not Connect.

  The hours are displayed according to a 24-hour clock. For example, the period "00:00 - 00:59" represents 12:00 a.m. to 12:59 a.m.; the period "16:00 - 16.59" represents 4:00 p.m. to 4:59 p.m. See Figure 85.

- **Phone Number.** Enter the dial-up telephone number of your ISP.

- **Dial-Up Account User Name.** Enter the user name of the dial-up account used to log in to your ISP.

- **Dial-Up Account Password.** Enter the password of the dial-up account used to log in to your ISP.

- **Modem Initialization String.** If your modem requires a specific initialization string, enter the string. Otherwise, leave the default value of ATZ. Refer to the user manual for your modem if you are having difficulty establishing a connection using the default string.

- **Local IP Address.** Enter the local IP address at this end of the modem connection only if your ISP has assigned a static IP address.

- **Modem Speed (Baud).** Select the speed of the serial line connection to the modem. The default value is 115 200.

- **Enable Pulse Dialing.** A telephone uses either pulse dialing or tone dialing. If your telephone uses pulse dialing, click the check box to enable the Pulse Dialing feature. Enabling this feature causes the system to use pulse dialing when connecting. By default, pulse dialing is OFF.

- **IP Masquerading.** IP masquerading enables network address translation functionality that allows your organization to share Internet access by translating all network traffic between your one publicly accessible IP address and your many privately accessible IP addresses through this Qube 3 server.

Note: If you configured the Qube 3 manually and want to use the Qube 3 as the Internet connection for your network, you must configure the clients on your network with the IP address of the Qube 3 as their default gateway.

4. Click **Save**.

Power (Reboot)

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

For security reasons, you cannot power down the Qube 3 through the Desktop Server; you have to power down the server through the LCD console. This screen lists the steps for powering down.

For more information, see "Power down" on page 203.

⚠	***Caution:*** Turning off the power switch before the Qube 3 tells you to do so can result in lost or corrupted data.

To reboot the Qube 3 through the Server Desktop:

1. Select **Administration > System > Power.** The Reboot screen appears with the following button.

    ⬤ Reboot Now

2. Click the **Reboot Now** button. A confirmation dialog appears.

3. Click **OK**. A dialog appears stating that the server is rebooting and that the reboot can take as long as a few minutes.

4. Once the Qube 3 reboots, the browser should refresh to the Login screen. If it does not, point your browser to the IP address of the Qube 3.

You can also reboot the Qube 3 through the LCD console; refer to "Reboot" on page 202.

Time

To specify the time, date, and time zone settings for the Qube 3:

1. Select **Administration > System > Time**. The Time Settings table opens; see Figure 86.

2. Use the pull-down menus to set the time, date, and time zone.

3. You may optionally enter the host name or IP address of a Network Time Protocol (NTP) server if you want the Qube 3 to automatically synchronize its internal clock every night.

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

4. Click **Save**.

Figure 86. Time Settings table

Information

To view information about your Qube 3, select **Administration > System > Information** The System Information table appears; see Figure 87. You can see the following information:

• the product name

• the serial number of the product

• the serial number of the hardware

• the MAC address for the primary network interface

• the MAC address for the secondary network interface

• the size of the hard disk drive in the server

• the amount of memory in the server

• trademark information from Cobalt Networks

In addition to viewing information about your Qube 3, you can click the following buttons.

• Click **Register Now** to register your Qube 3 online.

• Click **Cobalt Networks, Inc. Web Site** to go to the Cobalt Web site.

• Click **Credits and Acknowledgements** to view credits about some of the software installed on the Qube 3.

Figure 87. System Information table

Maintenance

The Maintenance menu provides access to utilities for backing up and restoring the Qube 3 system.

Backup

You can perform both scheduled backups and manual backups on the Qube 3.

Creating a backup

To create a backup of the data on the Qube 3:

1. Select **Administration > Maintenance > Backup.** The Scheduled Backup List table appears.

2. Click **Add**. The Add Scheduled Backup table appears; see Figure 88.

3. Complete the fields in the table.

    -   **Backup Name.** This is a unique name assigned to a backup job which can be used to identify backup sets at a later time. The backup name must be a unique name.

    -   **Files to Backup.** This pull-down menu allows you to specify whether this job is a full backup or an incremental backup.

        You can choose to back up All Files (a full backup) or All files modified in the last 31 days, 14 days, 7 days, 2 days or 1 day (incremental backups).

    -   **Method of Backup.** This field allows you to specify the backup method to use (SMB, NFS or FTP) and the necessary information for that method. For more details on each of these methods, see "Backup file locations" on page 177.

        When a backup runs, it creates a new directory in the location specified in these fields. The directory name is the time at which the backup was started and has the form: Year Month Day Hour Minute Second. For example, the directory name "20000921174533" indicates that the backup was run at 17:45:33 on September 21, 2000.

    -   **Backup Interval.** This field allows you to specify how often a backup job runs once it is scheduled. You can schedule a backup to run immediately, once a day, once a week or once a month.

        -   Once a day means each day soon after midnight.

        -   Once a week means every Sunday morning after midnight (Saturday night going into Sunday morning).

        -   Once a month means after midnight on the first of every month.

- Click **Cancel** to discard any changes you have made.

- Click **Save** to schedule the backup as specified. The Scheduled Backup List table refreshes with the new job displayed; see Figure 89.

    If you selected Backup Immediately, the backup job begins and proceeds in the background. Administering the Qube 3 while a backup is running is not recommended.

Note: Do not interrupt or cancel the backup job. If the backup job fails, delete the partial backup file from your computer. If you try to restore a partial backup file, you can corrupt the data on your Qube 3.

Figure 88. Add Scheduled Backup table

Figure 89. Scheduled Backup table

Viewing details of a scheduled backup

To view the details for a scheduled backup job:

1. Select **Administration > Maintenance > Backup.** The Scheduled Backup List table appears.

2. Click the green magnifying glass icon next to the backup that you want to view. The Scheduled Backup Details table appears, showing the details about the backup job.

3. Click **Back** to return to the Scheduled Backup List table.

4. Click **Remove** to permanently delete this backup job. A confirmation dialog verifies the deletion.

   Click **OK**.

Deleting a scheduled backup

To delete a scheduled backup job:

1. Select **Administration > Maintenance > Backup.** The Scheduled Backup List table appears.

2. Click the red trash can icon next to the backup that you want to delete. A confirmation dialog verifies the deletion.

3. Click **OK**.

Backup file locations

FTP server

For a backup by **FTP Server**:

• specify a location (fileserver and directory), user name and password

• a location is in the form `server.name.com/dir1/dir2`

> *Note:* For FTP backups, portions of the data set must be stored on the Qube 3's hard disk while being transferred. There must be at least 1 GB of disk space free on the Qube 3 to perform an FTP backup.

NFS server

For a backup by **NFS Server**:

- specify a location only

- a location is in the form `server:/dir1/dir2`

- a password is not required

SMB server

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

- specify a location (fileserver and directory), user name and password

- a location is in the form `\\server\share\dir1\dir2`

All scheduled backups

For **All Scheduled** backups, ensure that 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

There are two ways to restore a data set to the Qube 3: use the backup history or restore the data set manually.

When a backup runs, it creates a new directory in the location specified in the Method of Backup section of the Add Scheduled Backup table; see "Creating a backup" on page 175. The directory name is the time at which the backup was started and has the form: Year Month Day Hour Minute Second. For example, the directory name "20000921174533" indicates that the backup was run at 17:45:33 on September 21, 2000.

Restoring with the backup history

If your system failed and you have cleansed your system with the Cobalt OS Restore CD, your backup history is not available. To retrieve your history file, you must transfer the most recent history file of one of your data sets to the Qube 3. This is a separate file within a data set and it always includes the backup data set with which it was associated. The directory names created by the backups can be used to determine the most recent backup.

To retrieve a history file, create the directory `/home/users/admin/.cbackup/` and load the history file in the new directory. This file must be named *history*. You can use any method to transfer the file there.

If you have not cleansed your system with the Cobalt OS Restore CD or you have restored your history file, the history of all executed backups is available in the Backup File List table in the **Maintenance > Restore** screen.

To restore the data set with the backup history:

1.   Select **Administration > Maintenance > Restore**. The Backup File List table appears; see Figure 90.

> *Note:* For an unsuccessful backup or for a backup that is still running, the restore icon for that file is greyed out in the Action column.

Figure 90.   Backup File List table

Figure 91.   Restore a Backup table

2.   Click the file restore icon (a tape with a green arrow) for the history file that you want to restore to the Qube 3. The Restore a Backup table appears with information about the history file; see Figure 91.

3. From the Location to Restore Files pull-down menu, choose a location for the restored files: restore to "restore" fileshare or replace existing files.

   Replacing existing files overwrites files on your hard drive if there is a file with the same name and location as the file being restored. This option should only be used for disaster recovery, as it irreversibly alters the state of the system.

   Note: If you select the "Replace existing files" option to restore a full backup, the Qube 3 automatically reboots when the restore is complete.

   The restore fileshare is the directory

   ```
   /home/groups/restore/<BACKUPTIME>
   ```

   where `<BACKUPTIME>` is the directory name used for the backup (for example, 20000903040200). You cannot select or change this location, and there must be enough space in the `/home/` partition for the files.

   This allows you to manually copy only those files you wish to restore.

4. Click **Cancel** to discard any changes you have made or click **Restore** to restore the files. The restore job begins and proceeds in the background. Administering the Qube 3 while a restore is underway is not recommended.

   Caution: Interrupting a restore can corrupt your data. If the restore process is interrupted, the Qube 3 Administrator can try to restore again.

Viewing details of a history item

To view the details for a history item:

1. Select **Administration > Maintenance > Restore.** The Backup File List table appears.

2. Click the green magnifying glass icon next to the history file that you want to view. The History Item Details table appears, showing the details about the history file.

3. Click **Back** to return to the Backup File List table.

4. Click **Restore** to restore the files. The Restore a Backup table appears with information about the history file. To continue, go to Step 3 in the procedure under "Restoring with the backup history" on page 178.

5. Click **Remove** to permanently delete this history file. A confirmation dialog verifies the deletion.

   Click **OK**.

Deleting a history item

To delete a history item:

> *Note:* This operation deletes just the history item; it does not delete the backup itself

1. Select **Administration > Maintenance > Restore.** The Backup File List table appears.

2. Click the red trash can icon next to the history file that you want to delete. A confirmation dialog verifies the deletion.

3. Click **OK**.

Restoring a backup file manually

To restore a data set manually, you must make the desired data set available to the Qube 3 either by mounting the network share or by transferring the files to the Qube 3.

1. Mount the network share or transfer the data set to the Qube 3.

2. Select **Administration > Maintenance > Restore.** The Backup File List table appears.

3. Click **Restore Manually** above the table. The Manual Restore From Directory table appears; see Figure 92.

Figure 92. Manual Restore From Directory table

4. In the Directory field, enter the name of the directory on the Qube 3 to which the data has been transferred or mounted, and within which the data set is found (for example, `/home/restoredata/20000903040200`).

5. From the Location to Restore Files pull-down menu, choose a location for the restored files: restore to "restore" fileshare or replace existing files.

    Replacing existing files overwrites files on your hard drive if there is a file with the same name and location as the file being restored. This option should only be used for disaster recovery, as it irreversibly alters the state of the system.

    Note: If you select the "Replace existing files" option to restore a full backup, the Qube 3 automatically reboots when the restore is complete.

    The restore fileshare is the directory

        /home/groups/restore/<BACKUPTIME>

    where `<BACKUPTIME>` is the directory name used for the backup (for example, 20000903040200). You cannot select or change this location, and there must be enough space in the `/home/` partition for the files.

    This allows you to manually copy only those files you wish to restore.

6. Click **Cancel** to discard any changes you have made or click **Restore** to restore the files. The restore job begins and proceeds in the background. Administering the Qube 3 while a restore is underway is not recommended.

> ⚠ *Caution:* Interrupting a restore can corrupt your data. If the restore process is interrupted, the Qube 3 Administrator can try to restore again.

Disaster recovery

To restore your Qube 3 to a known state after a disaster:

1. Restore the Qube 3 to a factory-fresh state with the Cobalt OS Restore Disc that was shipped with the Qube 3.

2. Locate the most recent history file from your backups (use the directory name to identify the most recent backup).

3. Transfer this history file to the directory `/home/users/admin/.cbackup/`

4. Select **Administration > Maintenance > Restore.** The Backup File List table appears.

5. Restore your backup using from the history item. See "Restoring with the backup history" on page 178.

> ☞ *Important:* When restoring your backups, start with the oldest dataset you want to restore. Restore each dataset from oldest to most recent until you reach either the most recent backup or the backup you wish to restore.

Usage information

Web usage

To view statistics about your Qube 3 Web server:

1. Select **Administration > Usage Information > Web**. The Web Server
   Statistics table appears; see Figure 93.

2. Use the pull-down menu to select one of the following views:

   • Summary

   • Most active requestors

   • Most requested pages

   • Most frequent referring pages

   • Hourly requests

   • Daily requests

3. You can click the **Reset Statistics** button to reset all of the web usage
   statistics and begin gathering statistics again.

Figure 93. Web Server Statistics table

Disk usage

To view information about the current state of your Qube 3 disk:

1. Select **Administration > Usage Information > Disk**. The Disk Usage table appears; see Figure 94.

2. Use the pull-down menu to select one of the following views:

    •   Summary

    •   Users

    •   Groups

3. You can click the **Check Usage Now** button to update disk usage information immediately. This may take as long as several minutes, and proceeds in the background.

Figure 94. Disk Usage table

Network usage

To view statistics about your Qube 3 network interfaces, select **Administration > Usage Information > Network**. The Network Usage table appears; see Figure 95.

Figure 95. Network Usage table

Active Monitor

The Qube 3 uses Active Monitor software, a Cobalt Networks utility that runs on a Qube 3 and updates key system and service status every 15 minutes. This section describes how to use the Active Monitor.

Active Monitor icon

The Active Monitor icon in the top right corner of the Server Desktop allows you to view status information. The icon turns red if any of the components monitored by Active Monitor have severe problems.

Active Monitor Status

To view the Active Monitor Status of a system component or a service:

1. Select **Administration > Active Monitor > Status**. The Active Monitor Status table appears; see Figure 96**.**

2. You can click the **Check Status Now** button to begin updating system and service status information immediately. This may take as long as several minutes and proceeds in the background.

Figure 96. Active Monitor Status table

3. To view detailed status information for a particular system component or service, click the colored circle to the left of the item's name in the table or click the magnifying glass in the Action column that corresponds to the name of the item. See Figure 97.

    The status of each of the above items is indicated by a green, yellow, red or grey circle beside each item. The colors have the following significance:

    •   **Grey.** No information is available or monitoring is not enabled

    •   **Green**. Normal functioning

    •   **Yellow.** A problem exists that should be investigated by the Qube 3 Administrator (for example, low disk space)

    •   **Red.** A severe problem exists that needs immediate attention by the Qube 3 Administrator

Figure 97.   Sample details table

CPU Usage Details	
Current Status	🟢 The CPU is being lightly used.
Status Last Changed	October 2 2000 5:00 PM

CPU Statistics	
1 Minute Load Average	0.05
15 Minute Load Average	0.12
System Uptime	12 Minutes
CPU Temperature	27.5 Degrees Celsius

Back

Active Monitor Settings

To configure the Active Monitor settings:

1. Select **Administration > Active Monitor > Settings**. The Active Monitor Settings table appears; see Figure 98.

2. Configure the settings in the Active Monitor Settings table.

    •   **Enable Monitoring.** This check box enables or disables Active Monitor. Enabling this feature allows the system components to be regularly checked for proper operation.

    •   **Alert Notification Emails.** Specify the email address(es) to which the Active Monitor sends email alert messages. The default is the user *admin*.

        If you add more than one email address, enter each one on a separate line or separate the addresses with spaces.

    •   **Monitored Components.** Select the specific system components to be regularly checked by Active Monitor. The left column shows the system components which are currently being monitored. The right column shows the system components which could possibly be monitored. To add a system component to be monitored, move the system component from the right column to the left column.

Figure 98. Active Monitor Settings table

BlueLinQ

When you log into the Qube 3 as *admin*, the BlueLinQ tab appears in the top menu bar of the Qube 3 interface. When you select BlueLinQ, the left menu bar presents commands that allow you to update the Qube 3 software, add new software and view the installed software. This section describes how to use these commands.

Software Notification icon

The Software Notification icon in the top right corner of the Server Desktop allows you to check for new or updated software packages and to install them if any are found. The icon changes color when new or updated software packages are available.

New Software

1. Select **BlueLinQ > New Software.** The Available New Software table appears; see Figure 99.

2. Click **Check Availability Now** to check availability of new software.

3. Click **Install Manually** if you already know the location of new software that you want to install on the Qube 3.

Figure 99. Available New Software List table

	Name	Version	Vendor	Description	Install Details
●	ImagineApp	2.0	SupremeWeb, Inc.	The ImagineApp enhances your web experience.	🔍
●	Network Spider	1.0	Fictitious Networks	The Network Spider brings web traffic to you.	🔍
●	BuildMeister	1.0	PBaltz Enterprises	The BuildMeister makes everything happen.	🔍

3 Entries

Updates

1. Select **BlueLinQ > Updates**. The Available Software Updates List table
    appears; see Figure 100.

Figure 100. Available Software Updates List table

2. Click **Check Availability Now** to update the list of available software or
    click **Install Manually** if you already know the location of new software that
    you want to install on the Qube 3.

3. Click the green magnifying glass icon to see more detailed information
    about the software package. The Install Software table appears; see
    Figure 101.

Figure 101. Install Software table

4. Click **Install Manually**. The Install Manually table appears; see Figure 102.

Figure 102. Install Manually table

5. Enter a URL in the URL field or enter a path and filename to load the software package from you computer. You can also click **Browse** to locate the software package.

6. Click **Prepare**. The system verifies that the file you are loading is in the correct .pkg format. The system then begins to load the software.

Installed Software

The following packages are installed on the Qube 3 at the factory; you cannot un-install these packages.

• Cobalt OS

• Cobalt Web Cache (Qube 3 Business Edition and Professional Edition only)

• Cobalt DiskMirror (Qube 3 Professional Edition only)

To view the software installed on the Qube 3:

1. Select **BlueLinQ > Installed Software.** The Installed Software List table appears; see Figure 103.

2. Click the icon in the Uninstall column if you wish to uninstall a particular software. A confirmation dial appears to proceed with the uninstall procedure.

3. Click **OK**.

Figure 103. Installed Software List table

Settings

To view or modify the settings for the BlueLinQ feature:

1.   Select **BlueLinQ > Settings**. The BlueLinQ Settings table appears; see Figure 104 for the Basic settings and Figure 105 for the Advanced settings. The active tab shows up as a light grey.

Figure 104. BlueLinQ Settings - Basic table

Figure 105. BlueLinQ Settings - Advanced table

2. Configure the fields in the BlueLinQ Settings tables.

    •   **Query Schedule.** Specify how frequently the BlueLinQ server is
        checked for new or updated software packages.

    •   **Software Notification Light.** Specify the type of new software that
        activates the Software Notification Light, and if applicable, the type of
        new software that appears in notification email messages.

    •   **Notification Emails.** The email addresses for sending notification of
        new software or errors in software update queries. The notification email
        is sent in accordance with the Software Notification Light settings.

    •   **BlueLinQ Server(s).** Enter the HTTP address(es) of the location(s) to
        query for software updates. You can enter more than one address in this
        scrolling window; enter each HTTP address on a separate line.

        The default location of the Cobalt Networks Update Server is
        http://updates.cobalt.com/packages/.

        Note: To receive updates from Cobalt Networks, you must retain
        the URL http://updates.cobalt.com/packages/ in this field.

    •   **HTTP proxy:port.** *(optional)* Enter the proxy server and port for HTTP
        queries if a proxy server is needed to reach outside your firewall.

        Example: proxy.mycompany.com:8080.

    •   **FTP proxy:port.** *(optional)* Enter the proxy server and port for FTP
        queries if a proxy server is needed to reach outside your firewall.

        Example: proxy.mycompany.com:8080.

    •   **Packages must be authenticated.** If enabled, BlueLinQ installs only
        packages that have passed an authentication check.

3. Click **Save**.

Using the LCD Console

During startup, the LCD screen on the back of the Cobalt Qube 3 displays status information about the boot process itself.

When setting up the Qube 3, you use the LCD console to enter network configuration information for the Qube 3.

Once the Qube 3 is running, the LCD console serves several purposes. Through the LCD console, you can:

• change network configuration information, which is useful if you change the location of the Qube 3

• reboot, which restarts the entire Qube 3

• power down in a way that allows the Qube 3 to close all open files, and minimizes startup time the next time the Qube 3 is powered on

• reset the network, which resets all IP addresses, netmasks and other network settings to that of a new, unconfigured system

• reset the filters and the static routes, which disables the IP firewall filters and deletes the static route settings.

• exit from the LCD commands without making any changes

> **Caution:** It is important to follow the proper power-down procedure before turning off the Qube 3. Refer to "Power down" on page 203.

You access each of these functions by holding down the ⋈ (select) button on the LCD console for approximately two seconds. This action causes the LCD screen to enter its function mode. Press the ⋈ 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 ● (enter) button and select **YES**.

Set up network

To reset the IP address or change the network configuration of the primary network interface:

1. On the LCD console, hold down the $(\triangleright\!\!\triangleright)$ button for approximately two seconds. The LCD screen displays:

        SELECT:
        SETUP NETWORK

2. Press the $(\bullet)$ button.

3. Enter the IP address of the primary network interface 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 $(\bullet)$ button.

5. Enter the Netmask of the primary network interface using the arrow buttons.

6. Press the $(\bullet)$ button.

7. Enter the Gateway using the arrow buttons.

8. Press the $(\bullet)$ button.

9. Use the arrow buttons to toggle the cursor between [S]ave or [C]ancel.

10. Press the $(\bullet)$ button.

If you select Save, the Qube 3 saves the new information. The LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

If you select Cancel, the LCD screen just returns to the normal display.

You can also change the network configuration of the Qube 3 through the Web browser:

1. On the Server Desktop, select **Administration > System > TCP/IP**. The TCP/IP Settings table appears.

2. Edit the network settings in the tables.

3. Click **Save**.

Advanced network

There are six further options under the Advanced Network option:

• review settings

• set up primary

• DHCP primary

• set up secondary

• DHCP secondary

• Exit

Review settings

To review the network settings on the Qube 3:

1. On the LCD console, hold down the ⌑ button for approximately two seconds. The LCD screen displays:

   ```
   SELECT:
   SETUP NETWORK
   ```

2. Press the ⌑ button until **ADVANCED NETWORK** appears in the LCD screen:

   ```
   SELECT:
   ADVANCED NETWORK
   ```

3. Press the ● button. The LCD screen displays:

   ```
   SELECT:
   REVIEW SETTINGS
   ```

4. Press the ● button. The LCD scrolls through the settings for the default gateway, the primary IP address, the primary subnet mask, the secondary IP address and the secondary subnet mask; each setting is displayed for about five seconds. If an interface is disabled, the bottom line of the LCD screen displays Not Configured.

5. The LCD screen then returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

Set up primary

To set up the primary network interface on the Qube 3:

1. On the LCD console, hold down the $(\triangleright)$ button for approximately two seconds. The LCD screen displays:

        SELECT:
        SETUP NETWORK

2. Press the $(\triangleright)$ button until **ADVANCED NETWORK** appears in the LCD screen:

        SELECT:
        ADVANCED NETWORK

3. Press the $(\bullet)$ button. The LCD screen displays:

        SELECT:
        REVIEW SETTINGS

4. Press the $(\triangleright)$ button until **SETUP PRIMARY** appears in the LCD screen:

        SELECT:
        SETUP PRIMARY

5. Press the $(\bullet)$ button.

6. Enter the IP address of the primary network interface 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.

7. Press the $(\bullet)$ button.

8. Enter the Netmask of the primary network interface using the arrow buttons.

9. Press the $(\bullet)$ button.

10. Enter the Gateway using the arrow buttons.

11. Press the $(\bullet)$ button.

12. Use the arrow buttons to toggle the cursor between [S]ave or [C]ancel.

13. Press the $(\bullet)$ button.

If you select Save, the Qube 3 saves the new information. The LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

If you select Cancel, the LCD screen just returns to the normal display.

DHCP primary

To configure the primary network interface on the Qube 3 using a DHCP server:

1. On the LCD console, hold down the $(\triangleright\!\!|)$ button for approximately two seconds. The LCD screen displays:

        SELECT:
        SETUP NETWORK

2. Press the $(\triangleright\!\!|)$ button until **ADVANCED NETWORK** appears in the LCD screen:

        SELECT:
        ADVANCED NETWORK

3. Press the $(\bullet)$ button. The LCD screen displays:

        SELECT:
        REVIEW SETTINGS

4. Press the $(\triangleright\!\!|)$ button until **DHCP PRIMARY** appears in the LCD screen:

        SELECT:
        DHCP PRIMARY

5. Press the $(\bullet)$ button. The Qube 3 looks for a DHCP server on the network. If it finds a DHCP server, the Qube 3 resets its primary network interface with information received from the DHCP server. The Qube 3 also resets its default gateway, host name and domain name, if it receives this information. If the Qube 3 obtains IP addresses for DNS servers, those IP addresses are appended to the list of DNS servers.

    The LCD screen displays the fully qualified domain name on the top line and the IP address on the bottom line.

Set up secondary

To configure the secondary network interface on the Qube 3:

1. On the LCD console, hold down the $(\triangleright\!\!|)$ button for approximately two seconds. The LCD screen displays:

        SELECT:
        SETUP NETWORK

2. Press the $(\triangleright\!\!|)$ button until **ADVANCED NETWORK** appears in the LCD screen:

        SELECT:
        ADVANCED NETWORK

3. Press the $(\bullet)$ button. The LCD screen displays:

        SELECT:
        REVIEW SETTINGS

4. Press the $(\triangleright\!\!|)$ button until **SETUP SECONDARY** appears in the LCD screen:

        SELECT:
        SETUP SECONDARY

5. Press the $(\bullet)$ button.

6. Enter the IP address of the secondary network interface 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.

7. Press the $(\bullet)$ button.

8. Enter the Netmask of the secondary network interface using the arrow buttons.

9. Press the $(\bullet)$ button.

10. Enter the Gateway using the arrow buttons.

11. Press the $(\bullet)$ button.

12. Use the arrow buttons to toggle the cursor between [S]ave or [C]ancel.

13. Press the $(\bullet)$ button.

If you select Save, the Qube 3 saves the new information. The LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

If you select Cancel, the LCD screen just returns to the normal display.

DHCP secondary

To configure the secondary network interface on the Qube 3 using a DHCP server:

1. On the LCD console, hold down the $\left(\!\!\left.\right|\!\!\triangleright\!\!\right)$ button for approximately two seconds. The LCD screen displays:

    ```
    SELECT:
    SETUP NETWORK
    ```

2. Press the $\left(\!\!\left.\right|\!\!\triangleright\!\!\right)$ button until **ADVANCED NETWORK** appears in the LCD screen:

    ```
    SELECT:
    ADVANCED NETWORK
    ```

3. Press the $\left(\bullet\right)$ button. The LCD screen displays:

    ```
    SELECT:
    REVIEW SETTINGS
    ```

4. Press the $\left(\!\!\left.\right|\!\!\triangleright\!\!\right)$ button until **DHCP SECONDARY** appears in the LCD screen:

    ```
    SELECT:
    DHCP SECONDARY
    ```

5. Press the $\left(\bullet\right)$ button. The Qube 3 looks for a DHCP server on the network. If it finds a DHCP server, the Qube 3 resets its secondary network interface with information received from the DHCP server. The Qube 3 also resets its default gateway if it receives this information. If the Qube 3 obtains IP addresses for DNS servers, those IP addresses are appended to the list of DNS servers.

    The LCD screen displays the fully qualified domain name on the top line and the IP address on the bottom line.

Exit

To exit the Advanced Network option, choose EXIT. The LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

Reboot

To reboot the Qube 3 through the LCD console:

1. On the LCD console, hold down the $\left(\triangleright\!\!\triangleleft\right)$ button for approximately two seconds. The LCD screen displays:

    ```
    SELECT:
    SETUP NETWORK
    ```

2. Press the $\left(\triangleright\!\!\triangleleft\right)$ button until **REBOOT** appears in the LCD screen:

    ```
    SELECT:
    REBOOT
    ```

3. Press the $\left(\bullet\right)$ button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to reboot the system.

5. Press the $\left(\bullet\right)$ button.

You can also reboot the Qube 3 through the Web browser:

1. On the Server Desktop, select **Administration > System > Power**.

    A screen appears with a **Reboot Now** button.

2. Click **Reboot Now**.

    A warning dialog appears, asking whether you want to reboot the server appliance.

3. Click **OK**.

    The screen states that the server appliance is now rebooting and that it should be available again in a few minutes.

Power down

<table>
<tr>
<td>

⚠️
</td>
<td>

Caution: To prevent the potential loss of data, it is important to follow the proper power-down procedure before turning off the Qube 3.
</td>
</tr>
</table>

To power down the Qube 3:

1. On the LCD console, hold down the ⬗ button for approximately two seconds. The LCD screen displays:

    ```
    SELECT:
    SETUP NETWORK
    ```

2. Press the ⬗ button until **POWER DOWN** appears in the LCD screen:

    ```
    SELECT:
    POWER DOWN
    ```

3. Press the ● button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to power down the system. The LCD screen displays:

    ```
    PLEASE SWITCH
    POWER OFF NOW
    ```

5. Press the **On/Off** button on the back panel to turn off the Qube 3.

<table>
<tr>
<td>

✍️
</td>
<td>

Note: If you have the Qube 3 Professional Edition (with RAID), wait a few seconds before pressing the **On/Off** button.
</td>
</tr>
</table>

Reset network

This function is useful if you are moving the Qube 3 to a new network.

The Reset Network function resets the IP address and netmask for the primary and secondary network interfaces to that of a new, unconfigured Qube 3. It also resets the gateway, host name, domain name and DNS information to that of a new, unconfigured Qube 3.

Resetting the network also disables the IP firewall filtering rules, if you had enabled that option.

To reset the network state of the Qube 3:

1. On the LCD console, hold down the $(\triangleright\!\!\triangleleft)$ button for approximately two seconds. The LCD screen displays:

    ```
    SELECT:
    SETUP NETWORK
    ```

2. Press the $(\triangleright\!\!\triangleleft)$ button until **RESET NETWORK** appears in the LCD screen:

    ```
    SELECT:
    RESET NETWORK
    ```

3. Press the $(\bullet)$ button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to reset the network configuration.

5. Press the $(\bullet)$ button.

6. After resetting, the Qube 3 powers down and the LCD screen displays:

    ```
    PLEASE SWITCH
    POWER OFF NOW
    ```

7. Press the **On/Off** button the back panel to turn off the Qube 3.

> *Note:* If you have the Qube 3 Professional Edition (with RAID), wait a few seconds before pressing the **On/Off** button.

To re-enable the filtering rules through the Server Desktop:

1. On the Server Desktop, select **Administration > Network Services > Basic Firewall**.

    The Firewall Settings table appears.

2. Click the check box Enable Firewall.

3. Click **Save**.

Reset filters and static routes

The Reset Filters function turns off the IP firewall filtering rules and provides the option to reset static routes, meaning that the static routes are deleted.

To reset the filtering rules:

1. On the LCD console, hold down the $(\triangleright)$ button for approximately two seconds. The LCD screen displays:

    ```
    SELECT:
    SETUP NETWORK
    ```

2. Press the $(\triangleright)$ button until **RESET FILTERS** appears in the LCD screen:

    ```
    SELECT:
    RESET FILTERS
    ```

3. Press the $(\bullet)$ button.

4. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to disable the IP filters.

5. Press the $(\bullet)$ button.

6. If you select Yes, the LCD screen displays:

    ```
    RESETTING
    FILTERS
    ```

7. Regardless of a Yes or No selection in Step 6, the LCD screen now displays:

    ```
    RESET ROUTES?
    [Y]ES / [N]O
    ```

8. Use the arrow buttons to toggle the cursor between [Y] and [N]. Select [Y] to reset the static routes.

9. If you select Yes, The LCD screen displays:

    ```
    RESETTING
    ROUTES
    ```

The LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

To re-enable the filtering rules through the Server Desktop:

1. On the Server Desktop, select **Administration > Network Services > Basic Firewall**.

   The Firewall Settings table appears.

2. Click the check box to Enable Firewall.

3. Click **Save**.

To re-enter the static routes through the Server Desktop, see "TCP/IP" on page 162.

Language

You can change the language through the LCD console. The selected language applies to the Server Desktop UI, the messages and commands on the LCD screen and the alert messages that Active Monitor sends to the Qube 3 Administrator.

To change the language selection:

1. On the LCD console, hold down the (▷) button for approximately two seconds. The LCD screen displays:

       SELECT:
       SETUP NETWORK

2. Press the (▷) button until **LANGUAGE** appears in the LCD screen:

       SELECT:
       LANGUAGE

3. Press the (●) button.

4. Press the (▷) button to scroll through the language choices. The choices are displayed in their native language (for example, English or Español).

5. When your language choice is displayed, press the (●) button. The software processes the new language choice. After a few seconds the LCD screen returns to the normal display with the fully qualified domain name on the top line and the IP address on the bottom line.

If you proceed through the LCD commands again, they are displayed in the new language.

Product Specifications

Hardware

The Qube 3 has the following hardware components. See http://www.cobalt.com for the most up-to-date information on the hardware specifications.

The Qube 3 has the following hardware components.

- x86-compatible superscalar processor

- 512 KB of L2 cache

- 32-MB to 128-MB PC-100 SDRAM DIMMs (2 slots); can support up to 512 MB
  (3.3 v, 168-pin, non-parity, unbuffered)

- PC-100 SDRAM

- One or two internal Ultra ATA/33 hard drives

- Two 10/100 BaseT ethernet network interfaces

- Single serial console interface

- External ultra-wide SCSI interface (mini-micro 68-pin) 40 Mb/s

- LCD console for easy set-up and administration

- Peripheral Component Interconnect (PCI) slot for expansion

- Universal serial bus (USB) port

Software

The Qube 3 has the following software features.

Features

- Linux 2.2 multitasking operating system

- Apache 1.3 Web server, HTTP /1.1 compliant

- Common gateway interface (CGI) support

- PHP 4 support

- Perl scripting

- FrontPage98 and FrontPage 2000 Server Extensions 3.0

- Email protocol support: Simple Mail Transfer Protocol (SMTP), Internet Message Access Protocol (IMAP4), Post Office Protocol (POP3)

- File transfer protocol (FTP) support

- 128-bit Secure Sockets Layer (SSL)

- Telnet access

- Server Message Block (SMB)/CIFS

- AppleShare (and AppleShare over IP)

- Domain Name System (DNS) server: Berkeley Internet Name Domain (BIND)

System management

- Browser-based Setup Wizard

- Browser-based Qube 3 administration

- Online Active Assist real-time help

- Active Monitor maintenance agents

- Advanced management using telnet

- Browser-based software upgrade

Physical data

The Qube 3 has the following physical characteristics.

- Dimensions: 7.5 in. x 7.63 in. x 7.75 in. (19.1 cm x 19.2 cm x 19.7 cm)

- Weight with one hard drive: 8.3 lbs. (3.9 kg)

- Weight with two hard drives: 9.5 lbs. (4.3 kg)

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

- Power consumption: 45 watts

- Power requirement for the PCI slot:

  - 5V @ 1A

  - +12V @ 0.5A

  - -12V @ 0.1A

- Operating environment:

  39^oF to 95^oF (5^oC to 35^oC)

  10% to 80% humidity (non-condensing)

- Non-operating environment:

  14^oF to 122^oF (-10^oC to 50^oC)

  5% to 93% humidity (non-condensing)

- Light-emitting diodes (LEDs): Network Activity, Link

Regulatory approvals

- CISPR 22B

- VCCI-B

- UL

- C-UL

- TUV

- CE

- Austel

- BSMI

Upgrading the Qube 3

Components

Your Qube 3 comes equipped with two Dual Inline Memory Module (DIMM) slots, one of which is used for existing memory, one available PCI slot, and one or two hard disk drives. You can add components to enhance your Qube 3.

The Qube 3 automatically detects a new DIMM, PCI card or hard disk drive.

Before you purchase a component to add to the Qube 3, ensure that the component is of the right type and that it will fit in the allocated space.

- The DIMM modules must be PC100 SDRAM. They must be less than 2.5 inches (63.5 mm) tall and less than 0.4 inches (10.1 mm) thick.

- PCI cards must be less than 5.5 inches (139 mm) long.

- Hard disks must be IDE or ATA and should support UDMA/33. They must be 3.5 inches (88.9 mm) wide, and 1 inch (25.4 mm) tall. This is commonly known as a 3.5 inch, half-height drive.

Memory

The Qube 3 comes equipped with two Dual Inline Memory Module (DIMM) slots, one of which is used for existing memory. The Qube 3 supports a maximum of 512 MB of memory, using two DIMM modules of 256 MB each.

You can have mismatched sizes of memory modules (for example, you can install a 128 MB module and a 64 MB module together). If you have mismatched module sizes, install the larger module in slot 1. See Figure 108.

Hard disk drives

The Qube 3 and Qube 3 Business Edition ship with one hard drive disk; the Qube 3 Professional Edition ships with two hard disk drives and offers RAID-1 disk mirroring.

If you have a Qube 3 Professional Edition and one of the hard drive fails, the failed hard disk drive (Drive A or Drive B) is indicated in the Server Desktop under the Active Monitor function. If you are replacing a failed hard disk drive, remove the guide rails from the old hard disk drive and attach them to the new drive. See Figure 106, #4.

Precautions

> ⚠ *Caution:* The Qube 3, like all electronics, is extremely sensitive to electro-static shocks. Ground yourself by touching a piece of metal, such as the Qube 3 chassis, before handling any electronics.

Keep in mind the following items while upgrading your Qube 3:

• DIMMs, PCI cards and hard disk drives are sensitive electronic devices. Be careful not to damage them or other components during the upgrade.

• Do not force the insertion of an electronic device. If it does not insert properly with moderate effort, check all alignments and insertion directions. Forcing a component can damage both the device and the Qube 3, and can void your warranty.

Figure 106. Exploded view of the Qube 3
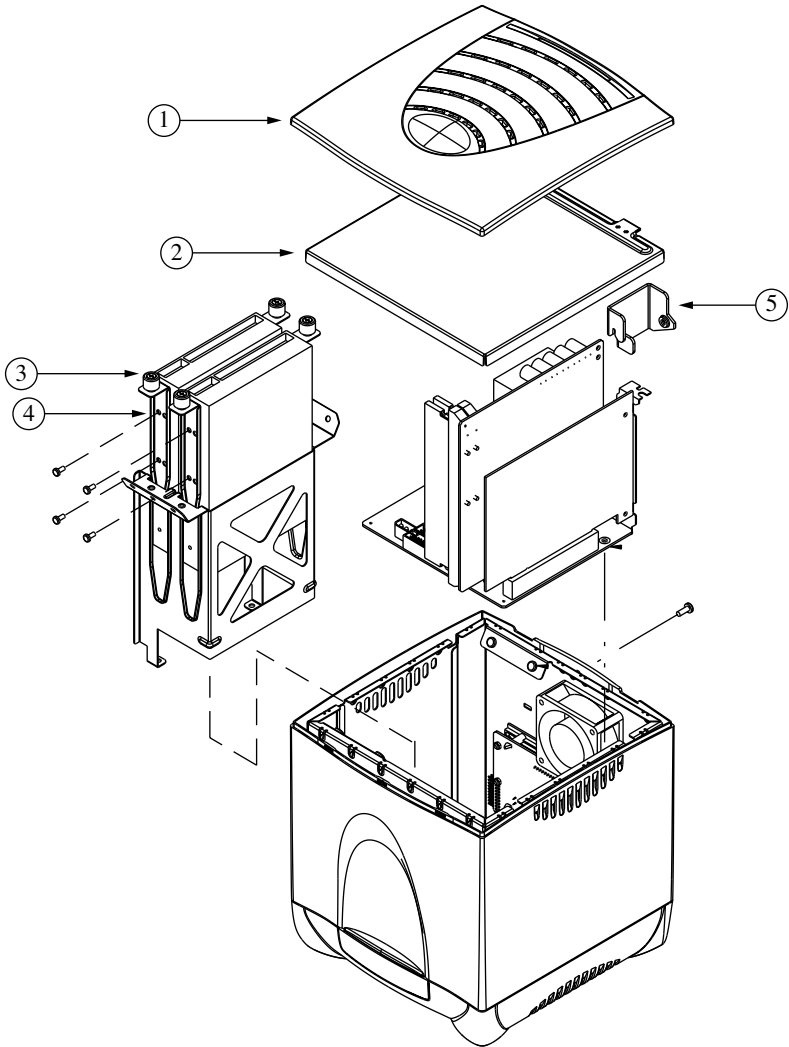
Figure 107. Qube 3 I/O board

PCI card slot   CPU riser board slot   IDE cables Drive A Drive B   Power connector for hard disk drives

(View from top)

USB port   Secondary Network interfaces Primary   Serial port   Power socket
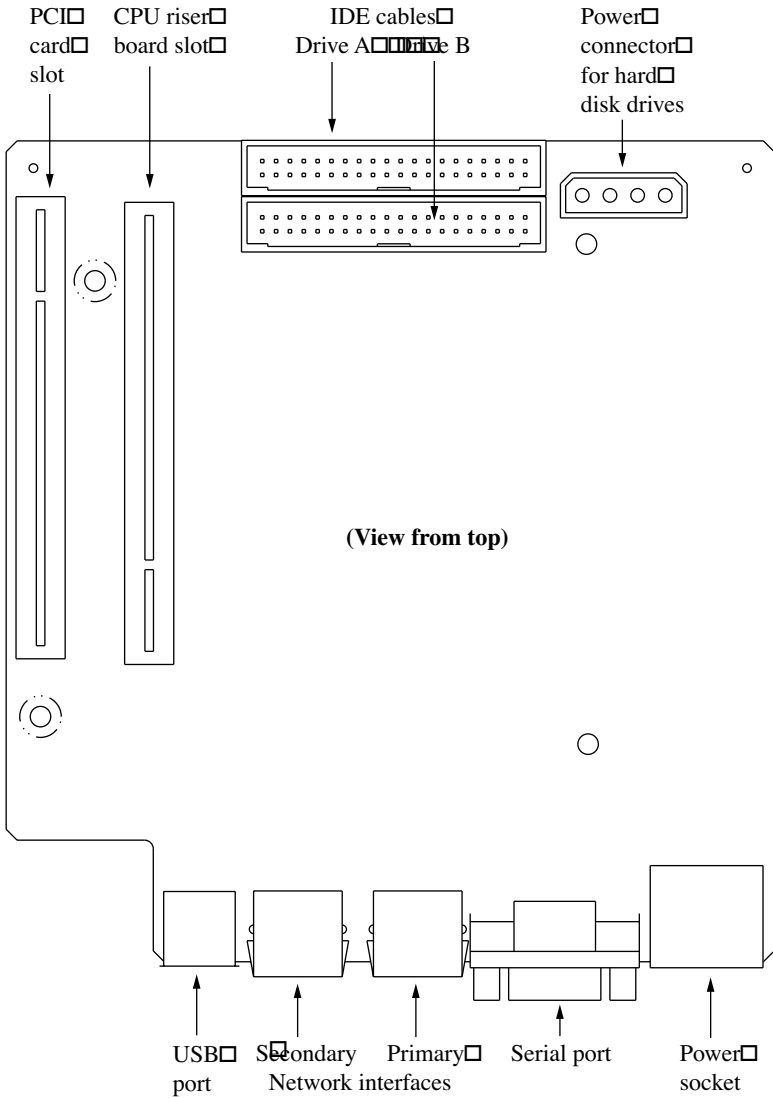
Figure 108. Qube 3 CPU riser board
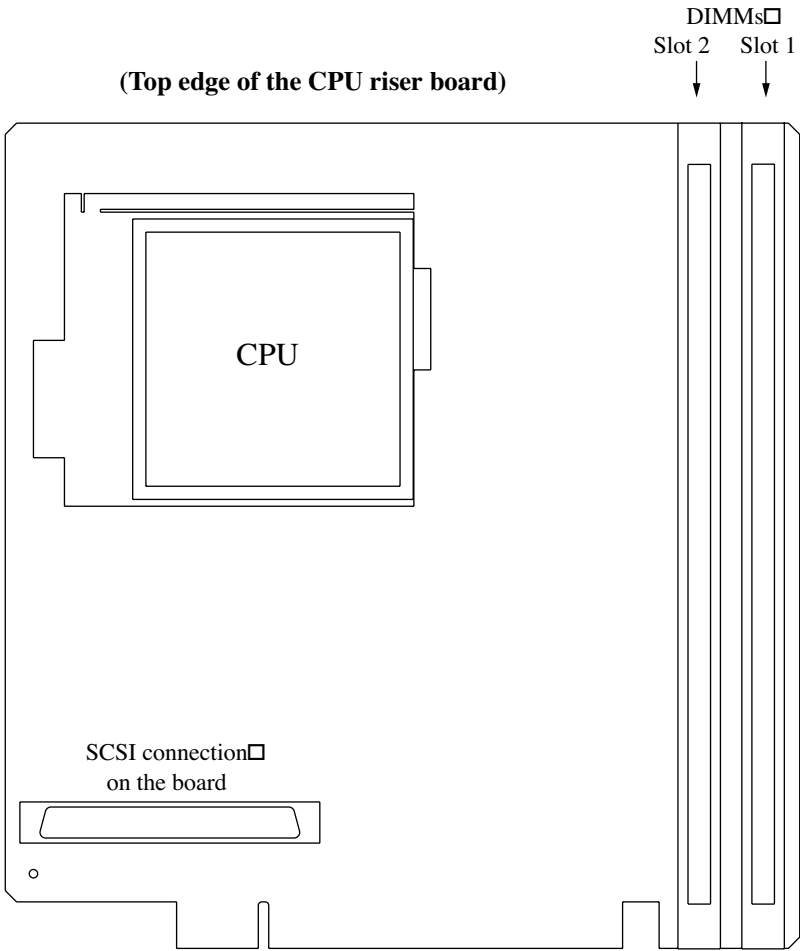
Opening the Qube 3

![Caution triangle]

Caution: You MUST power down the Qube 3 before opening the unit.

To open the Qube 3:

1. Power down the Qube 3. See "Power down" on page 203.

2. Unplug the Qube 3.

3. Remove the power cord from the rear panel of the Qube 3. The power connector is located at the bottom right corner. See Figure 1 on page 2. To remove the cord, simply hold the Qube 3 in place and gently pull the connector out.

4. Remove the single screw at the top of the back panel to release the blue plastic top cover from the system chassis.

5. Carefully remove the blue plastic top cover. See Figure 106, #1.

6. Carefully lift the sheet metal top cover by lifting the tabs at the back of the Qube 3. See Figure 106, #2.

Adding components to the Qube 3

To add memory or a PCI card, you must remove the CPU riser board. If your Qube 3 has an external SCSI connector, you must detach the external SCSI connector itself from the back panel of the Qube 3 and remove it along with the CPU riser board.

Due to the size of the heat sink on the CPU riser board, you must remove the hard disk drive(s) and the drive bay in order to detach the external SCSI connector.

To add a component to your Qube 3:

1. If you are just replacing a failed hard disk drive, go to "Replacing a hard disk drive" below.

    If you are changing the DIMMs or adding a PCI card, continue with the next step.

2. Remove the hard disk drive(s). Detach the power cable(s) and IDE ribbon cable(s) from the drive(s).

3. Unscrew the thumbscrews that hold the drive(s) in place. See Figure 106, #3.

☞ *Important:* If your Qube 3 has two hard disk drives, make careful note of which drive is installed in Slot A and which is installed in Slot B of the drive bay.

4. Slide the drive(s) out of the drive bay.

5. Remove the four screws that attach the drive bay to the system chassis.

6. Carefully lift the drive bay out of the chassis.

7. If your Qube 3 has an external SCSI connector, detach the external SCSI port from the back panel and slide it through the opening.

Removing the CPU riser board

1. Locate the screw on the back panel which holds the bracket for the CPU riser board in place, and remove this screw. See Figure 106, #5.

2. Carefully remove the bracket for the CPU riser board, and then the CPU riser board from its slot in the I/O board. Lift the board out of the system chassis (along with the SCSI connector if necessary).

Adding DIMM

1. Once the CPU riser board is removed, insert the new DIMM module on the board.

✎ *Note:* If the new DIMM module is larger than the existing DIMM module, remove the existing module and install it in slot 2. You must install the larger module in slot 1; see Figure 108.

To insert the DIMM:

*   Push the locking arms on both sides of the DIMM slot to the down (unlocked) position.

*   Align the guide marks on the DIMM with the guides on the DIMM slot. The DIMM fits into the slot one way only. If the marks do not align, try turning the DIMM over.

*   Gently push the DIMM into the slot. The locking arms should close around the DIMM and you should hear a "click".

2. Visually verify that you have properly inserted the DIMM and locked it fully.

Adding a PCI expansion card

1. With the CPU riser board out of the system chassis, remove the screw holding the PCI slot cover in place and remove the PCI slot cover. See Figure 1 on page 2.

2. Install the PCI card into the PCI slot on the I/O board. Match the PCI card alignment marks with the alignment guides on the slot. See Figure 107.

3. Fasten the PCI card in place with the screw that was holding the PCI slot cover. Save the PCI slot cover, in case you want to remove the PCI card later.

Replacing the CPU riser board

1. Carefully slide the CPU riser board back into the system chassis (along with the SCSI port if necessary).

> *Note:* Insert the CPU riser board with the DIMM modules next to the front of the Qube 3; the expansion slot is oriented toward the inside of the unit. Forcing the CPU riser board into the wrong slot will damage the system and void your warranty.

2. If you had detached the external SCSI port from the back panel of the Qube 3, slide it into its slot and re-attach it to the back panel.

3. Carefully slide the drive bay back into the system chassis.

4. Re-attach the drive bay to the chassis with the four screws.

Replacing a hard disk drive

1. If you are simply replacing the drive(s) that you removed in order to remove the CPU riser board, re-install the drive(s) in the drive bay.

    If you are re-installing a single drive, it goes in slot A.

    If you are re-installing two drives, install the correct drive in slot B first, and then the other drive in slot A second.

    ☞ *Important:* If your Qube 3 has two hard disk drives, ensure that you re-install the drives in the same slot from which you removed them.

    If you re-install the drives in the wrong slots, your Qube 3 will not function.

2. If you are replacing a failed hard drive, locate the bay in which the failed drive is installed. The slots in the drive bay are stamped with "A" and "B".

    ✍ *Note:* If you have a Qube 3 Professional Edition with RAID-1 disk mirroring and one of the hard drive fails, the failed hard disk drive is indicated in the Server Desktop under the Active Monitor function.

3. Remove the power and IDE ribbon cables from the failed drive.

4. Remove the thumb screws holding the drive in place and slide the drive out. See Figure 106, #3.

5. Remove the guide rails from the sides of the failed drive and attach them to the replacement drive. Position the rails so that the drive will be inserted properly and can receive the power cable and IDE ribbon cable. See Figure 106, #4.

6. Once the rails are attached to the replacement drive, slide the drive into the selected slot on the drive bay.

7. Tighten the thumb screws to secure the drive in place.

8. Attach the power cable and the IDE ribbon cable to the drive.

    ✍ *Note:* The power cable has a "D" shape and fits in one direction only. The IDE ribbon cable has an alignment notch.

9. Close the Qube 3; see "Closing the Qube 3" on page 220.

Closing the Qube 3

To close the Qube 3, perform the steps for opening the Qube 3 in reverse order.

1. Carefully replace the sheet metal top cover, locating the tabs to the back of the Qube 3. See Figure 106, #2.

2. Carefully replace the blue plastic top cover, snapping all sides into place. See Figure 106, #1.

3. Re-attach the single screw which holds the blue plastic top cover to the system chassis.

4. Insert the power cord into the power supply connector at the bottom right of the rear panel.

5. Plug in the Qube 3.

6. Power up the Qube 3.

Advanced Information

High-speed serial port

For information on using the high-speed serial port, see "Configuration for an analog modem or ISDN" on page 169.

High-speed serial port as a serial console port

You can use the high-speed serial port to establish a terminal connection to the Qube 3.

To use the high-speed serial port as a serial console port, you must change the current state of the console function to on or off. To do this, you must reboot the Qube 3 while holding in the recessed Reset Password button on the back panel of the Qube 3. See Figure 1 on page 2.

To reboot the Qube 3 from the LCD panel, see "Reboot" on page 202.

When you reboot the Qube 3 in this manner, the LCD screen displays either:

    CONSOLE ON

or

    CONSOLE OFF

The first message indicates that the serial port can function as a serial console port. If this message is displayed, allow the bootup process to continue.

The second message indicates that the serial port cannot function as a serial console port. If this message is displayed, allow the bootup process to continue. Repeat this bootup process so that the LCD screen displays the first message.

Terminal settings

The terminal can be either an ASCII terminal or a personal computer running terminal software. Set the communications parameters on the console terminal to the following values:

- 115 200 Baud

- 8 data bits

- no parity

- 1 stop bit

Enabling the serial console port

To use the high-speed serial port as a serial console port:

Note: This procedure can require rebooting the Qube 3 twice. as there is no way to tell if the console function is enabled or disabled through the Server Desktop or LCD screen.

Note: While the Qube 3 is in the CONSOLE ON mode, you cannot use an analog modem or an Integrated Services Digital Network (ISDN) terminal adapter.

1. Hold in the recessed **Reset Password** button on the back panel and reboot the Qube 3. See Figure 1 on page 2.

2. The LCD screen displays either:

   CONSOLE ON

   or

   CONSOLE OFF

3. If the LCD screen displays:

   CONSOLE ON

   allow the bootup process to continue.

   If the LCD screen displays:

   CONSOLE OFF

   allow the bootup process to continue. Return to Step 1 and repeat.

4. Attach a null modem cable to the serial port of the Qube 3 and the terminal (or the personal computer running the terminal software).

5. Set the communications parameters on the terminal or in the terminal software (see "Terminal settings" on page 222).

Directory structure

The disk on the Qube 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.

Default home page for the Qube 3

Once the Qube 3 has been configured, you can access the default home page from the following directory: The document root for the Web server is the Qube 3's main site:

    /home/groups/home/web/

This page appears when a user accesses the URL http://<hostname>/. The default home page file is "index.html.xx", where "xx" represents a particular language. For example, "index.html.de" is the default home page for German and "index.html.fr" is the default home page for French.

If you want to replace the default home page, name your home-page file "index.hmtl", save it in this directory and delete all of the "index.html.xx" files.

Users can continue to access the Cobalt Qube 3 Server Desktop by accessing the URL http://<hostname>/login/.

Web content in the directory

    /home/groups/home/web/

is associated with the URL http://<IP address>/.

For example, a file saved as:

    /home/groups/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 the fully qualified domain name of the Qube 3.

User home page

When Qube 3 Administrator creates a user through the Server Desktop, the home directory for that user is created in:

    /home/users/username/

User must upload files for their Web pages to:

    /home/users/username/web/

Users can view their Web pages at:

http://<IP address>/users/<username>/ or http://<IP address>/~ <username>/

CGI scripts

The Qube 3 supports common gateway interface (CGI) scripts, such as those written in Perl or C, as well as Unix shell scripts.

CGI scripts allow 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 Qube 3 through an FTP-based application that allows permission bits to be set to "Executable".

CGI scripts must use .pl or .cgi filename extensions in order to beexecuted by the Web server.

Use FTP to upload .cgi and .pl files; use ASCII mode to upload CGI files. Once the file is on the Qube 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/

To set the access rights specifying who is allowed to run CGI scripts, see "Web settings" on page 141.

PHP

The Qube 3 is pre-configured with support for embedded PHP scripts. You can save PHP files in any directory on your site, provided that the file ends with a .php extension.

Domain Name System

The Internet uses a distributed naming system called the Domain Name 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, 192.168.10.10) and vice-versa.

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.

There are two tabs in the DNS Settings table. The active tab is a light shade of gray; the inactive tab is a dark shade of gray.

- **Basic**. You can enable the DNS server feature.

- **Advanced**. You can configure the Start of Authority (SOA) default values and the server settings.

There are also two buttons on the DNS screen, available in both the Basic and Advanced sections. These are explained later in this appendix.

• **Edit Primary Services**. You can configure the primary DNS server.

• **Edit Secondary Services**. You can configure the secondary DNS server.

Basic DNS

Enabling the DNS server feature

To enable the DNS server on the Qube 3:

1. On the Server Desktop, select **Administration > Network Services > DNS**. The Basic Settings section of the Domain Name System (DNS) Settings table appears; see Figure 109.

2. Click to enable the check box for Enable server (if it is not already enabled).

3. Click **Save**.

Figure 109. Basic DNS table

Advanced DNS

☞ *Important:* Always click **Save** after modifying the settings in the Advanced section. If you do not, the changes will not take effect.

Configuring SOA default values

You can fine tune the primary domain and network authority settings—known as the Start of Authority (SOA) settings—independently of each other.

To modify the SOA settings, see "Modifying the SOA record" on page 234.

To configure the default values for the SOA settings:

1. On the Server Desktop, select **Administration > Network Services > DNS**. The Advanced Settings section of DNS Settings table appears; see Figure 110.

2. Click **Advanced** on the right side of the table. The fields for the SOA default values and server settings appear. You can configure the values for the following parameters. The parameters are explained in the following paragraphs.

    •   Domain administrator email address (optional)

    •   Refresh interval (in seconds)

    •   Retry interval (in seconds)

    •   Expire interval (in seconds)

    •   Time-to-live (TTL) interval (in seconds)

3. Click **Save**.

Figure 110. Advanced DNS table
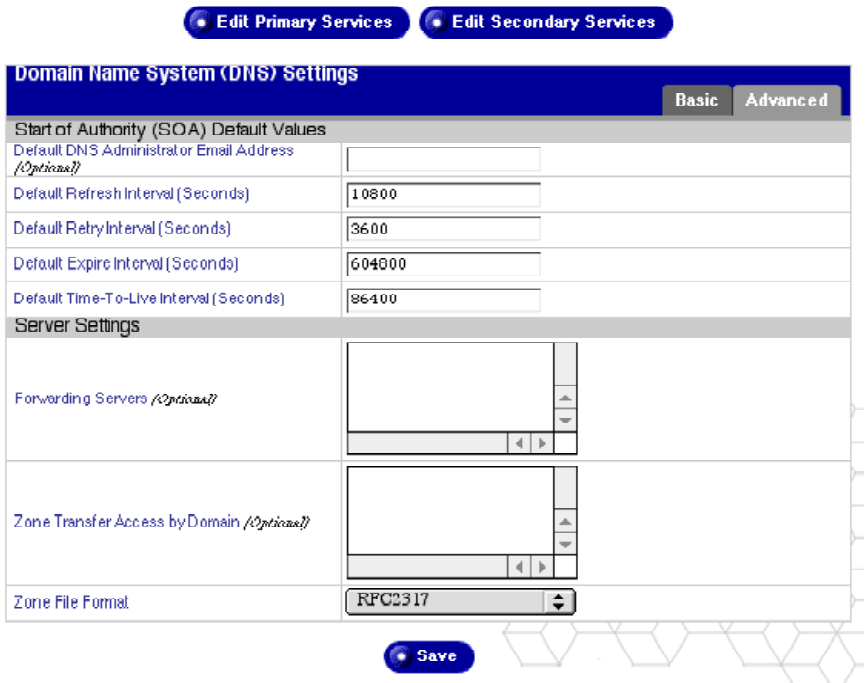
Domain administrator email address

The email address defaults to the user name "admin" of the Qube 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.

Configuring the server settings

You can also configure the server settings and the zone transfer access control for the Qube 3 DNS server.

Forwarding server

If the Qube 3 is being used on a private network or in conjunction with a restrictive firewall, you can specify a forwarding DNS server(s) by IP address.

Zone transfer

A zone transfer allows another DNS server to download the complete list of hosts maintained by your DNS server. Zone transfers are used by secondary domain name servers to synchronize their records with primary domain name servers.

By default, zone transfers are unrestricted. However, you can restrict zone transfers if you want. By entering a domain name in the Zone Transfer Access window, you automatically restrict zone transfers. Only the domain names listed in this window are now able to perform zone transfers.

Zone file format

You can select a zone file format for delegating subnets on non-octet boundaries which is compatible with your local reverse-delegation method. RFC2317 is the international standard format. Consult your ISP to determine the type of subnet DNS delegation they are using.

To configure the DNS server settings:

1. On the Server Desktop, select **Administration > Network Services > DNS**. The Domain Name System (DNS) Settings table appears.

2. Click **Advanced** on the right side of the table. The fields for the SOA default values and server settings appear. You can specify the forwarding DNS servers, the Zone Transfer Access by Domain and the Zone File Format.

3. In the Forwarding Server window, enter the IP address(es) of the forwarding DNS server(s).

4. In the Zone Transfer Access by Domain window, enter the host names or domain names that are allowed to download all records maintained by this domain name server.

5. Select a zone file format. RFC2317 is the international standard format.

6. Click **Save**.

Primary services

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.

Figure 111 shows some sample entries in the Primary Service List table.

Figure 111. Sample entries in the Primary Service List table
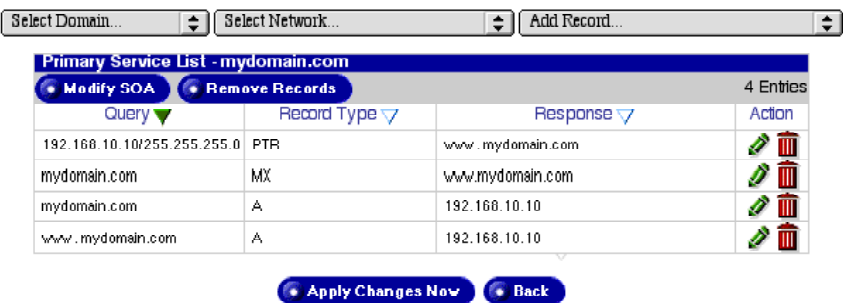
To set up the primary DNS server on the Qube 3, you need to configure the following DNS records.

- Forward Address (A) record

- Reverse Address (PTR) record

- Mail Server (MX) server

If there are no records defined, there are no authority selection options available.

If there are records defined, two pull-down menus are available at the top of the screen: "Select Domain..." and "Select Network..." There are also two buttons available at the top of the Primary Service List table: Modify SOA and Remove Records.

Selecting a domain

To display the DNS records for a particular domain, click on the Select Domain... pull-down menu and select the domain.

The screen refreshes and the Primary Service List table displays the DNS records for that domain. The domain name shows up in the title bar.

Selecting a network

To display the DNS records for a particular network, click on the Select Network... pull-down menu and select the network.

The screen refreshes and the Primary Service List table displays the DNS records for that network. The network shows up in the title bar.

Modifying the SOA record

You can modify the SOA record for a particular domain or network. For an explanation of the fields you can modify, see "Configuring SOA default values" on page 229.

1. From the pull-down menu, select the domain or network for which you want to modify the SOA record. The defined records for that domain or network appear in the Primary Service List table.

2. Click **Modify SOA** at the top of the Primary Service List table. The Modify SOA Record table appears. The first field displays either the domain name or the network authority that you selected.

    *   Primary Name Server

        Enter the fully qualified domain name of the primary name server for the selected domain or network authority.

    *   Secondary Name Server

        Enter the fully qualified domain name(s) of the secondary name server(s) for the selected domain or network authority. If you want to specify more than one secondary name server, separate the names with a space.

    *   DNS Administrator email address

    *   Refresh interval

    *   Retry interval

    *   Expire interval

    *   Time-to-live interval

3. Click **Save**. The screen refreshes and the Primary Service List table appears.

Deleting all DNS records

You can delete all the DNS records for a particular network or domain name from the Primary Service List table.

1. From the pull-down menu, select the domain or network for which you want to modify the SOA record. The defined records for that domain or network appear in the Primary Service List table.

2. Click **Remove Records** at the top of the Primary Service List table. A confirmation dialog appears, asking you if you want to remove all of the DNS records displayed in the table.

3. Click **OK**. The screen refreshes and the Primary Service List table is now empty.

Modifying a specific DNS record

To modify an individual entry in the Primary Service List table, click on the green pencil icon next to that entry. The Modify Record table appears.

Click **Save**. The screen refreshes.

Deleting a specific DNS record

To delete an individual entry from the Primary Service List table, click on the red trash can icon next to that entry. A confirmation window appears, asking if you want to delete the record.

Click **OK**. The screen refreshes and the Primary Service List table no longer display that record.

Configuring a Forward Address (A) record

A Forward Address (A) record translates a fully qualified domain name into an IP address.

To configure a Forward Address (A) record for your Qube 3:

1. Select **Administration > Network Services > DNS**.

    The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Forward Address (A) Record from the **Add Record...** pull-down menu. The Add New Forward Address (A) Record table appears.

4. Enter the host name (optional) and domain name you want to serve (for example, www and mydomain.com).

5. Enter the IP address (for example, 192.168.10.10) that is used by the host and domain names entered in the first two fields.

6. Click **Save**. The Primary Service List table reappears with the new entry.

7. To add another record, select a record type from the pull-down menu again.

    To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Configuring a Reverse Address (PTR) record

A Reverse Address (PTR) record translates an IP address into a fully qualified domain name.

To configure a Reverse Address (PTR) record for your Qube 3:

1. Select **Administration > Network Services > DNS**.

    The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Reverse Address (PTR) Record from the **Add Record...** pull-down menu. The Add New Reverse Address (PTR) Record table appears.

4. Enter the IP address (for example, 192.168.10.10) that you want to resolve to a fully qualified domain name.

5. The Subnet Mask field holds the default value of 255.255.255.0. You can edit this value if necessary.

6. Enter the host name (optional) and domain name (for example, www and mydomain.com) to which the IP address in the first field resolves.

7. If you have not already created a Forward Address (A) record to resolve this host name and domain name to the specified IP address, you can automatically generate one.

    To do so, click the check box Generate Forward Address (A) Record.

8. Click **Save**. The Primary Service List table reappears with the new Reverse Address (PTR) entry. If you generated a Forward Address (A) record, that entry appears as well.

9. To add another record, select a record type from the pull-down menu again.

    To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Configuring a Mail Server (MX) record

To receive mail for your domain name (for example, mydomain.com), you need to create a Mail Server (MX) Record.

A Mail Server (MX) record identifies the mail server responsible for delivering email messages to a specified host name (optional) and domain name. An MX record is similar to an A record but resolves to a fully qualified domain name rather than an IP address.

> ☞ **Important:** It is critical that the MX record resolve to a fully qualified domain name that has a corresponding A record.

To configure a Mail Server (MX) record for your Qube 3:

1. Select **Administration > Network Services > DNS**.

    The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Mail Server (MX) Record from the **Add Record...** pull-down menu. The Add New Mail Server (MX) Record table appears.

4. Enter the host name (optional) and domain name (for example, www and mydomain.com) to be served by the mail server.

5. Enter the fully qualified domain name of the mail server (for example, mail.mydomain.com) that serves the domain name entered in the second field.

6. Under the Delivery Priority pull-down menu, select the priority for mail delivery to the mail server: very high, high, low, very low.

    The value of the delivery priority specifies the order in which a series of mail servers is contacted for mail delivery. The Delivery Priority setting is useful only if more than one MX record is configured for a domain or network.

7. Click **Save**. The Primary Service List table reappears with the new entry.

8. To add another record, select a record type from the pull-down menu again.

    To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Configuring an Alias (CNAME) record

An Alias (CNAME) record provides the translation from one fully qualified domain name to another fully qualified domain name.

The source domain name is known as the alias and the target domain name is known as the canonical name or real name. The target host name does not need to be a member of the local domain. For example, you can create an Alias (CNAME) record of "news.domain.com" resolving to "uucp.isp.net".

☞   *Important:* 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 Forward Address (A) record for mydomain.com to the IP address used by www.mydomain.com.

See "Configuring a Forward Address (A) record" on page 236.

To configure an Alias (CNAME) record for your Qube 3:

1. Select **Administration > Network Services > DNS**.

   The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Alias (CNAME) Record from the **Add Record...** pull-down menu. The Add New Alias (CNAME) Record table appears.

4. Enter the host name (optional) and domain name (for example, news and mydomain.com) of the alias.

5. Enter the host name (optional) and domain name (for example, news and otherplace.com) of the real domain name.

6. Click **Save**. The Primary Service List table reappears with the new entry.

7. To add another record, select a record type from the pull-down menu again.

   To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Secondary services

The Qube 3 Administrator can configure a secondary DNS server to provide redundant DNS service to your computers. If the primary DNS server is unavailable, the secondary DNS server takes over.

Figure 112 shows some sample entries in the Secondary Service List table.

Figure 112.   Sample entries in the Secondary Service List table
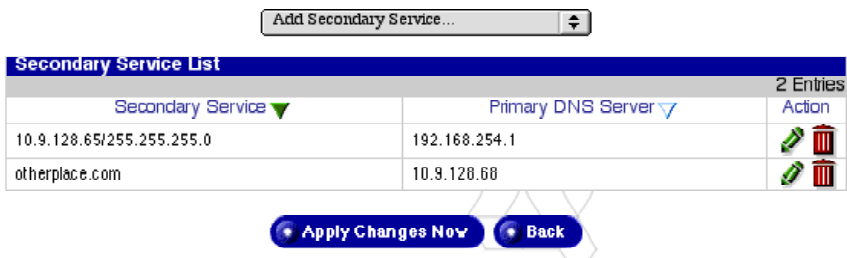
Secondary service for a domain

To add a secondary name-server authority for a domain:

1. Select **Administration > Network Services > DNS**. The DNS Settings table appears.

2. Click **Edit Secondary Services** above the table. The Secondary Service List table appears.

3. Select Domain Secondary Service from the **Add Secondary Service...** pull-down menu. The Add Secondary Service table appears; see Figure 113.

4. In the first field, enter the domain name for which DNS information is served by the IP address in the second field.

5. In the second field, enter the IP address of the primary DNS server for the domain name specified in the first field.

6. Click **Save**. The Secondary Service List table reappears with the new entry.

7. To add another secondary service, select a service from the pull-down menu again.

    To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Figure 113. Add Secondary Domain table

Add Secondary Service	
Domain Name	otherplace.com
Primary DNS Server IP Address	10.9.128.68

Save   **Cancel**

Secondary service for a network

To add a secondary name-server authority for a network:

1. Select **Administration > Network Services > DNS**.

    The DNS Settings table appears.

2. Click **Edit Secondary Services** above the table. The Secondary Service List table appears.

3. Select Network Secondary Service from the **Add Secondary Service...** pull-down menu. The Add Secondary Service table appears; see Figure 114.

4. In the first field, enter the IP address of a member on the network (for example, 192.168.1.1) whose DNS information is served by the IP address in the third field.

5. In the second field, enter the subnet mask corresponding to the IP address for the specified network authority.

6. In the third field, enter the IP address of the primary DNS server for the specified network.

7. Click **Save**. The Secondary Service List table reappears with the new entry.

8. To add another secondary service, select a service from the pull-down menu again.

    To apply the changes to the DNS settings, click **Apply Changes Now**. The DNS Settings table appears.

Figure 114. Add Secondary Network table

Add Secondary Service	
Network	10.9.128.65
Network Subnet Mask	255.255.255.0
Primary DNS Server IP Address	192.168.254.1

Save   **Cancel**

Sample setup of DNS service

This sample setup of DNS service on your Qube 3 assumes that you have already registered your domain with InterNIC or another 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.

For more information on registering a Web site, visit the Internet Corporation for Assigned Names and Numbers (ICANN) at http://www.icann.org.

In the following examples, we will configure a sample domain called "mydomain.com" for Web service and email service using a sample IP address 192.168.10.10.

> ☞ *Important:* Substitute your domain name and IP address where the sample domain name or sample IP address appears.

The recommended minimum configuration for Web and email service requires the following records. These records allow anyone on the Internet to type either "mydomain.com" or "www.mydomain.com" to access your Web site.

- A Reverse Address (PTR) record for 192.168.10.10 which resolves to mydomain.com

- A Forward Address (A) record for mydomain.com which resolves to 192.168.10.10 (You can generate this record automatically from the PTR record.)

- A Forward Address (A) record for www.mydomain.com which resolves to 192.168.10.10

- A Mail Server (MX) record for mydomain.com which resolves to www.mydomain.com

Reverse Address (PTR) record

First, create a Reverse Address (PTR) record.

1. Select **Administration > Network Services > DNS**. The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Reverse Address (PTR) Record from the **Add Record...** pull-down menu. The Add New Reverse Address (PTR) Record table appears; see Figure 115.

    - In the IP Address field, enter 192.168.10.10.

    - Leave the subnet mask as 255.255.255.0.

    - In the Host Name field, enter www.

    - In the Domain Name field, enter mydomain.com.

4. Click the check box Generate Forward Address (A) Record to generate a Forward Address (A) record.

5. Click **Save**. The Primary Service List table reappears with the new Reverse Address (PTR) and Forward Address (A) entries.

Figure 115. Add New Reverse Address (PTR) Record table

Forward Address (A) record

Next, create a Forward Address (A) record.

1. Select **Administration > Network Services > DNS**. The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Forward Address (A) Record from the **Add Record...** pull-down menu. The Add New Forward Address (A) Record table appears; see Figure 116.

    •   Leave the Host Name field blank.

    •   In the Domain Name field, enter mydomain.com.

    •   In the IP Address field, enter 192.168.10.10.

4. Click **Save**. The Primary Service List table reappears with the new Forward Address (A) entry.

Figure 116.   Add New Forward Address (A) Record table

Mail Server (MX) record

Finally, create a Mail Server (MX) record.

1. Select **Administration > Network Services > DNS**. The DNS Settings table appears.

2. Click **Edit Primary Services** above the table. The Primary Service List table appears.

3. Select Mail Server (MX) Record from the **Add Record...** pull-down menu. The Add New Mail Server (MX) Record table appears; see Figure 117.

    • Leave the Host Name field blank.

    • In the Domain Name field, enter mydomain.com.

    • In the Mail Server Name field, enter www.mydomain.com.

    • Under the Delivery Priority pull-down menu, leave the priority as Very High.

4. Click **Save**. The Primary Service List table reappears with the new Mail Server (MX) entry.

Figure 117. Add New Mail Server (MX) Record table

You are now finished with creating your DNS records.

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,

☞ *Important:* Click **Apply Changes Now**. This activates the changes you have made. If you exit this screen without saving your changes, they will not become active.

To add a new domain, use the **Add Record...** pull-down menu again. In the **Domain Name** field of the type of record you select, 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 (not affiliated with Cobalt Networks)

- http://www-europe.cisco.com/warp/public/787/indexDNS.html (not affiliated with Cobalt Networks)

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 63.77.128.100. Domain names must be registered with Root Domain Registration Service; visit the Internet Corporation for Assigned Names and Numbers (ICANN) at http://www.icann.org for a list accredited domain-name registrars.

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 118. 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 several 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 118. Basic method of DNS
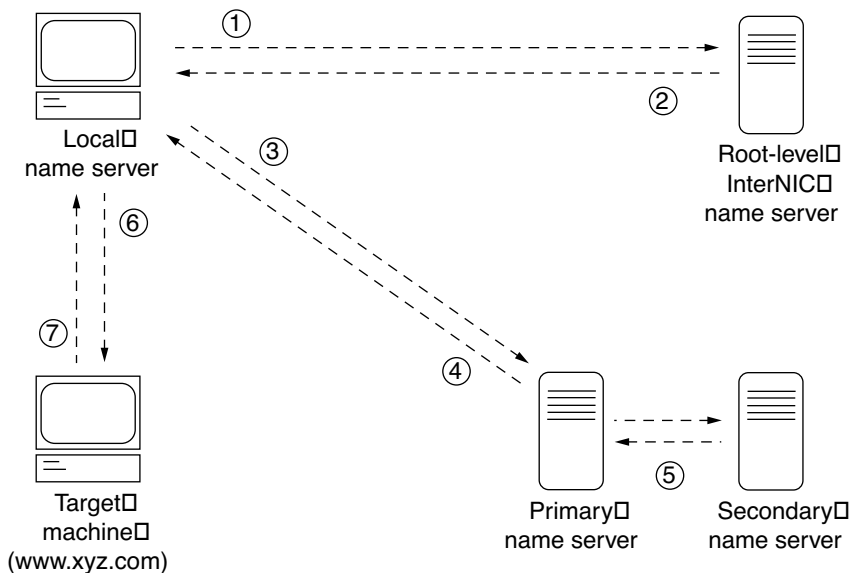
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Glossary

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.

Authentication

The process whereby a user or information source proves they are who they claim to be; in other words, the process of verifying the identity of a user, device or other entity in a computer system, often as a prerequisite to allowing access to resources in a system. Authentication is any technique enabling the receiver to automatically identify and reject messages that have been altered either deliberately or by channel errors.

See also *Encryption* and *Secure Sockets Layer (SSL)*.

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.

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.

Collision

In an ethernet network, a collision is the result of two devices attempting to transmit data at exactly the same time. The network detects the "collision" of the two transmitted packets and discards them both. Collisions are a natural occurrence on an ethernet network.

Ethernet technology uses carrier sense multiple access/collision detect (CSMA/CD) to allow devices to take turns using the signal carrier line. When a device wants to transmit, it checks the signal level of the line to determine whether another device is already using it. If the line is already in use, the device waits and tries again, perhaps in a few seconds. If the line is not in use, the device transmits.

However, two devices can transmit at the same time in which case a collision occurs and both devices detect it. Each device then waits a random amount of time and retries until successful in getting the transmission sent.

CSMA/CD

See *carrier sense multiple access with collision detection (CSMA/CD)*.

DHCP

See *Dynamic Host Configuration Protocol (DHCP)*.

Digital Subscriber Line (DSL)

A technology for bringing high-bandwidth information to homes and small businesses over ordinary copper telephone lines. The term xDSL refers to different variations of DSL, such as asymmetric DSL (ADSL), high-bit-rate DSL (HDSL) and rate-adaptive DSL (RADSL). If your home or small business is close enough to a telephone company central office that offers DSL service, you may be able to receive data at rates of up to 6.1 Mb/s. More typically, individual connections provide from 512 Kb/s to 1.544 Mb/s downstream and about 128 Kb./s upstream. A DSL line can carry both data and voice signals and the data part of the line is continuously connected.

DNS

See *Domain Name System (DNS)*.

Domain name

The location of an organization or other entity on the Internet. For example, the address www.cobalt.com locates an Internet address for the domain name "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.

DSL

See *Digital Subscriber Line (DSL)*.

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.

Encryption

The transformation of data into a form unreadable by anyone without a secret decryption key. Its purpose is to ensure privacy by keeping the information hidden from anyone for whom it is not intended. In the area of security, encryption is the ciphering of data by applying an algorithm to plain text to convert it into cipher text.

See also *Authentication* and *Secure Sockets Layer (SSL)*.

ESMTP

See *Extended Simple Mail Transfer Protocol (ESMTP)*.

Ethernet

The most widely used technology for local area networks (LANs). Standard ethernet runs at 10 Mb/s, 100 Mb/s or 1000 Mb/s. It balances speed, price, ease of installation and availability.

ETRN

ETRN (Extended Turn) is an extension to the Simple Mail Transfer Protocol (SMTP) that allows an SMTP server to send a request to another SMTP server to send any email messages it has. Typically, SMTP is used with two other protocols, Post Office Protocol 3 (POP3) or Internet Message Access Protocol (IMAP), to request messages from a server; SMTP by itself cannot request mail to be sent.

ETRN is designed for use by anyone who is traveling and wants to access their email. ETRN can only be used with Internet service providers (ISPs) that support ETRN.

Extended Simple Mail Transfer Protocol (ESMTP)

The Extended Simple Mail Transfer Protocol specifies extensions to the original SMTP protocol for sending email that supports graphics, audio and video files, and text in various national languages. ESMTP provides the capability for a client email program to inquire of a server email program about which capabilities it supports and then communicate accordingly.

File sharing

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

File Transfer Protocol (FTP)

A standard Internet protocol and a way to exchange files between computers connected to the Internet. FTP is an application protocol that uses TCP/IP protocols. FTP is commonly used to transfer Web page files from the computer that was used to create the files to the computer that acts as the server for these files. It is also used to download programs and other files to your computer from other servers.

Using FTP, you can update—delete, rename, move and copy—files at a server. You need to log on to an FTP server. However, publicly available files are easily accessed using anonymous FTP.

FTP

See *File Transfer Protocol (FTP)*.

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. HTML is 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.

IMAP

See *Internet Message Access Protocol (IMAP)*.

Integrated Services Digital Network (ISDN)

A system of digital telephone connections. This system allows data to be transmitted simultaneously across the world using end-to-end digital connectivity.

With ISDN, voice and data are carried by bearer channels (B channels) occupying a bandwidth of 64 Kb/s (some switches limit B channels to a capacity of 56 Kb/s). A data channel (D channel) handles signaling at 16 Kb/s or 64 Kb/s, depending on the type of service.

There are two basic types of ISDN service: Basic Rate Interface (BRI) and Primary Rate Interface (PRI). BRI consists of two 64 Kb/s B channels and one 16 Kb/s D channel for a total of 144 Kb/s. This basic service is intended to meet the needs of most individual users.

PRI is intended for users with greater capacity requirements. Typically, the channel structure is 23 B channels plus one 64 Kb/s D channel for a total of 1536 Kb/s. In Europe, PRI consists of 30 B channels plus one 64 Kb/s D channel for a total of 1984 Kb/s.

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.

Internet Message Access Protocol (IMAP)

Internet Message Access Protocol is a standard protocol for accessing email from your local server. IMAP is a client/server protocol in which email is received and held for you by your Internet server. You (or your email client) can view just the heading and the sender of the letter and then decide whether to download the mail from the server. You can also create and manipulate folders or mailboxes on the server, delete messages or search for certain parts or an entire note. IMAP requires continuous access to the server during the time that you are working with your mail.

IMAP can be thought of as a remote file server. Another protocol, Post Office Protocol (POP), can be thought of as a store-and-forward service.

POP and IMAP deal with receiving email from your local server; Simple Mail Transfer Protocol (SMTP) is a protocol for transferring email between points on the Internet. You send email with SMTP and a mail handler receives it on your recipient's behalf. Then the mail is read using POP or IMAP.

See also "Post Office Protocol 3 (POP3)" on page 267 and "Simple Mail Transfer Protocol (SMTP)" on page 270.

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.

ISDN

See *Integrated Services Digital Network (ISDN)*.

LAN

See *local area network (LAN)*.

Leased IP address

An IP address assigned by the Dynamic Host Configuration Protocol (DHCP) to an unrecognized computing device. 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 is 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 a physical address.

When your computer is connected to the Internet, a correspondence table relates your IP address to your computer's physical (MAC) address on the network

Name server

A program that constitutes 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)*.

Netmask

See *subnet mask*.

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.

PCI

See *Peripheral Component Interface (PCI)*.

Peripheral Component Interconnect (PCI)

Peripheral Component Interconnect (PCI) is an interconnection system between a microprocessor and attached devices in which expansion slots are spaced closely for high-speed operation. PCI is designed to be synchronized with the clock speed of the microprocessor, in the range of 20 MHz to 33 Mhz.

PCI transmits 32 bits at a time in a 124-pin connection (the extra pins are for power supply and grounding) and 64 bits in a 188-pin connection in an expanded implementation. PCI uses all active paths to transmit both address and data signals, sending the address on one clock cycle and data on the next. Burst data can be sent starting with an address on the first cycle and a sequence of data transmissions on a certain number of successive cycles.

Point-to-Point Protocol (PPP)

A protocol for communication between two computers using a serial interface, typically a personal computer connected by telephone line to a server. For example, your Internet server provider may provide you with a PPP connection so that the provider's server can respond to your requests, pass them on to the Internet and forward your requested Internet responses back to you. PPP uses the Internet protocol (and is designed to handle others).

PPP is a full-duplex protocol that can be used on various physical media, including twisted pair, fiber optic lines or satellite transmission. It uses a variation of High Speed Data Link Control for packet encapsulation. PPP can handle synchronous as well as asynchronous communication.

Point-to-Point Protocol over Ethernet (PPPoE)

A specification for connecting multiple computer users on an ethernet to a remote site through common customer-premises equipment such as a modem and similar devices. PPPoE can be used to allow an office or building full of users share a common digital subscriber line (DSL), cable modem or wireless connection to the Internet. PPPoE combines the Point-to-Point Protocol (PPP), commonly used in dial-up connections, with the ethernet protocol, which supports multiple users in a local area network (LAN). PPP information is encapsulated within an Ethernet frame.

POP3

See *Post Office Protocol (POP3)*.

Post Office Protocol 3 (POP3)

Post Office Protocol (POP) is a standard protocol for receiving email. POP is a client/server protocol in which email is received and held for you by your Internet server. When you read your mail, all of it is immediately downloaded to your computer and no longer maintained on the server. POP3 is built into the Netscape Navigator and Microsoft Internet Explorer browsers.

POP can be thought of as a store-and-forward service. Another protocol, Internet Message Access Protocol (IMAP), can be thought of as a remote file server.

POP and IMAP deal with receiving email from your local server; Simple Mail Transfer Protocol (SMTP) is a protocol for transferring email between points on the Internet. You send email with SMTP and a mail handler receives it on your recipient's behalf. The mail is then read using POP or IMAP.

See also "Internet Message Access Protocol (IMAP)" on page 263 and "Simple Mail Transfer Protocol (SMTP)" on page 270.

PPP

See *Point-to-Point Protocol*.

PPPoE

See *Point-to-Point Protocol over Ethernet*.

RAID

See *Redundant Array of Independent Disks (RAID)*

Redundant Array of Independent Disks (RAID)

A redundant array of independent disks is a way of storing the same data in different places (thus, redundantly) on multiple hard disks. A RAID appears to the operating system to be a single logical hard disk.

There are a variety of different types and implementations of RAID, each with its own advantages and disadvantages. RAID Level 1 (RAID-1), also known as disk mirroring, consists of at least two drives that duplicate the storage of data.

Although RAID can protect against disk failure, it does not protect against operator and administrator (human) error, or against loss due to programming bugs.

RAID can be implemented in hardware or in software. Hardware RAID is always a "disk controller", that is, a device to which one can cable up the disk drives. Software RAID is a set of kernel modules, together with management utilities that implement RAID purely in software, and require no extraordinary hardware.

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 Sockets Layer (SSL)

Secure Sockets Layer is a program layer created by Netscape Communications for managing the security of message transmissions in a network. Netscape's idea was that the programming for keeping your messages confidential ought to be contained in a program layer between higher-level protocols (such as HTTP or IMAP) and the TCP/IP layers of the Internet. The "sockets" part of the term refers to the sockets method of passing data between a client and a server program in a network or between program layers in the same computer.

SSL allows an SSL-enabled server to authenticate itself to an SSL-enabled client, allows the client to authenticate itself to the server, and allows both machines to establish an encrypted connection.

These capabilities address fundamental concerns about communication over the Internet and other TCP/IP networks:

- SSL server authentication allows a user to confirm the identity of a server. SSL-enabled client software can use standard techniques of public-key cryptography to check that a server's certificate and public ID are valid and have been issued by a certificate authority (CA) listed in the client's list of trusted CAs. This confirmation can be important if, for example, the user is sending a credit card number over the network and wants to check the receiving server's identity.

- SSL client authentication allows a server to confirm a user's identity. Using the same techniques as those used for server authentication, SSL-enabled server software can check that a client's certificate and public ID are valid and have been issued by a certificate authority (CA) listed in the server's list of trusted CAs. This confirmation can be important if, for example, the server is a bank sending confidential financial information to a customer and wants to check the recipient's identity.

- an encrypted SSL connection requires all information sent between a client and a server to be encrypted by the sending software and decrypted by the receiving software, thus providing a high degree of confidentiality. Confidentiality is important for both parties to any private transaction. In addition, all data sent over an encrypted SSL connection is protected with a mechanism for detecting tampering—that is, for automatically determining whether the data has been altered in transit.

See also *Authentication* and *Encryption*.

Server

A system program that awaits requests from client programs in the same computer or 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 between points on the Internet. SMTP specifies how two mail systems interact and the format of control messages they exchange to transfer mail.

SMTP is a protocol for transferring email between points on the Internet; Post Office Protocol (POP) and Internet Message Access Protocol (IMAP) deal with receiving email from your local server. You send email with SMTP and a mail handler receives it on your recipient's behalf. The mail is then read using POP or IMAP.

See also "Internet Message Access Protocol (IMAP)" on page 263 and "Post Office Protocol 3 (POP3)" on page 267.

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/output 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. Also known as netmask.

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. The TCP/IP protocols enable computers and networks to connect to an intranet or Internet.

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.

WebMail

The integrated email client on the Qube 3.

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.

See also *local area network (LAN)*.