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# **Virtual Server Training Guide**

**VERSION 2.0**

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## **SECOND EDITION (SEPTEMBER, 2001)**

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## READ THIS FIRST

This section provides descriptions of text conventions and special elements used in Documentation.

### TEXT CONVENTIONS

Text conventions used in Documents are designed to be completely predictable. The goal is to provide corporate-wide consistency in the presentation of all forms of information. Different typefaces are used for the following specific purposes.

Typeface	Usage
<i>Italics</i>	Used at the first mention of new terms, and when referencing titles of books, chapters, headings, CDs, diskettes, and software programs. For example: The <i>Webster's New College Dictionary</i> is used for definitions of non-technical terms in technical manuals such as <i>data-center server</i> documentation. <b>Note</b> The italic font is sometimes used for text boxes or windows in procedural steps when absence of highlighting can cause confusion. For example: <ol style="list-style-type: none"> <li>1. In the <i>Save in</i> text box, select the directory where...</li> <li>2. In the <i>File name</i> text box, type <i>Abcdef.doc</i> if...</li> <li>3. In the <i>Save as type</i> text box, select <b>Word Document (*.doc)</b> from...</li> </ol>
<b>Bold Face</b>	Used for buttons, icons, or menu items to click, keys to press, or text to type. For example: Click <b>Edit</b> and click <b>Select All</b> , or press <b>Ctrl-A</b> . Type <b>ABCDEFGG</b> , then press <b>Enter</b> . Click the <b>Favorites</b> button.
<u>Underline</u>	Used to match menu or dialog box shortcut key items. For example: Click <u>F</u> ile and <u>S</u> ave <u>A</u> s...; then type the file name in the <u>F</u> ile name window. <b>Note</b> This convention does not always apply to all platforms or to re-programmed shortcuts.
<a href="#">Blue Underline</a>	Used to indicate a linked Web address or email address. For example: Go to <a href="http://www.domain.name">http://www.domain.name</a> for more information.
Initial Caps	Used for menu items, dialog box names, dialog box elements, and commands. For example: The Page Setup window opens.
Error Messages	Used to display error messages. For example: <b>User Not Authorized</b> .
Commands	Used for commands the reader types, HTML code, or Visual Basic code For example: Type <code>/store the database locally/</code> then press <b>Enter</b> .
<Enter>	When this string appears in command line instructions, press the Enter key. Do not type <Enter>.
<any word>	Information other than <i>Enter</i> inside the <> is variable. Type the variable text, but do not type the <>.
Start   Run   etc	Step sequences in Module summaries are presented as piped commands. Each   is a click.
Start > Run	Another step sequence, where > stands for click

## SPECIAL ELEMENTS

These elements provide a variety of information ranging from warnings that the reader should not neglect to supplementary information that will simply enhance their reading experience.

- Note:** Used to highlight certain information for the reader. Generally, the Note element provides additional information on the current topic.
- Important:** Used for information that is considered more pertinent to the reader than information presented in Note elements.
- Caution:** *Used as the hazard light in this document. Information included in a Caution notice could save the reader from hours of lost work. The paragraph font is italic.*
- Warning:** *Used to inform the reader that data is about to be permanently destroyed; before proceeding, the reader should be certain that this information is no longer needed. The paragraph font is italic.*

## ESPECIALLY FOR RESELLERS

A test environment was established to facilitate a “real-world” experience, using the fictitious North Pole Internet Services as a Web hosting business. The screen shots you will see in this manual are taken from that perspective. Depending on the Secure Shell client and FTP client you use, your screens might look different from the ones you see.

If you want to observe how a real hosting business works, feel free to move through the modules as if you own North Pole Internet Services, and use the domain, northpoleinternet.com and, its equally fictitious subhosts and users. Have a little fun while you learn!

If you prefer to use the Training Guide as a model while you establish your own business, feel free to do that, too. We have supplied “<yourdomain.name>” and “<your subhosteddomain.name>” in places where you will need to enter your own domain and subhost information. Substitute our suggested users, and sample aliases, and virtmaps for your own, as you wish.



# VIRTUAL SERVER INTRODUCTION

The Virtual Server concept was developed to provide a cost-effective alternative to the dedicated server solution. A dedicated server refers to the rental and exclusive use of a computer that is located on company premises and is configured and operated by the client company. A dedicated server is normally required for corporate sites with hundreds of thousands of hits a day and includes a Web server, related software, and a connection to the Internet. While it provides an essential environment for high-traffic Web sites, the dedicated server is very expensive, and the owner of a dedicated server is responsible for its maintenance.

The Virtual Server solution enables customers to create a unique Internet presence as if each had their own dedicated server. Each Virtual Server has its own Web, FTP, email, and UNIX command-line capabilities, without the cost and worry of hardware maintenance.

## CHARACTERISTICS

Each Virtual Server occupies an exclusive section of a powerful dedicated server that is partitioned at the root level. Additionally, each partition or “Virtual Server” is assigned its own IP address and operates separately from any other Virtual Server on the same box. This technology provides the flexibility and control of a dedicated server at a fraction of the cost.

Virtual Servers share only the physical machine they reside on. They do not share software; each one has its own exclusive software package that the customers configure to meet their unique needs.

For security purposes, each Virtual Server account has an exclusive set of resources (disk space, CPU, RAM, and so on). Therefore, if one Virtual Server uses up its allotted resources, it cannot borrow additional resources from any other Virtual Servers. This ensures that abusive users cannot affect the performance or security of other Virtual Servers.

## CAPABILITIES

Virtual Servers provide the following services:

- Mail Server
- E-Commerce Server
- Web Server
- FTP Server

## PLATFORM SPECIFICATIONS

The Virtual Server has the following components:

### ***OPERATING SYSTEM***

- FreeBSD 3.3 or Solaris 2.6

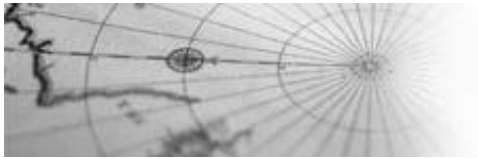
### ***CORE SERVICES***

- HTTP (Web) Service
- FTP Service
- Mail Service

### ***EXTENSIONS AND ADD-ONS***

- Databases
- E-Commerce
- Multimedia
- More





**North Pole Internet**

# **Virtual Server Training Guide**

## **Connecting to Your Virtual Server**

### **MODULE 1**

# MODULE 1. CONNECTING TO YOUR VIRTUAL SERVER

## OBJECTIVES

- By the end of this module you will be able to
- Log into and out of your Virtual Server, using Telnet.
- Log into your Virtual Server, using an SSH client.
- Use the UNIX-command, `vinstall`.
- Install iManager onto your Virtual Server.
- Access iManager from your Web browser.

### Scenario

Activity at the North Pole has continued at fever pitch for centuries. Now it's completely out of control! An executive decision was made to find an online solution, and an ad went out in all the major newspapers seeking a server administrator with a fondness for snow, who can sort the mess out, and get a server up and running with a minimum of fuss. You answered the ad and landed the job. Congratulations! The first thing you need to learn is how to connect to your Virtual Server. As you will discover, there's more than one way to do that. Now, to work . . .

## TELNET

You can connect and log in to your Virtual Server from anywhere in the world using a Telnet or SSH client. (Windows operating systems come with Telnet pre-installed.) Telnet, a legacy Internet service typically used with UNIX-oriented systems for connecting to other computers and networks, has a text-based look and feel similar to DOS. However; Telnet is not secure; therefore we recommend its secure replacement, Secure Shell (SSH, or ssh).

### CONNECTING THROUGH TELNET (WINDOWS)

To connect to your Virtual Server through Telnet:

1. On the Taskbar, click **Start** and **Run**. The Run Window appears.
2. Type `telnet <userid.northpoleinternet.com>` or `<yourdomain.name>`, and click **OK**. The Telnet session window appears.
3. Type your Login, then press **Enter**.
4. Type your password, then press **Enter**. You are now connected to your Virtual Server.
5. To log out and close Telnet, type `exit`, then press **Enter**. A Telnet window appears with the message, "Connection to host lost."
6. Click **OK** to close.
7. To log out and leave Telnet running click **Connect**, then click **Disconnect**.

## SECURE SHELL (SSH)

The Secure Shell protocol, commonly called SSH (or ssh), encrypts all information, including passwords, to effectively eliminate eavesdropping, connection hijacking, and other network-level attacks. SSH is just as easy to use as Telnet, and all the UNIX commands that work with Telnet, also work for the Secure Shell.

Many commercial and free SSH clients and SSH protocol versions are available. The Virtual Server is compatible with the ssh1 protocol. You can select and download a free SSH client from <http://www.freessh.org>.

To connect to your Virtual Server using an SSH client, double click the **SSH** icon, then proceed through the instructions provided by the program windows. The Hostname is your domain.name. Type your Virtual Server user name and password when prompted.

**Caution!** *Whenever you are at the command line, be careful. You could make your Virtual Server completely inaccessible. As Mrs. Claus always says, "Think before you act!"*

## iMANAGER

iManager is a nifty program we have developed to make many of your administrative tasks easier. You will learn more about iManager in Module #3. Although you will learn more about UNIX commands in Module #2, for now, you need just one, and it is actually a modified UNIX command: `vinstall`.

### INSTALLING iMANAGER

1. To install iManager on your Virtual Server, start an SSH session:
2. Type `cd` <Enter>. The home directory appears.
3. Type `vinstall imanager2` <Enter>. The installation process begins.  
When the installation is complete, “vinstall done” appears at the bottom of your session window.
4. Type `exit` <Enter> to close the session.

### CONNECTING THROUGH iMANAGER

After the iManager program is installed on your Virtual Server, you can access it using a Web browser.

To connect to your Virtual Server through iManager:

1. Start your Web browser.
2. Type `http://www.<userid.northpoleinternet.com>` or `<yourdomain.name>/imanager/` <Enter>.

The iManager screen appears, with Login ID and Password text boxes.



3. You have connected to your Virtual Server; close the window. (You will visit iManager again soon.)

## FILE TRANSFER PROTOCOL (FTP)

The Internet copies files between your computer and other computers on the Internet, using the File Transfer Protocol (FTP). Many commercial and free FTP clients are available. Type **free ftp** in your search window, then select and download a free FTP client. After a File Transfer Protocol (FTP) program is installed on your local computer, you can upload files to, or download files from your Virtual Server.

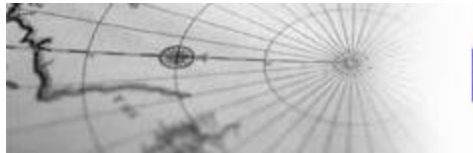
To connect to your Virtual Server using an FTP client, double click the FTP icon, and proceed through the instructions provided by the program windows. The Hostname is your domain.name. Type your Virtual Server user name and password when prompted. The File transfer window appears displaying a directory on your local computer in the left pane, and a directory on the remote site (Virtual Server) in the right pane.

## MODULE SUMMARY

In this module, you have learned the following:

- Four ways to connect to your Virtual Server.
  - Telnet
  - Secure Shell (SSH)
  - IManager
  - FTP
- Logging in and out.
- Transferring files through FTP.
- Using the UNIX-like command, `vininstall`, to install a program. (There's a server administrator in you yet!)

Application	Description	Quick Click Through
Telnet	Quick, but not secure (not recommended)	Start   Run   <b>telnet</b> <username.domain.name> <Enter>   <Login> & <Password> <Enter>
Imanager (server side)	Installed on your Virtual Server using the command, <code>vininstall</code>	Open a shell   <b>vininstall imanager2</b> <Enter>  <b>exit</b> <Enter>  Access procedure: Open a Web browser   type URL: <b>http://www.username.domain.name/imanager/</b> <Enter>   <Login> and <Password>   click <b>Login</b>
FTP (client side)	Installed on your local computer, for file transfers	Open FTP   <Host Name>   <b>UserID</b> (not Anonymous)   <password>
<p><b>Note</b> Anything installed on your server is “server side,” and anything installed on your computer is “client side”. You will read these terms in our online documentation. See “Client-Server Relationship” in the glossary of this document for more information.</p>		



**North Pole Internet**

# **Virtual Server Training Guide**

**UNIX**

**MODULE 2**

## MODULE 2: UNIX

All of our Virtual Servers are hosted on UNIX servers (FreeBSD and Solaris). This module will discuss UNIX and its functions.

### OBJECTIVES

By the end of this module you will have learned the following:

- UNIX and its origin
- The benefits of a UNIX system
- The directory structure of the Virtual Server
- Some basic UNIX commands that will help you become an administrator

**Scenario** You have just been hired to be an administrator for North Pole Internet. Unfortunately, you have never worked with a UNIX-based operating system. You must understand the operating system you are working on and some commands to help you maintain the Virtual Server's performance.

### WHAT IS UNIX?

UNIX is a family of operating systems that is based on an original system released by AT&T in the 1970s. This original system has been developed into many different flavors of UNIX operating systems.

Its popularity is based on many factors, including its ability to run a wide variety of systems, from micros to supercomputers, which led to its adoption by many manufacturers.

In simplest terms, UNIX is an operating system. An operating system is the software that runs the system and allows the user to operate the system's hardware, start and stop programs, copy and delete files, and so on.

We have chosen two types UNIX operating systems for the Virtual Server: FreeBSD and Solaris.

### ***AN OVERVIEW OF THE UNIX OPERATING SYSTEM***

The UNIX operating system was designed to let a number of users simultaneously access the same computer and share its resources.

UNIX was developed by programmers for programmers; however because it provides an environment so powerful and flexible it is found in business offices, science labs, academia, and industry. Many telecommunications switches and transmission systems also are controlled by administration and maintenance systems based on UNIX.

### **UNIX OPERATING SYSTEM STRUCTURE**

This section describes the UNIX operating system architectural structure.

#### ***MODULAR STRUCTURE***

A modular structure means that the functions of the system are separated so that a small module can be replaced or added without redoing the whole system. For example, if a problem occurs, the modular design helps isolate the problem within a section of the machine so the whole system does not shut down.

The benefits of a UNIX operating system (O/S) include the following:

- Multitasking capability
- Multiuser capability
- Similar commands

**MULTITASKING CAPABILITY**

A UNIX operating system lets a computer do several things at once, such as printing out one file while the user edits another file. This is a major feature for users, because users do not have to wait for one application to end before starting another one.

**MULTIUSER CAPABILITY**

The multitasking ability of a UNIX system allows multiple users to work on the same server. The server can handle commands from a number of users, run programs, access files, and perform several other functions simultaneously.

**SIMILAR COMMANDS**

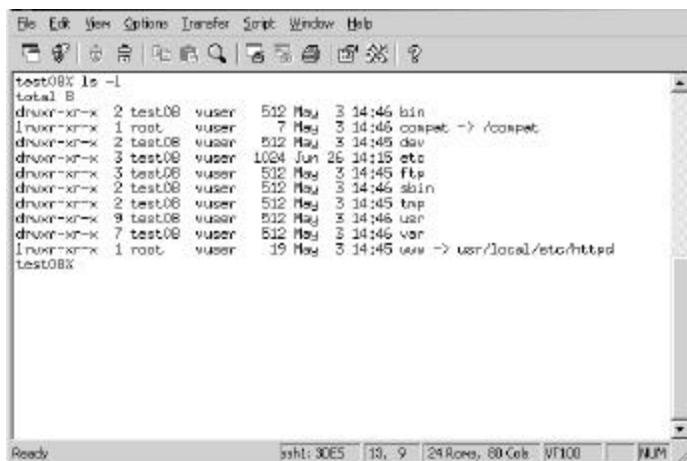
All UNIX platforms offer a command line interface to control the computer. You connect to the Virtual Server and use UNIX commands to administer it. Fortunately, most flavors of UNIX have very similar commands.

**VIRTUAL SERVER DIRECTORY STRUCTURE**

You learned how to connect to your Virtual Server in the previous module. It is important that you understand what you are seeing. Essentially the Virtual Server is your own UNIX machine, so understanding the Virtual Server UNIX directory and file system would be a benefit to you.

The main directories from your “virtual root” when you login to your Virtual Server include the following:

```
~/dev
~/usr
~/bin
~/etc
```



```
test08X ls -l
total 8
drwxr-xr-x  2 test08  vuser  512 May  3 14:46 bin
lrwxr-xr-x  1 root    vuser    7 May  3 14:46 compat -> /compat
drwxr-xr-x  2 test08  vuser  512 May  3 14:46 dev
drwxr-xr-x  3 test08  vuser 1024 Jun 26 14:16 etc
drwxr-xr-x  3 test08  vuser  512 May  3 14:46 file
drwxr-xr-x  2 test08  vuser  512 May  3 14:46/sbin
drwxr-xr-x  2 test08  vuser  512 May  3 14:46 tmp
drwxr-xr-x  9 test08  vuser  512 May  3 14:46 usr
drwxr-xr-x  7 test08  vuser  512 May  3 14:46 var
lrwxr-xr-x  1 root    vuser   19 May  3 14:46 www -> usr/local/etc/httd
test08X
```

Initially, you will be dealing mostly with the ~/etc and ~/usr directories.

**DESCRIPTIONS OF DIRECTORIES**

The table below lists and describes the main directories and subdirectories of the Virtual Server.

Directory	Description
~/dev	Contains the device node null
~/etc	Contains files such as passwd, resolv.conf, aliases, and sendmail.cf
~/ftp	Anonymous ftp directory
~/tmp	Temporary files
~/usr	Contains the following subdirectories:
~/usr/home	Users home directories where the users can usually be found
~/usr/mail	User mail messages are stored in this directory. Each user has a mail file that is named after their email login name.
~/usr/log	Contains log files for different applications running on your virtual server.
~/usr/spool/mqueue	Contains messages that are waiting for delivery.
~/usr/bin	Contains additional server programs.
~/usr/local	Contains additional directories such as httpd and frontpage.
~/usr/local/etc/httpd	The Virtual Server's httpd root directory that contains the following subdirectories: htdocs, cgi-bin, conf, and logs
~/usr/local/etc/httpd/htdocs	Contains the html directories (this is the where all the Web pages go).
~/usr/local/etc/httpd/cgi-bin	Hosts the cgi scripts.
~/usr/local/etc/httpd/conf	The HTTPD server log files are in this directory.
~/usr/local/etc/httpd/logs	Contains the files access_logs and error_logs. The log files record most of the functions on the server.
~/var	Dynamic data files such as mail files and log files.
~/www	A direct link to reach the usr/local/etc/httpd directory.
~/bin	Contains the program files for sendmail and ftp.



## **BASIC UNIX COMMANDS**

This section describes the following UNIX commands in detail: We are going to assume you are already logged in to your system when you try these commands.

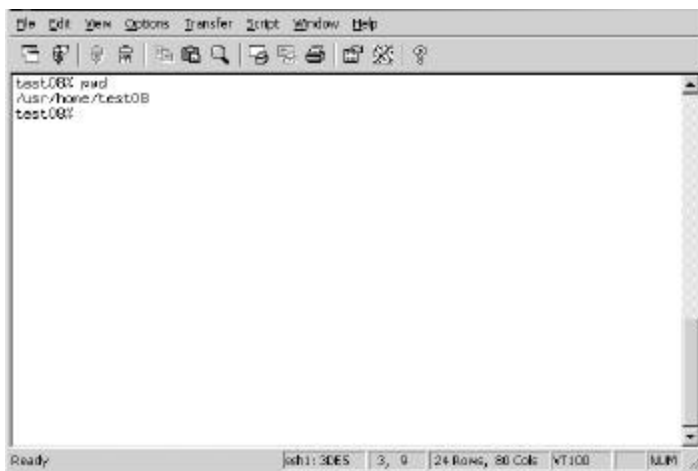
- pwd
- sinfo
- cd
- less
- cp
- pico
- rm
- top

### **PWD**

The `pwd` command displays the full path name of the current (working) directory.

To use the `pwd` command:

1. At the command prompt, type `pwd` <Enter>.
2. Your current directory path is displayed in the window.



```
test08% pwd
/usr/home/test08
test08%
```

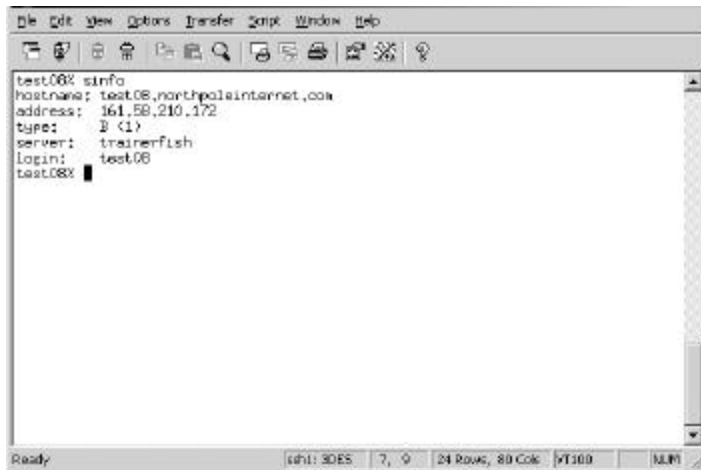
The screenshot shows a terminal window with a menu bar (File, Edit, View, Options, Transfer, Script, Window, Help) and a toolbar. The terminal content shows the command `pwd` being executed, resulting in the output `/usr/home/test08`. The status bar at the bottom indicates the terminal is ready, with session ID `ssh1:3DES`, cursor coordinates `3, 0`, dimensions `24 Rows, 80 Cols`, and a baud rate of `VT100`.

## SINFO

The `sinfo` command provides some basic information about your system including the IP address, the type of server, the physical server name, and the login.

To use the `sinfo` command:

1. At the command prompt, type `sinfo` <Enter>.
2. The basic Virtual Server information is displayed in the window.



```
test08% sinfo
hostname: test08.northpoleinternet.com
address: 161.58.210.172
type: B (1)
server: trainerfish
login: test08
test08%
```

The screenshot shows a terminal window with a menu bar (File, Edit, View, Options, Transfer, Script, Window, Help) and a toolbar. The terminal content displays the output of the `sinfo` command, including hostname, address, type, server, and login information. The status bar at the bottom indicates 'Ready', 'csh: 3DES', '7', '24 Rows, 80 Cols', 'VT100', and 'MULTI'.

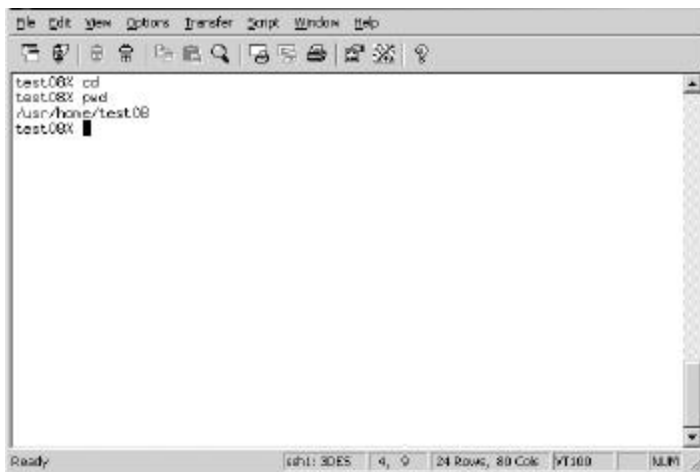
## CD

The `cd` (change directory) command is used to change directories. If you are in the home directory and want to work in the `etc` directory, at the command prompt, type `cd etc` <Enter>. To return to the home directory, you can simply type `cd` <Enter>.

For example, you are in the home directory and you want to access the `usr/local/etc/httpd` directory, type `cd usr/local/etc/httpd` <Enter> at the command prompt.

To use the `cd` command:

1. At the command prompt, type `cd` <Enter>.
2. At the next prompt, type `cd directory` <Enter> (replace “directory” with the complete directory path you want to change to).
3. When you see the command prompt again, you are in the desired directory. To verify that you are in the correct directory, type `pwd` <Enter> at the prompt.



```
test00X cd
test00X pwd
/usr/home/test00
test00X █
```

The screenshot shows a terminal window with a menu bar (File, Edit, View, Options, Transfer, Script, Window, Help) and a toolbar. The terminal text shows a user named 'test00X' entering 'cd', followed by 'pwd' which returns '/usr/home/test00'. The status bar at the bottom indicates 'Ready', 'cpu: 30ES', '4, 0', '24 Rows, 80 Col', 'VT100', and 'MUR'.

## LESS

The `less` command is used to view files.

To use the `less` command:

1. At the command prompt, type `cd <Enter>`.
2. Before you can view a file, you must be in the right directory. For this example we are going to view the `virtmaps` file. Type `cd etc <Enter>`.
3. Type `less virtmaps <Enter>` (any file name can be substituted for `virtmaps`).

```

#
# Simply add the virtual email address and the real email address
# it should be mapped to. The virtual email address can be a full
# email address or a hostname. If it is a hostname then mail to
# that hostname will be sent to the real email address if none of
# the full email addresses don't match. This keeps mail for a virtual
# sub-hosted domain from bouncing.
#
# Here are some examples:
#
##(lines beginning with "#" are comments: I love comments)
##Virtual Email Address      Real Email Address
##-----
# webmaster@virtual1.com     user@isp.com
# user@virtual1.com          localuser1
# virtual1.com                user@isp.com
## Note: "Unknown User" mail to virtual1.com goes to user@isp.com
#
# webmaster@virtual2.com     localuser2
# user@virtual2.com          someuser@real.com
# virtual2.com                localuser2
#
santa@sweets.com             santa@testx.northpoleinternet.com
testx,santa@sweets.com       santa@testx.northpoleinternet.com
~
testx less virtmaps:

```

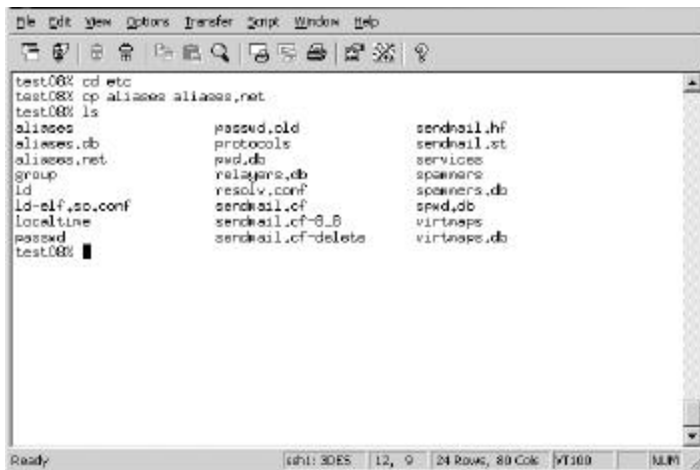
4. You are in the `virtmaps` file.  
To scroll the file, use the up and down arrow keys.
5. To exit the `less` mode, type `q`.

**CP**

The `cp` (copy) command is used to copy one file to another file with a new name. For our example, we will copy the `aliases` file and name the new copy `aliases.net`.

To use the `cp` command:

1. At the command prompt, type `cd <Enter>`.
2. The `aliases` file is located in the `~/etc` directory.  
Type `cd etc <Enter>`.
3. You are now in the `etc` directory, where the `aliases` file is located.  
Type `cp aliases aliases.net <Enter>`.



```
test08X cd etc
test08X cp aliases aliases.net
test08X ls
aliases                passwd.old             sendmail.hf
aliases.db             protocols             sendmail.st
aliases.net            pwd.db               services
group                  relayd.db             spammers
ld                     resolv.conf           spammers.db
ld-elf.so.conf         sendmail.cf           spwd.db
localtime              sendmail.cf~8.8      virtmaps
passwd                 sendmail.cf~delete   virtmaps.db
test08X
```

4. The file has been copied.  
To check that the file was copied, type `ls <Enter>`. A list of all the files in that directory is displayed.

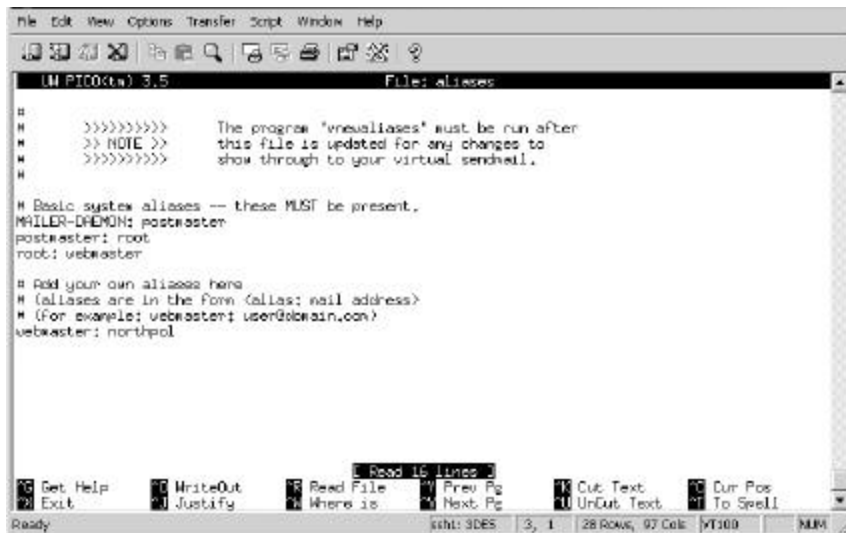
## PICO

`pico` is a very simple online editor that allows you to view the whole file and make changes. Instructions appear at the bottom of the editing screen. We will use `pico` to make changes to the `aliases` file, located in the `etc` directory.

To use the `pico` command:

1. At the command prompt, type `cd <Enter>`.
2. Type `cd etc <Enter>` to go to the `etc` directory.
3. To place the file in the editor, type `pico aliases <Enter>` (any file name can be substituted for `aliases`).

The file can now be edited.



```
File Edit View Options Transfer Script Window Help
UN PICO(du) 3.5 File: aliases
#
# >>>>>>>>> The program 'vnewsaliases' must be run after
# >> NOTE >> this file is updated for any changes to
# >>>>>>>>> show through to your virtual sendmail.
#
# Basic system aliases -- these MUST be present.
MAILER-DAEMON: postmaster
postmaster: root
root: webmaster
#
# Add your own aliases here
# (aliases are in the form <alias>: <mail address>)
# (For example: webmaster: user@domain.com)
webmaster: northpol
Read 16 Lines
Get Help WriteOut Read File Prev Pg Cut Text Cur Pos
Exit Justify Where is Next Pg UnCut Text To Scroll
Ready 381: 3DES 3, 1 28 ROWS, 97 COLS VT100 NUM
```

4. Scroll through the file using the down arrow key.
5. Under the entry `webmaster: northpol`, type `santa: santas-sweets` or an alias of your choice `<Enter>`.
6. To exit `pico`, press `Ctrl + X <Enter>`.
7. Type `n <Enter>`, so the changes are not saved.

The editor is closed.

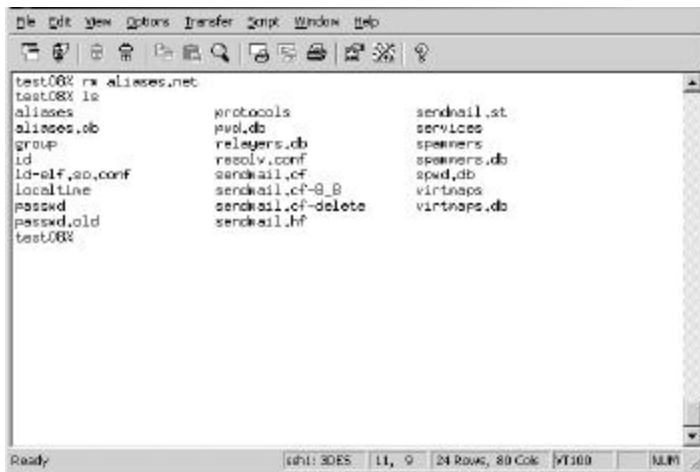
## RM

The `rm` (remove) command is used to remove files from your server. For practice, we are going to remove the `aliases.net` file that we added earlier.

**Important:** This is a very powerful command; if you remove certain files, your server can become inaccessible. Please use caution.

To use the `rm` command:

1. At the command prompt, type `cd` <Enter>.
2. Type `cd etc` <Enter>. This will put you in the `etc` directory where the `aliases.net` file is located.
3. Type `ls` <Enter>. The `aliases.net` file should be listed.
4. Type `rm aliases.net` <Enter>.



```
test08X rm aliases.net
test08X ls
aliases          protocols        sendmail.st
aliases.db       spwd.db         services
group           relayers.db     spawners
id              resolv.conf     spawners.db
id-elf.so.conf  sendmail.cf     spwd.db
localtime       sendmail.cf-8_8 virtmaps
passwd          sendmail.cf-delete virtmaps.db
passwd.old      sendmail.hf
test08X
```

5. The `aliases.net` file is removed.  
To check that it is gone, type `ls` <Enter>. A list of all the files in that directory is displayed.

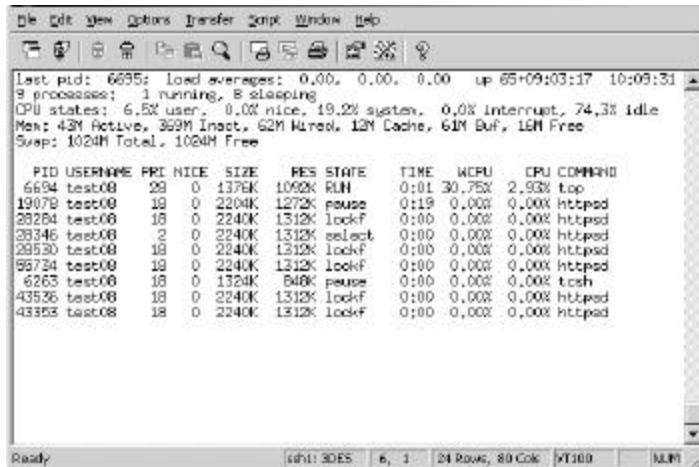
## TOP

The **top** command displays the top processes and load averages that are currently running on your Virtual Server.

To use the **top** command:

1. At the command prompt, type: **top** <Enter>.

The window displays the results of the server load.



```
Last pid: 6695; load averages: 0.00, 0.00, 0.00 up 65+09:03:17 10:09:31
9 processes: 1 running, 8 sleeping
CPU states: 6.5% user, 0.0% nice, 19.2% system, 0.0% interrupt, 74.3% idle
Mem: 43M Active, 369M Inact, 62M Memsw, 12M Cache, 61M Buf, 16M Free
Swap: 1024M Total, 1024M Free

  PID USERNAME PRI NICE  SIZE  RES STATE   TIME  WCPU  CPU COMMAND
  6694 test08   20  0  1376K 1052K RUN     0:01 30.75% 2.93% top
 19079 test08   18  0  2204K 1272K pause   0:19  0.00%  0.00% httpd
 28284 test08   18  0  2240K 1312K lockf   0:00  0.00%  0.00% httpd
 28346 test08    2  0  2840K 1312K select  0:00  0.00%  0.00% httpd
 28530 test08   18  0  2240K 1312K lockf   0:00  0.00%  0.00% httpd
 96734 test08   18  0  2240K 1312K lockf   0:00  0.00%  0.00% httpd
   6263 test08   18  0  1324K  848K pause   0:00  0.00%  0.00% tcsh
 43536 test08   18  0  2240K 1312K lockf   0:00  0.00%  0.00% httpd
 43553 test08   18  0  2240K 1312K lockf   0:00  0.00%  0.00% httpd
```

2. To exit the **top** display, type **q** <Enter>.



## MORE BASIC UNIX COMMANDS

During a Telnet or SSH session, you can use the following commands to work with your Virtual Server.

Command	Example	Definition
cd	cd	Changes to your home directory
	cd ~/www	Changes to the /usr/home/login_name/www
	cd ..	Moves up a directory
chmod	chmod 755 test	Changes the permissions of the file test to be rwxr-xr-x
cp	cp test test.new	Copies the file test to test.new
grep	grep test *.html	Searches for the word test in the html files
kill	kill 2267	Kills a process (the ps or top commands show the process id)
ls	ls -al	Lists files
	ll	Alias setup to do an ls -al
mkdir	mkdir test	Makes a directory named test
more	ll   more	Displays the directory listing one screen at a time
	more README	Displays the README file one screen at a time
mv	mv test test.new	Moves the file test to test.new
ps	ps -ax   grep aftp	Lists all aftp processes
	ps -ax   more	Lists all Virtual Server's processes
quota	quota	Shows the Virtual Server's quota usage
rm	rm test.new	Removes the file test.new
	rm -rf billdir	Removes the directory billdir. Use this command with caution – there is no "undo" command in UNIX.
sinfo	sinfo	Shows the Virtual Server's hostname, ip, login, and host server.
uptime	uptime	Shows how long the server has been up and current load information.
tail	tail -f message	Displays information being added to a file. Displays the logs as they are being added to. Executes from the directory where message exists (~usr/log/ or ~var/log/).
tar	tar -cvf abc.tar abcdir	Creates a tar (tape archive) file called abc.tar and includes the abcdir directory
	tar -xvf abc.tar	Extracts all abc.tar files into your current directory
top	top	Shows the top processes and load average on your Virtual Server
traceroute	/usr/sbin/traceroute domainname	Traces the route to a domain or IP number. Useful for troubleshooting slow connections.
vdiskuse	vdiskuse   more	Shows the disk usage by directory
vadduser	vadduser	Adds a virtual user to email and ftp
vruser	vruser	Removes the virtual user

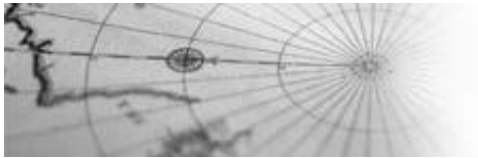
---

Command	Example	Definition
vlistuser	vlistuser	Lists the users on your server
vnukelog	vnukelog	Interactive mode
	vnukelog -r	Removes the log files - ~/usr/log/messages, ~/www/logs/*_log
	vnukelog -h	Help screen for vnukelog
vpasswd	vpasswd username	Changes or sets passwords
virtual	virtual sendmail -bp	Runs programs in the virtual environment.
	virtual ./test.cgi	Tests the test.cgi from the command line

## MODULE SUMMARY

In this module, you have been introduced to UNIX and have practiced several commands. Here are some important facts to remember:

Application	Important Stuff to Remember
What is UNIX?	UNIX is a family of operating systems
UNIX system structure	<b>Modular:</b> The functions of the system are separate <b>Multitasking capability:</b> Can do several things at once <b>Multiuser capability:</b> Many users can sign on at once <b>Similar commands:</b> Most UNIX commands apply to all different types of UNIX systems.
<code>pwd</code>	The <code>pwd</code> command outputs the full path name of the current (working) directory.
<code>sinfo</code>	The <code>sinfo</code> command provides you with basic information about the system. It provides the user with the IP address, type of server, physical server name, and login.
<code>cd</code>	This command enables you to change directories.
<code>less</code>	The <code>less</code> command is used for viewing a file.
<code>cp</code>	The <code>cp</code> (copy) command allows you to copy a file to a file with a new name.
<code>pico</code>	The <code>pico</code> editor is a very simple online editor.
<code>rm</code>	The <code>rm</code> (remove) command allows you to remove files from your server.
<code>top</code>	The <code>top</code> command shows the top processes and the load averages on your Virtual Server



**North Pole Internet**

# **Virtual Server Training Guide**

## **Virtual Server Tools**

### **MODULE 3**

## MODULE 3. SERVER TOOLS

### OBJECTIVES

By the end of this module you will be able to

- View iManager program files on your Virtual Server, using the `ls` command
- Access iManager from your Web browser
- Create and manage files and directories
- Add and delete users, and change permissions
- Exit iManager
- Add a user from a command line
- Use a text editor (`pico`, `vi`)

### Scenario

Now that you are a Server Administrator-in-training, you need to explore the tools available to you. The iManager application, the `vadduser` command, and text editors, `pico` and `vi`, are essential for effective server administration.

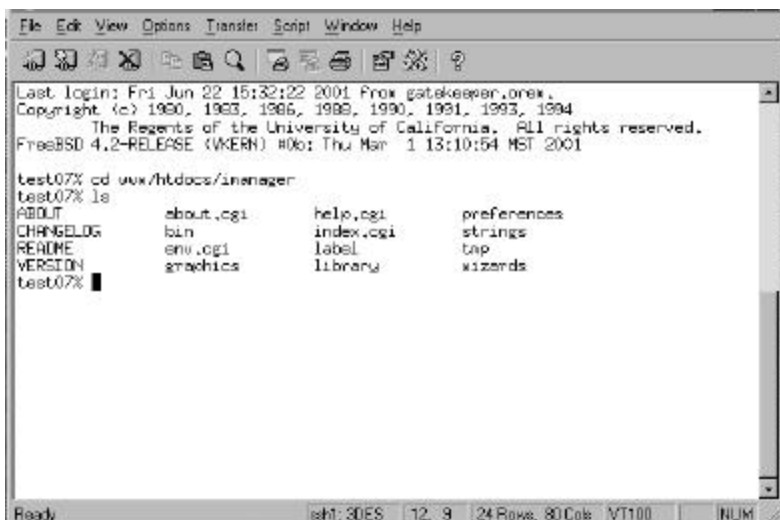
## IMANAGER

In a previous module you installed iManager on your Virtual Server. Before you explore the interface, learn the location of the program's files.

### VIEWING IMANAGER PROGRAM FILES

iManager is a server side application, whose program files are located in the `~/www/htdocs/imanager` directory. To view a list of the program's files:

1. Connect to your Virtual Server using SSH.
2. Type: `cd www/htdocs/imanager` <Enter>, to get to the iManager directory
3. Type `ls` <Enter> (a command you use to list files). The iManager programs files are listed, as shown below.



```

File Edit View Options Transfer Script Window Help
Last login: Fri Jun 22 15:32:22 2001 From: gatekeeper.onex
Copyright (c) 1990, 1993, 1995, 1998, 1999, 1991, 1993, 1994
The Regents of the University of California. All rights reserved.
FreeBSD 4.2-RELEASE (KERN) #06: Thu Mar 1 13:10:54 MST 2001

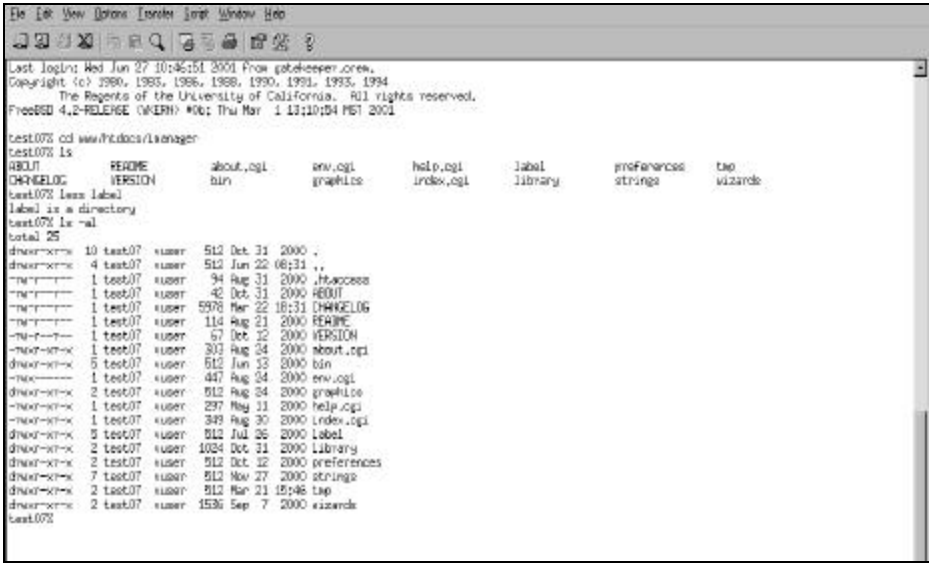
test07% cd www/htdocs/imanager
test07% ls
ABOUT      about.cgi   help.cgi    preferences
CHANGELOG   bin         index.cgi   strings
README      eno.cgi     label       top
VERSION     graphics    library     wizards
test07%
Ready          ssh: 30ES  12. 9  24 Rows, 80 Col:  VT100  | NUM

```

4. Type `ls -al` <Enter> to view the long list of the iManager files, as shown below.

This list displays the following:

- File mode and permissions
  - **d** indicates a directory
  - **r** indicates read permission
  - **w** indicates write permission
  - **x** indicates execution permission
- Number of links (A file or directory can link to other files)
- Owner name (login name of the file's or directory's owner)
- Group name (Group ID to which the file or directory belongs)
- Size (in bytes)
- Date and time (time stamp of last modification)
- Pathname (name of file or directory)



5. Log out by typing: `exit` <Enter>. Logout is confirmed.

## ACCESSING iMANAGER

iManager was created to provide users with a simple Graphical User Interface (GUI) for the Virtual Server. It also enables the user to maintain his/her Virtual Server from a web interface without logging on to the Virtual Server in a Telnet or FTP session. To start iManager:

1. Open the Web browser of your choice and type the following URL in the browser text box:  
**<testxx.northpoleinternet.com>** or **<yourdomain.name>/imanager/** and press Enter.
2. Type your Login ID and Password, and click **Login**. iManager opens.



Spend a few minutes clicking each of the icons described below. This enables you to get an overview of iManager. This particular module emphasizes the functionality of Tools and Wizards, File Manager, and Mail Manager.

- **User Profile**  
This page displays the user's Login and Name.
- **File Manager**  
The File Manager enables you to easily upload files from your personal computer to your Virtual Server. Once they are uploaded, you can edit those files, change permissions, and much more. With the File Manager, file management is quick and easy. With this, there is no need for FTP and telnet programs.
- **Mail Manager**  
This Web-based email client featured in the Mail Manager allows you to send and receive email messages from almost any browser. You don't need to configure a client to connect to your POP, IMAP, and SMTP server. Just use the Mail Manager.
- **Tools and Wizards**  
These wizards walk you through the step-by-step process of creating and managing email and FTP user accounts, creating email aliases and auto-replies, and protecting yourself from spam (unsolicited mail).
- **Preferences**  
Certain parts of the File Manager, Mail Manager and the administrative Tools and Wizards can be customized to your own liking. For example, by default you are prompted to confirm the removal of a file. Using the Preferences wizards, you can turn this confirmation off.
- **About iManager**  
A very brief description sums up what iManager does, and gives the latest version and build date.

## TOOLS AND WIZARDS

If you plan to have multiple users or multiple email accounts, you will need to create email and FTP user directories. In *Tools and Wizards*, you can add edit and remove users. The instructions that follow are written as if you are at the *iManager Tools and Wizards* screen, and tasks are grouped according to *Users*, *Aliases*, *Virtmaps*, and *Spammers*.



## USERS

Using *iManager* to add, edit, and remove users is a simple process.

### VIEWING ALL USERS

To display all users, click **View All**.

### ADDING A USER

To add a user:

1. Click **Add**. A user information window appears. Provide the following information in the corresponding textboxes.
  - Login
  - Password (twice)
  - Full Name
  - Select the user's Home directory.
2. Select the user's FTP and Mail privileges and quotas.
3. Click **Submit** to add the user. A message confirms the user was added.



### **EDITING A USER**

To edit a user:

1. Click **Edit**.
2. Highlight the user you wish to edit, and click **Select Users**.
3. Modify any of the following information:
  - Login
  - Password and Confirm
  - Full Name
  - User's Home directory
  - User's FTP and Mail privileges and quotas
4. Click **Submit Changes**. A message confirms the edit.

### **REMOVING A USER**

To remove a user:

1. Click **Remove**.
2. Highlight the user you wish to remove and click **Select Users**.
3. Removing the home directory for this user is your decision. Click **Yes, Remove the Above User(s)**, to permanently delete the home directory of this user. A message appears confirming the removal.

### **ALIASES**

You can instruct your Virtual Server to *alias*, or forward email addressed to one or more recipients at a specific address. You may also forward an email message to a special processing program such as an autoresponder. Email aliases are further explained in Module #4.

### **VIEWING ALIASES**

To view all aliases, click **View All**.

### **ADDING ALIASES**

To add an alias:

1. Click **Add**.
2. Add the email alias name and the alias definition.
3. Click **Submit** to add the email alias.

### **EDITING ALIASES**

To edit an alias:

1. Click **Edit**.
2. Highlight the alias you wish to edit, and click **Select Alias**.
3. Enter the email alias and the alias definition you wish to use.
4. Click **Submit** to enter the edited email alias.

### **REMOVING ALIASES**

To remove an alias:

1. Click **Remove**.
2. Select the email alias you wish to remove and click **Select Alias**.
3. Click **Yes, Remove the Above Alias** to confirm the removal.
4. A message appears confirming the removal of the alias.

## VIRTMAPS

Virtual address mappings, or virtmaps, are tailored specifically for virtual subhosts. You will want to use virtmaps to resolve possible delivery conflicts between one or more domain names. For example, `webmaster@virtualhost1` and `webmaster@virtualhost2` would require the use of virtmaps to guarantee email is delivered to two separate addresses rather than one. Virtmaps are further explained in Module #4.

### VIEWING VIRTMAPS

To view all virtmaps, click **View All**. A list of Virtual address mappings appears.

### ADDING VIRTMAPS

To add a virtmap:

1. Click **Add**.
2. Enter the virtual email address in the left text box, which points to the real email address in the right text box. The virtual email address can be a full email address (`user@domain.name`) or simply a hostname (`domain.name`). If you designate a hostname then email sent to that hostname will be sent to the corresponding real email address that you specify, if none of the previous virtual address mappings for that domain name match. This is useful as a catchall for email sent to any address for a given hostname.
3. Click **Submit** to add the virtmap.
4. Click **Confirm**. A message confirms the virtmap was added.

### EDITING VIRTMAPS

To edit a virtmap:

1. Click **Edit**.
2. Highlight the virtmap you wish to edit and click **Select Virtmaps**.
3. Enter the Virtual email address, and the real email address you wish to edit.
4. Click **Submit Changes** to edit the virtmap. The *Tools and Wizards* menu appears.

### REMOVING VIRTMAPS

To remove a virtmap if you only have one virtmap on your Virtual Server:

1. Click **Remove**. The virtmap appears in the Virtmap window.
2. You are asked if you want to permanently remove the virtmap. Click **Yes, Remove the Selected Virtmap(s)**. A message confirms the removal of the virtmap.

To remove a virtmap if you have more than one on your Virtual Server:

1. Click **Remove**. A list of virtmaps appears.
2. Highlight the virtmap(s) you wish to remove, and click **Select Virtmaps**.
3. You are asked if you want to permanently remove the selected virtmap. Click **Yes, Remove the Selected Virtmap(s)**. A message confirms the removal of the virtmap.

## SPAMMERS

You can configure your Virtual Server to block incoming email from specific addresses and/or domain names. Labeled as "spammers," the addresses and/or domain names in this file will not be allowed to deliver email to the users, aliases, or virtmaps configured on your Virtual Server.

### VIEWING SPAMMERS

To see a list of all spammers, click **View All**.

## ADDING SPAMMERS

To add a spammer:

1. Click **Add**.
2. Add the spammer's address or domain name and click **Submit**.
3. Click **Confirm** to add the spammer.

## EDITING SPAMMERS

To edit a spammer:

1. Click **Edit**.
2. Make the desired changes to the spammer, and click **Submit Changes**.
3. A message confirms the edit.

## REMOVING SPAMMERS

To remove a spammer:

1. Click **Remove**.
2. Highlight the spammer you wish to remove and click select **Spammers**.
3. Confirm that you want to remove the selected spammer. A message confirms the removal.

## FILE MANAGER

To begin navigating File Manager:

1. Click **File Manager**. By default, *File Manager* initially opens at your Home directory. A list of directories and files should now be showing for your current working directory.
2. To move below your current working directory, click a specific directory (folder icon) or file (paper icon).



The basic directory structure of your Virtual Server is shown below, with descriptions of each directory in the table below. Within each of these main directories are many subdirectories that you can see when you open a folder.

Directory	Description
~/bin	Contains servers program files such as <b>ftp</b> and <b>sendmail</b>
~/dev	Contains the device node null
~/etc	Contains servers configuration files such as <b>passwd</b> , <b>resolv.conf</b> , <b>aliases</b> , and <b>sendmail.cf</b>
~/ftp	Anonymous ftp directory
~/tmp	Temporary files
~/usr	This directory contains the users' home, mail, log
~/var	Dynamic data files such as mail files and log files
~/www	This is a symbolic link, whose symbolic link target is ~/usr/local/etc/httpd

### ACCESSING A DIRECTORY

To access a directory:

1. Click the name of the directory you wish to view. A list of the directory's contents appears.

### CREATING A NEW DIRECTORY

To create a new directory

1. Browse to the parent directory, **/usr/local/etc/httpd/htdocs/vhosts** (*vhosts* is the one that will contain the new directory), or in the *Jump directly to* text box, type the path and name for the new directory, and press **Enter**.
2. Click **Create New Directory**. The *New Directory* text box appears.
3. In the *New Directory Name* textbox, type **www.santas-sweets.com** or **<www.subhosteddomain.name>** of your choice in place of *New\_Directory\_Name*.
4. Click **Create New Directory**. A message confirms that the new directory was created and is shown beside the *Current Directory* on the File Manager interface.

### VIEWING A FILE

To view a file:

1. Browse to the directory and select the file you wish to view.
2. The *Current File* window opens.
3. Click **View File**. The file contents appear in another window.
4. Click the browser window's *Back* arrow to return to the *Current File* window.

### EDITING A FILE

To edit a file:

1. Browse to the directory and select the file you wish to view.
2. The *Current File* window opens.
3. Click **View File**. The file opens in another browser window.
4. Click the browser window's *Back* arrow to return to the *Current File* window.

### CREATING A NEW FILE

To create a new file:

1. Browse to the directory where the file is to be located, or type the path and file name in the *New File Name* text box and press **Enter**.
2. Click **Create New File**. The *Create File* window appears.

3. Type the *New File* name in the text box, to replace *New\_File\_Name* text, and click **Create New File**. A message appears confirming that the file was created.

### **UPLOADING A FILE**

To upload a file from your local computer to your Virtual Server:

1. Browse to the directory you wish to upload the files to.
2. In the text box, type the file name and location on your local computer you wish to upload, or click the **Browse** button to locate the file, then select it. (You may upload a maximum of four files at a time, by default, but this can be changed in the *Preferences > File Manager Preferences* section.)
3. Click **Upload File**. A message confirms a successful upload.

### **COPYING OR RENAMING A DIRECTORY**

To copy or rename a directory:

1. In *File Manager*, click **Copy Directory**.
2. Select a file or directory.
3. Click **Copy Directory** or **Rename Directory**. A message confirms that the action was successful.

### **EDITING FILES**

To edit text files (such as HTML files) from within your Web browser.

1. Click **Edit File** to start editing the file.
2. After you have edited the file, choose either to Save Edited File, Cancel and Discard Modifications, or Reset Form.

### **DELETING FILES**

To delete files:

1. Select the file or folder to delete.
2. Click **Remove File**.
3. Confirm the removal of the file. A message confirms the deletion.

### **COPYING AND MOVING FILES**

To copy a file

1. Select a file or directory.
2. Click **Copy File** or **Copy Directory**.
3. A message confirms that the action was successful.

### **CHANGING PERMISSIONS**

To change permissions on a file:

1. Select a file or directory.
2. Click **Change permissions**.
3. Select the permissions (read, write, execute) by checking the options for the file or directory.
4. Choose whether to save the changes or discard them.

**Note:** If you are unsure about what file permissions you need for a file or directory, just leave them as they are for now. Refer to “Security Risks” in the *Virtual Server Handbook* for more information.

## MAIL MANAGER

In the *iManager Main Menu*, click **Mail Manager**. This window initially appears when there are no messages in the mailbox. It tells how many messages are in it, the Inbox Folder size (in bytes), and a list of actions: *Check for New Messages*, *Change Mail Folder*, and *Compose New Message*.



## CHECKING FOR NEW MESSAGES

If you have messages in your Inbox, when you click **Mail Manager**, the Inbox appears instead of the window shown above. Inbox lists the messages it contains according to your indicated preference. Select any message by clicking the checkbox beside it, in the *Tag* column, and choose from any of five actions:

- Delete Tagged Messages
- Save Tagged Messages
- Sort by Sender
- Sort by Subject
- Sort by Size

## READING MESSAGES

Click the *Subject* of the message and the message appears. There are several actions you can take with a message:

- **Bounce Message**
  - a. Type the email address you would like to bounce the original message to, in the *To* text box.
  - b. Click **Send**. A message confirms the message was bounced, and displays the email address of its intended recipient.
- **Forward Message**
  - a. Type the email address in the **To/Cc/Bcc** textboxes, as appropriate.
  - b. Click the checkbox if you want to save a copy of the outgoing message.
  - c. Click **Send**, unless you want to append an attachment.
  - d. If you want to send an attachment, click **Browse** to locate and select the file on either your local computer or your Virtual Server.
  - e. Click **Send**. A message confirms your forward was successfully sent.
- **Reply to Message**
  - a. Type your message under the message in the window.
  - b. Click **Send**. A message confirms your reply was successfully sent.
- **Group Reply**
  - a. Type any message under the message in the window.
  - b. Click **Send**, unless you want to append an attachment.

- c. If you want to send an attachment, click **Browse** to locate and select the file on either your local computer or your Virtual Server.
  - d. Click **Send**. A message confirms your reply to all recipients listed in the original message was successfully sent.
- **Delete Message**
    - a. You are asked if you are sure you want to delete the message.
    - b. Click **Delete Message**. A message confirms the deletion.
  - **Save Message**
    - a. The following message appears: “Please use the form below to select a target mail folder to which your selected message(s) will be appended.” By default, the Mail folder appears in the text box.
    - b. Click **Submit** to save the message in your Mail folder.
    - c. To save the message in another folder, click the Directory symbol (./) on the left, then select a directory in which to save your message.
    - d. Click **Submit**. A message confirms your message was successfully saved.

### CHANGING MAIL FOLDERS

To change a Mail Folder location:

1. In *Mail Manager*, click **Change Mail Folder Location**. The following screen appears.



2. Type the new location of your Mail folder.
3. Click **Submit**.

### COMPOSING MESSAGES

To compose a message:

1. In *Mail Manager*, click **Compose New Message**.
2. Fill in the appropriate fields and type your message.
3. Click **Send**. A confirmation message appears.

### PREFERENCES

In **Preferences** you can select various features from five categories:

- General Preferences
- Language Preferences
- File Manager Preferences
- Mail Manager Preferences
- Tools and Wizards Preferences



### **GENERAL PREFERENCES**

To set general preferences:

1. Click **General Preferences**.
2. Select the screen you want *iManager* to open in after login, and the length of wait before auto logout.
3. Click **Submit**. A message confirms that your preferences were successfully saved.

### **LANGUAGE PREFERENCES (PRESENTLY NOT OPERATIONAL)**

To set language preferences:

1. Select the default language you prefer to use and click **Submit**.

### **FILE MANAGER PREFERENCES**

To set File Manager preferences:

1. Click **File Manager Preference** and select from the following features:
  - Hide directory entries whose names begin with a dot (.)
  - Confirm File Remove
  - Confirm File Overwrite
  - Confirm Directory Creation
  - Default Change Permissions Options
  - Number of Upload File Form Elements
2. Click **Submit**. A message confirms that your preferences were successfully saved.

### **MAIL MANAGER PREFERENCES**

To set *Mail Manager* preferences:

1. Click **Mail Manager Preference** and select from the following features:
  - Number of Messages to View
  - Confirm Mail Remove
  - Default Mail Folder Directory
  - Number of Mail Attachment Form Elements
2. Click **Submit**. A message confirms that your preferences were successfully saved.



## TOOLS AND WIZARD PREFERENCES

To set *Tools and Wizards* Preferences:

1. Click **Tools and Wizard Preferences** and select from the following features:
  - Number of New User Form Submissions
  - Number of New Alias Form Submissions
  - Number of New Virtmap Form Submissions
  - Number of New Spammer Form Submissions
2. Click **Submit**. A message confirms that your preferences were successfully saved.

## LOGGING OUT OF IMANAGER

To exit *iManager*, click **Logout** at the bottom of the screen. We strongly suggest that you log out properly, for security reasons.

## ADDING A USER IN A COMMAND LINE

You have just learned how to add a user, using *iManager*. Now you are going to add a user in a command line interface. While *iManager* can do many administrative tasks, the command line interface can do all that and a lot more, so it's a good idea to practice using UNIX commands while you are becoming proficient in *iManager*.

### VADDUSER

To add from the command line, you are going to connect using SSH. Refer to *Module #2: Connecting to Your Virtual Server*, for instruction, if you new to review.

To use `vadduser`:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type :  
**vadduser** <Enter>
3. The following script appears:

```

File Edit View Options Transfer Script Window Help
Please supply answers to the series of questions below. When a
"default answer" is available, it will follow the question in square
brackets. For example, the question:

    What is your favorite color? [blue]:

has the default answer "blue". Accept the default (without any
extra typing!) by pressing the <Enter> key -- or type your answer
and then press <Enter>.

Use the <Backspace> key to erase and aid correction of any mistyped
answers -- before you press <Enter>. Generally, once you press
<Enter> you move onto the next question.

Once you've proceeded through all the questions, you will be given
the option of modifying your choices before any files are updated.

Press <Enter> to continue:
Ready ssh1: 3DES 24, 28 19 Rows, 69 Cols VT100 NUM
  
```

4. Follow the script, pressing <Enter> to continue when instructed. You will need to add the following information:
  5. Email/FTP User Name – no more than eight upper or lower case characters or digits
  6. Email/FTP Password – longer than six characters, containing at least one non-alphabetic character  
Type this one twice.
  7. User's Full Name – no more than 80 characters, containing no colon (:).
  8. Account Services - <Enter> automatically selects both ftp and mail services; otherwise, unselect the service for this particular user, by typing it. For example, if you want to deny a user FTP use, type **ftp**.
  9. Service Options quotas – Type **Yes** or **No** <Enter>.  
If you type **Yes**, enter a quota number—a whole number to express megabytes (MB)—then <Enter>.
  10. Account Home Directory – five options, all self-explanatory, but if you plan to publish Web content, choose Option 3 (required by FrontPage) After you have designated the home directory, your command prompt appears. The Add process is complete.
- Take some time to practice adding users until you are comfortable with the command line procedure.

## UNIX EDITORS

Often, when you are in a shell session, you will need to edit files. To do this, you need a text editor program. For training purposes, we are going to use either of two: **pico** and **vi**.

### PICO

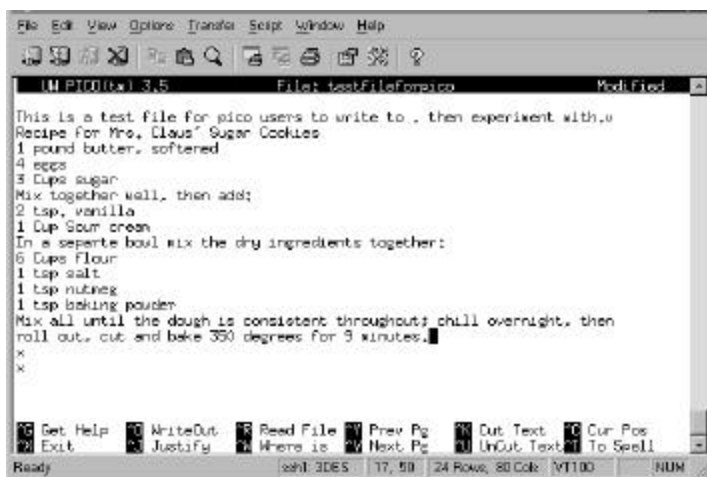
Pico is an easy-to-use text editor that enables you to edit any kind of text file. The command looks like this:  
`pico -w filename` (The `-w` is optional, but it prevents line wrap, which can cause some configuration files to malfunction. Use the `-w` option to be safe.)

### EDITING WITH PICO

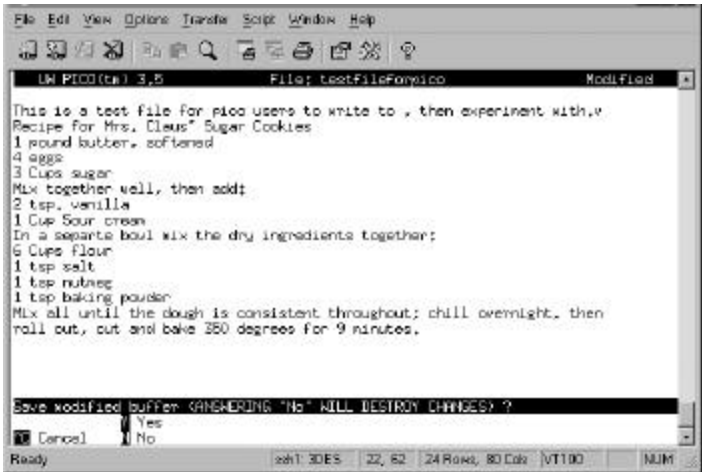
To edit a file with pico:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd` <Enter> you are in your home directory.
3. Invoke the pico editor by typing: `pico -w testfileforpico` <Enter>. If the file already exists, Pico opens it for you to edit. If it doesn't exist yet, Pico creates it. Either way, your file is placed in an editing buffer (an area temporarily set aside in memory). Commands are located at the bottom of the window below. You must first press the **Ctrl** key plus the letter that corresponds to a command.

Otherwise, nothing happens.



- 4. Using the arrow keys to navigate, write whatever you want, and experiment with the commands. When you are finished with the file and ready to exit the buffer, press **Ctrl + x**. The controls at the bottom of the screen are replaced by **Yes** to save changes, **No** to not save (“destroy changes”), and **Ctrl + c** to cancel the action and return the file to the editing buffer.



- 5. The following window shows the filename for this file. The *File Name to write* line will be blank if you have created a new file. Type the file name for your new file, on that line. If you are not sure what to do, press **Ctrl +g** to view *Write File Help*, as shown below. From here, press **Ctrl + x** to exit *Write File Help* and return to the previous window.





**VI**

`vi` is the most powerful standard text editor on your computer. Beginners using `vi` find it a challenge to use, but well worth the time and effort to learn. Here are a few points to remember:

- `vi` commands are case-sensitive. Uppercase and lowercase keystrokes do different things.
- `vi` commands do not display on the screen when you type them.
- `vi` commands generally do not require an <Enter> after the command.
- `vi` is in *Command mode* when the keyboard keys are issuing commands, but when you are actually typing text in a file, `vi` is in *Insert mode*.

**BASIC VI COMMANDS**

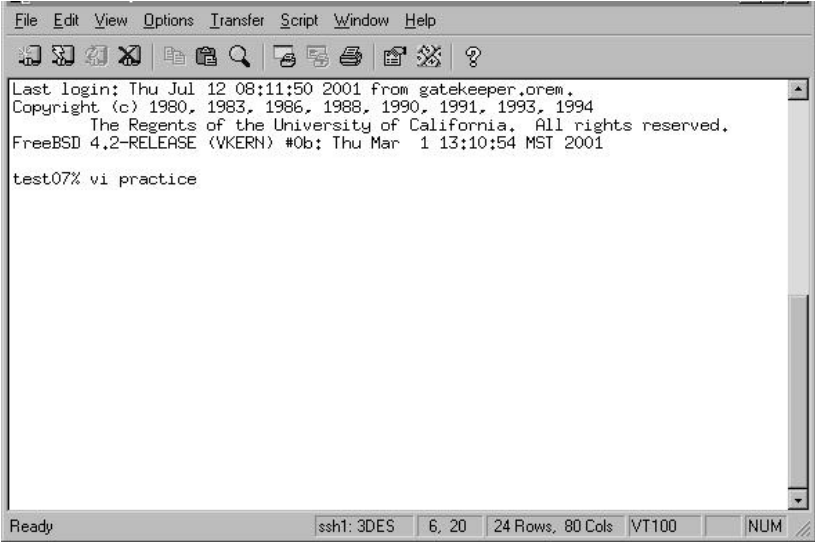
Basic commands are shown in the following table.

Command	Action	Command	Action
<code>vi</code> <filename>	Open a file in the <code>vi</code> editor.	<code>:1,10d</code>	Delete lines 1-10.
<code>j</code>	Move down a line.	<code>x</code>	Delete the character the cursor is on.
<code>k</code>	Move up a line.	<code>dd</code>	Delete the line the cursor is on.
<code>l</code>	Move right.	<code>/test</code>	Search for test.
<code>h</code>	Move left.	<code>:1</code>	Move to line one.
<code>i</code>	<code>Vi</code> changes to <i>Insert mode</i> Insert text at the cursor.	<code>:q</code>	Quit <code>vi</code>
<code>Esc</code>	<code>Vi</code> changes to <i>Command mode</i> .	<code>:q!</code>	Quit <code>vi</code> without saving changes.
<code>a</code>	Add text after the cursor.	<code>:e!</code>	Wipe out all edits and return to the original file.
<code>o</code>	Open a blank line below the cursor.	<code>:%s/test/foo/g</code>	Search for test and replace it with foo throughout the file.
<Shift> <code>g</code>	Move to the bottom of the file.	<code>ZZ</code> or <code>:x</code>	Quit <code>vi</code> and save edits.
<ctrl>- <code>g</code>	Report what line the cursor is on.	<code>G 8</code>	Go to Line 8.

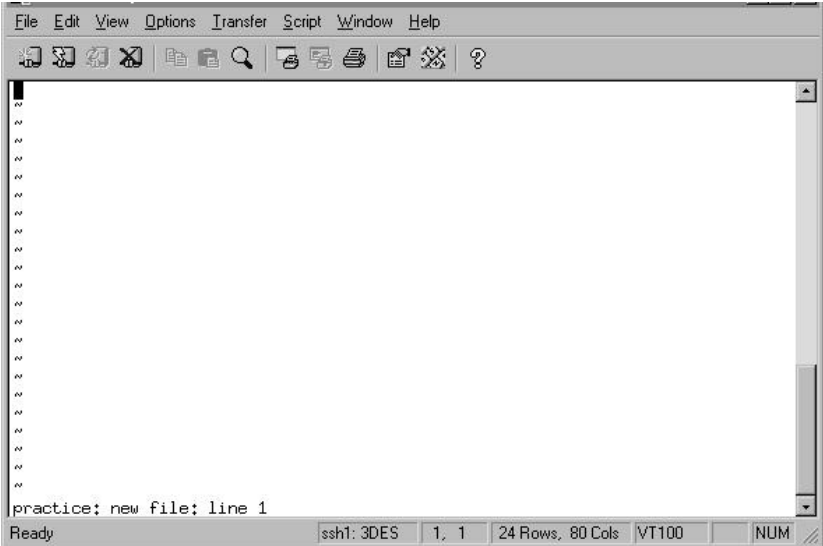
**EDITING WITH VI**

To edit a file:

- 1. Connect to your Virtual Server using SSH.
- 2. Invoke the vi editor by typing: **vi practice** <Enter>.



Since this is a new file, the buffer is empty and the following screen appears. The tildes down the left side indicate that there is no text in the file. The new file name, “practice,” is displayed at the bottom of the screen.





## MODULE SUMMARY

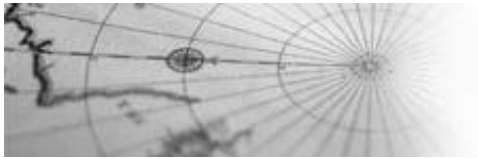
In this module, you have learned to do the following:

- Access iManager program files on your Virtual Server, using the `ls` command
- View the list in detail, using the `ls -al` command.
- Access iManager from your Web browser
- Create and manage files and directories
- Add and delete users
- Change permissions
- Log out of iManager
- Add a user using the command line
- Use a text editor (pico, vi)

Exercises for practice:

Application	Task	Record the steps you took to complete this task:
iManager	Access iManager (example)	Open browser   (URL) <b>testxx.northpoleinternet.com/imanager/</b> or <b>&lt;yourdomain.name&gt;/imanager/</b> (press <b>Enter</b> )   login & password
iManager	Add users: Jack Frost and Gwen	
iManager	Delete Gwen	
iManager	Edit a user's directory to receive mail only	
vadduser	Add Frosty Snowman and Jason	
pico	Write a new file and save it to the <code>~www</code> directory	
vi	Write a new file and save it to your <code>~www</code> directory.	
iManager	Change permission on your new file to read-only.	





**North Pole Internet**

# **Virtual Server Training Guide**

## **Email Resources**

### **MODULE 4**

## MODULE 4. EMAIL RESOURCES

### OBJECTIVES:

By the end of this module you will understand the following email terms and services:

- POP
- IMAP
- SMTP
- Web Mail

You will also be able to perform the following server administrator tasks:

- Configure email clients.
- Create an alias.
- Create an autoreply.

### Scenario

North Pole Internet needs to set up email accounts that will meet the needs of their clients. You must configure their user accounts to receive mail, using their preferred email clients. You also need to create some aliases and an autoreply to efficiently organize their email.

## VIRTUAL SERVER EMAIL SERVICES

Computers use specific protocols, or prearranged patterns of communication, to transfer email in order to "speak" to each other so that mutual comprehension occurs. The following protocol terminology will help you to understand the technology of email transmission.

- **Simple Mail Transfer Protocol (SMTP)**  
SMTP enables computers to send mail over the Internet. By default, all Virtual Servers include the "POP-before-SMTP" configuration to prevent SMTP relaying by spammers. To use SMTP relaying, you must first set up a POP account on your server, using the server's IP address, and create SMTP relaying on the POP account.
- **Post Office Protocol (POP3)**  
POP3 accesses the Virtual Server that downloads incoming email to your local computer. Email is not stored on the remote server. Users can access their email from any computer with their favorite POP3 email client (Eudora, Netscape Mail, Outlook Express, Mutt, Elm, Pine, etc.).
- **Internet Message Access Protocol (IMAP)**  
IMAP allows email access from almost any computer, in almost any location. IMAP maintains your mail account on the Virtual Server; you issue commands to download, delete, forward, store, and so on from your local computer, but your Virtual Server does all the work.

### WEB MAIL

If you choose to use iManager to manage your mail account:

1. Start your Web browser.
2. Type `testxx.northpoleinternet.com/imanager/` or `<yourdomain.name>/imanager/` in the address bar, and press **Enter**.
3. Log in to iManager.
4. Click **Mail Manager** to open your Inbox. You can see your new mail, change a mail folder, or compose a new message. (See Module #3 for more information about Mail Manager.)

### WEB MAIL FOR SUBHOSTS

Your clients (who are known as subhosts) can also use iManager as their email client. (See Module #5 for more information about Subhosts.)

## **CONFIGURING ACCOUNTS TO USE POP OR IMAP**

After you have created user accounts on your Virtual Server (using vadduser or iManager), your users with mail privileges must be able to access their mail through either the iManager Mail Manager or their favorite email client. The following instructions help you configure client software to receive email from your Virtual Server. Other versions of these, or other products, will have similar configuration processes. Use these instructions as a guide to help you get through configurations that may vary.

### **NETSCAPE COMMUNICATOR 4.7**

To configure Netscape Messenger:

1. Open Netscape Messenger.
2. Click the **Edit** menu.
3. Click **Preferences**.
4. Click **Mail Servers**.
5. Type your new email user name. For example, "jackfrost" is the user name for an email address of jackfrost@northpoleinternet.com.
6. Click **OK**.
7. In the *Outgoing Mail Server* section, provide the following:
8. Your domain.name in the *Outgoing Mail Server* text box, for example, northpoleinternet.com. Your email user name in the *Outgoing Mail Server User Name* text box, for example, jackfrost.

### **OUTLOOK 2000**

To configure Outlook 2000:

1. Open Outlook 2000.
2. Click **Tools, Accounts**.
3. Click the **Mail** tab.
4. Select **Add, Mail** from the list.
5. Follow the instructions provided by the wizard. Tips and explanations are listed below.
  - *Incoming mail (POP3 or IMAP) server*  
This is typically your domain name, for example, northpoleinternet.com.
  - *Select Pop3 or IMAP*  
If you are unsure, we recommend you choose POP3.
  - *Outgoing Mail (SMTP) server*  
This is typically your domain name, for example, northpoleinternet.com.
  - *Account Name*  
This is your email user name, for example, "jackfrost" for an email address of jackfrost@northpoleinternet.com.
  - *Password*  
The password you associated with the email user account name.

## QUALCOMM EUDORA 5.0

To configure Eudora 5.0:

1. Start Eudora 5.0.
2. Click **Tools**.
3. Click **Options**.
4. Click **Getting Started**.
5. In the Real Name text box, type your real name.
6. In the Return Address text box, type your email address.
7. In the Mail Server (Incoming) text box, type the name of your ISP's POP mail server.
8. In the Login text box, type your username.
9. In the SMTP Server (Outgoing) text box, type your ISP's SMTP mail server name (your domain.name, or smtp.yourcompany.com).
10. Click **OK**.

## EMAIL ALIASES

Email aliases allow you to create email addresses for yourself or your users, without creating additional email accounts. This allows you to have meaningful addresses that your customers can remember, and the advantage of having all your email go to one box.

The Aliases file is located in the `/usr/home/<login>/etc` directory, where `<login>` is your login ID for your Virtual Server. It contains two columns of information.

- The left column contains the alias name (the information to the left of the @ symbol) followed by a colon.
- The right column might contain the username of an account on your server or a complete address of your choice. The following is an example of a line in an aliases file:

```
questions: bob
```

This alias on the server northpoleinternet.com would accept email messages addressed to questions@northpoleinternet.com and deliver them to Bob's mailbox.

## ADDING AN ALIAS

To add an email alias:

1. Start your browser
2. Open and log in to iManager > Tools and Wizards > View All (at Users) to check that you have a user, Jack Frost, with mail privileges. If you do not, set up a user account now. (Refer to Module #3 for instructions, if necessary.)
3. Connect to your Virtual Server using SSH.
4. At the command prompt, type `cd ~/etc` <Enter>, to change to the directory where the `aliases` file is located.

5. To edit the `aliases` file, at the command prompt, type `pico aliases` <Enter>. Note If you would rather use the vi editor, type `vi aliases` <Enter>.



```

File Edit View Options Transfer Script Window Help
Last login: Tue Jul 17 11:49:25 2001 from gatekeeper.oren.
Copyright (c) 1980, 1983, 1986, 1988, 1990, 1991, 1993, 1994
The Regents of the University of California. All rights reserved.
FreeBSD 4.2-RELEASE (WERN) #2: Wed Jul 11 09:16:29 PDT 2001
test07% cd "/etc
test07% pwd
/usr/home/test07/etc
test07% pico aliases
Ready ssh1: 3DES 9, 21 24 Rows, 80 Cols VT100 NUM

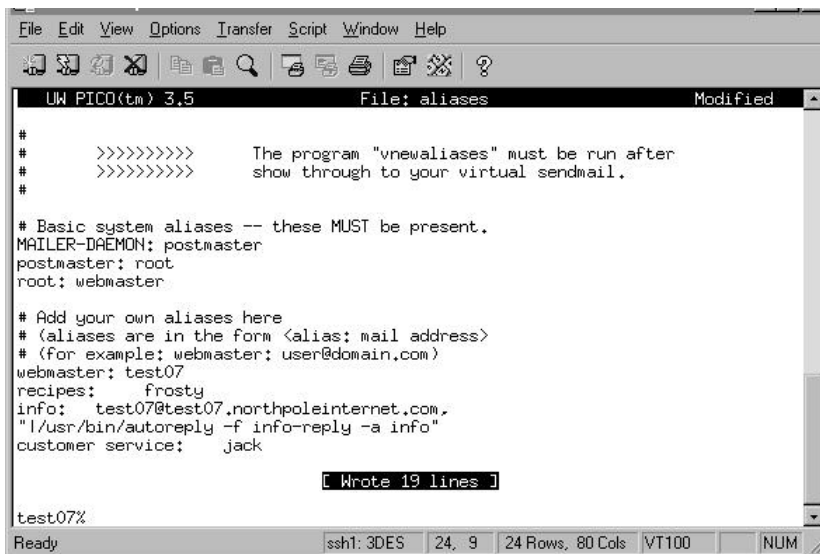
```

6. Add the following line to the `aliases` file:

```
customerservice: jack
```

This data can be entered in any blank line, but some organization to the file will be helpful for managing it efficiently. If there are other aliases associated with <yourdomain.name>, you might want to group them together so that they are easy to find. You also could include comments to help you remember why the alias is there. (# indicates a comment line in a file.)

After the line is added, save and exit your text editor.



```

File Edit View Options Transfer Script Window Help
UW PICO(tm) 3.5 File: aliases Modified
#
# >>>>>>>>>> The program "vnewaliases" must be run after
# >>>>>>>>>> show through to your virtual sendmail.
#
# Basic system aliases -- these MUST be present.
MAILER-DAEMON: postmaster
postmaster: root
root: webmaster

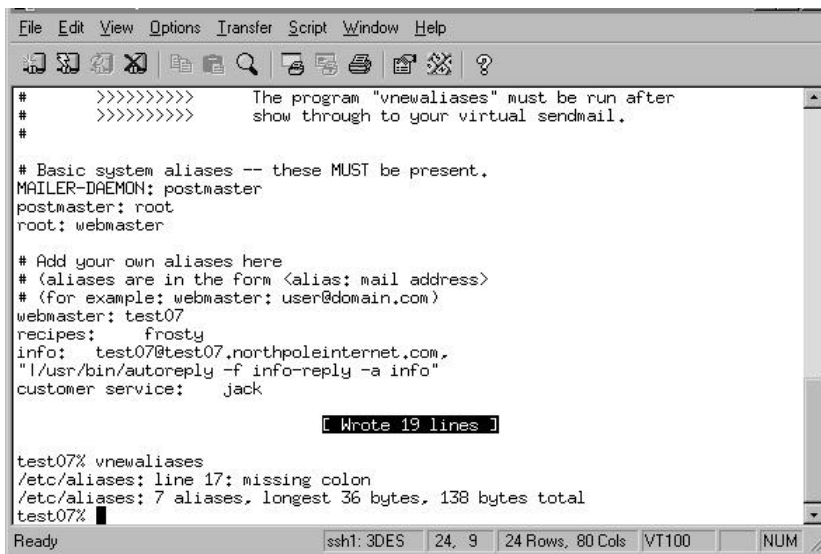
# Add your own aliases here
# (aliases are in the form <alias: mail address>
# (for example: webmaster: user@domain.com)
webmaster: test07
recipes: frosty
info: test07@test07.northpoleinternet.com,
"/usr/bin/autoreply -f info-reply -a info"
customer service: jack

[ Wrote 19 lines ]

test07%
Ready ssh1: 3DES 24, 9 24 Rows, 80 Cols VT100 NUM

```

7. Type **vnewaliases** <Enter> to update the aliases file on your server:



```
File Edit View Options Transfer Script Window Help
# >>>>>>>>>> The program "vnewaliases" must be run after
# >>>>>>>>>> show through to your virtual sendmail.
#
# Basic system aliases -- these MUST be present.
MAILER-DAEMON: postmaster
postmaster: root
root: webmaster

# Add your own aliases here
# (aliases are in the form <alias: mail address>
# (for example: webmaster: user@domain.com)
webmaster: test07
recipes: frosty
info: test07@test07,northpoleinternet.com,
"/usr/bin/autoreply -f info-reply -a info"
customer service: jack

[ Wrote 19 lines ]

test07% vnewaliases
/etc/aliases: line 17: missing colon
/etc/aliases: 7 aliases, longest 36 bytes, 138 bytes total
test07%
```

Congratulations! You have just successfully created an alias.

**Note:** Using your FTP client or iManager, you can also download the Aliases file, edit it on your local computer, and upload it back to your Virtual Server. (Be sure to use ASCII mode when transferring the file in FTP. Refer to Module #1 if you need to review file transfers.)

## THE CATCHALL

Address mappings, or “virtmaps,” are similar to aliases but are tailored to domain names, while aliases are tailored to users. Virtual Servers that host more than one domain use virtmaps to organize their aliases. Virtmaps will be more thoroughly explained in Module #5.

Sendmail is the UNIX-based SMTP server software program that the Virtual Server uses, to route its mail and read the virtmaps file. Sendmail reads the virtmaps file from top to bottom, and exits when it finds the first match. For this reason, the catchall virtmap should be listed last, or last in a grouping for a specific domain. Any incoming email that does not match a name or alias, but matches the domain, should be sent to a user designated as the catchall, rather than being returned to the sender.

You add the catchall virtmap the same way you add any other virtmap.

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd etc` <Enter>, to get to the etc directory where the virtmaps file is located.
3. At the command prompt, type `pico virtmaps` <Enter> to edit the virtmaps file.

If you would rather use the vi editor, type `vi virtmaps` <Enter>.

4. At the bottom of the virtmap entries, type `northpoleinternet.com frosty`  
or, type `<your domain.name> <user of your choice>`
5. Save and exit your editor.

Frosty (your user) will receive whatever mail is delivered to northpoleinternet.com or <your domain>, that doesn't match any other recipient. The hostname, northpoleinternet.com, can be replaced with any domain name you want to create a catchall for. This also applies to your subhosts, which will be covered in Module #5.

## AUTOREPLY

An autoreply is a unique alias that sends frequently requested information such as product lists or FAQ documents. When mail arrives at an autoreply alias, the autoreply sends a default message back to the sender of the original message.

Autoreplies, also known as autoresponders, can provide confirmation of message delivery. Important client mail can be routed first through an autoreply to let your clients know that you have received their messages.

To set up Autoreply on your Virtual Server:

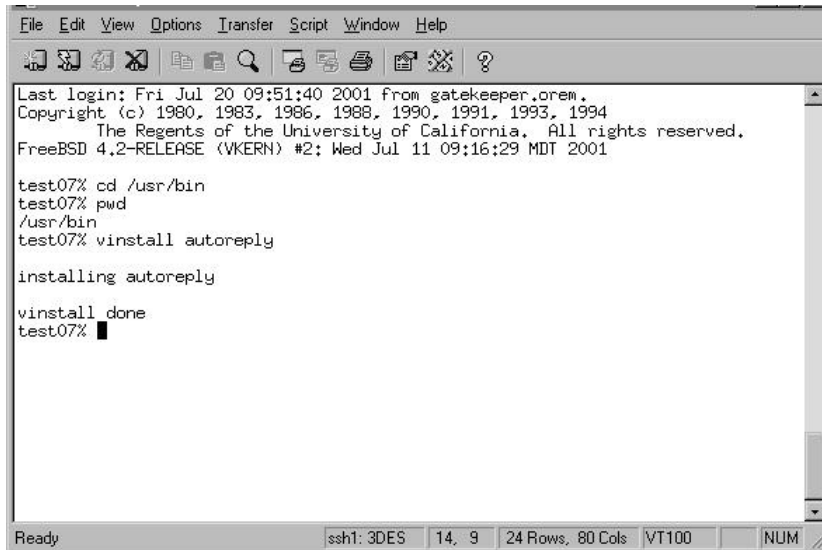
1. Install the Autoreply program using the `vinstall` command.
2. Create the autoreply file in your virtual root directory (`/usr/home/<your name>`).
3. Create the autoreply address and place it in your Aliases file.

## INSTALLING AUTOREPLY

To install Autoreply:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd /usr/bin` <Enter>.
3. Type `vininstall autoreply` <Enter>.

When the installation is complete, `vininstall done` appears on your screen.



```

File Edit View Options Transfer Script Window Help
Last login: Fri Jul 20 09:51:40 2001 from gatekeeper.orem.
Copyright (c) 1980, 1983, 1986, 1988, 1990, 1991, 1993, 1994
The Regents of the University of California. All rights reserved.
FreeBSD 4.2-RELEASE (VKERN) #2: Wed Jul 11 09:16:29 MDT 2001

test07% cd /usr/bin
test07% pwd
/usr/bin
test07% vininstall autoreply

installing autoreply

vininstall done
test07% █

```

## CREATING THE .AUTOREPLY FILE

To create the `.autoreply` file:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd` <Enter> to go to your virtual Root directory.
3. At the command prompt, type `pico .autoreply` <Enter> to create the `.autoreply` file.

**Note** If you would rather use the vi editor, type `vi .autoreply` <Enter>.

The `.autoreply` file has been created and resides in your virtual root directory. It contains the actual headers and body of your message.

## CUSTOMIZING .AUTOREPLY

To customize the content of the header lines and the body lines of the autoreply text reply:-

1. Type your customized header lines ("Subject" or "Reply-To") at the beginning of the file, one line after another.
2. Separate the headers from the body portion of the message by a single blank line. The first blank line signals the start of the body of the message.
3. Type the body of the message.



- Remove any blank lines that might cause an intended header line to be considered part of the body.



## CREATING AN AUTOREPLY

To create an autoreply:

- Connect to your Virtual Server using SSH.
  - At the command prompt, type `cd ~/etc` <Enter>.
  - At the command prompt, type `pico aliases` <Enter>.
- If you would rather use the vi editor, type `vi aliases` <Enter>.
- Type the following all on one line, replacing specific words as described in the following substeps:

alias: recipient, "|/usr/bin/autoreply -f name -m message -a address"

- Replace "alias" with the name of your autoresponder, such as Info, or FAQs.
- Replace "recipient" with the recipient address that receives copies of incoming messages (similar to an alias).
- The "|" passes the incoming message to the Autoreply program and sends back the text of a predetermined message in reply.
- The -f option indicates the "From" line. Replace "name" with the name you want to use in this line.
- The -m option contains the location of the reply text for the autoreply. If it is not specified, it is taken from the .autoreply file in the virtual root directory.

The example in Step 6 contains no "-m", so the .autoreply file is automatically read and copied to the autoreply directory. If the -m option is specified, meaning that you want to use text from a file other than .autoreply, type -m and the file path and name of your desired message text in place of the word, "message".

- The -a option specifies a user that an autoreply can reply for. The user specified should be the same as the user (alias) configured for the autoreply.

The following is an example of an autoreply:

```
info: jason@northpoleinternet.com, "|/usr/bin/autoreply -f info-reply -a info"
```

- When you have completed this command, press <Enter>.
- Save and quit your text editor.
- At the command prompt, type `vnewaliases` <Enter> to update your server.

**Note:** The *Autoreply* program searches the "To:" and "Cc:" header lines for the text specified by the address value. *Autoreply* replies to the message if "address" is found. If "address" is not found, *Autoreply* ignores the message.

## MODULE SUMMARY

In this module, you have learned about the following email terms and services:

- **SMTP** – Simple Mail Transfer Protocol enables computers to send mail to each other over the Internet.
- **POP3** – Post Office Protocol accesses the Virtual Server that downloads incoming email to your local computer. Email is not stored on the remote server.
- **IMAP** – Instant Message Access Protocol maintains your mail account on the Virtual Server and allows you to access your mail from any computer.
- Configuring your users who have email privileges, to use their chosen email clients.

You will also have learned to create the following:

- **Alias** – The left column contains the alias name (the information to the left of the @ symbol) followed by a colon.

The right column might contain the username of an account on your server or a complete address of your choice. The following is an example of a line in an aliases file:

```
recipes:      mrsclaus
```

- **Catchall alias** -- listed last -- in the aliases file, it receives all mail not specifically addressed to any other name in the domain.
- **Autoreply** – a special alias in the form of the following command:

```
alias: recipient, "|/usr/bin/autoreply -f name -m message -a address"
```

A sample autoreply whose text reply is *not* located in the .autoreply file:

```
recipes: mrsclaus@<yourcompany>.com, "|/usr/bin/autoreply -f recipes-reply -m /<user>/sugarcookies -a recipes"
```

## EXERCISES FOR PRACTICE

Application	Task	Record the steps you took to complete this task:
Command line	Designate Frosty as the catchall alias.  The catchall alias should be listed last in the Aliases file- to receive all mail delivered to your domain that doesn't go any specific address.  Don't forget to update your server using the <code>vnewaliases</code> command.	
iManager	View the aliases you have added. Add an alias using iManager.	
Command line	Create an autoreply for one of your users. The Autoreply program files are in your <code>/usr/bin</code> directory. The .autoreply file (containing the message content for an autoreply) is located in your virtual root directory( <code>/usr/home/&lt;yourdomain&gt;</code> ).  Don't forget to update your server with the <code>vnewaliases</code> command.	



***SANTA'S SWEETS***



# **Virtual Server Training Guide**

## **Virtual Subhosting**

### **MODULE 5**

## MODULE 5: VIRTUAL SUBHOSTING

### OBJECTIVES

By the end of this module, you will be able to:

- Explain the concept of Virtual Subhosting
- Explore the benefits and limitations of virtual subhosting
- Add domains and move existing domains
- Configure subhosts using `vaddhost`
- Manually configure subhosts
- Add Virtmaps for subhosts
- Add Autoreplies for subhosts
- Configure subhosts to use iManager.

**Scenario** Your new customer, Santa's Sweets, would like to host their domain on your server. They will be managing their own website, but they need you to set up the necessary space. In your examples for creating subhosts you will be using `testx.santas-sweets.com`.

Virtual subhosting or simply, subhosting is a feature of the Virtual Server system. With subhosting, you can support multiple domains on a single server. For example, you can host `http://santas-sweets.com`, `http://northpolaranch.com`, and `http://snow-witch.com` on the same server, with each domain having its own Web page.

Subhosting provides each subhosted domain with the following features:

- Individual FTP login
- Exclusive access to its subdirectory
- Email addresses associated with the domain name

### ADDING DOMAINS TO YOUR SERVER

To add a subhost, a domain must be associated with that subhost. To do this, you must first add the domain name to a name server that then resolves to the virtual server IP address. Contact your Internet hosting company.

### USING VADDHOST

The `vaddhost` utility automates the process of configuring virtual subhosts.

To use `vaddhost`:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `vaddhost` <Enter>.
3. At the next prompt type: `www.domain.name [domain.name] [www.domain.name2]` <Enter>.
4. Type `end` <Enter>.
5. A message appears requesting that you confirm that the information is correct.
  - If it is not correct type `n` <Enter> to start over.
  - If it is correct, type `y` <Enter> to continue.
6. The next prompt requests the email address of the person responsible for the subhosted domain. Type the `name@emailaddress.com` <Enter>.
7. A message displays the subhost and email information and requests confirmation.
  - Type `y` or `n` <Enter>.
8. The next prompt requests that you chose the virtual subhost location where the Web site content for the virtual host will be stored. Type `1`, `2`, `3`, or type a path of your choice <Enter>.
9. The virtual subhost entry appears again to verify if the information is correct.
  - If it is correct type `y` <Enter>.
  - If it is not correct, type `n` <Enter> and repeat the previous step.

10. The next screen asks if you would like to add separate log files for the subhost. Type **y** or **n** <Enter>.
11. If you type **y**, you must choose a location for the access log files; then type **1**, **2**, **3**, or **4** <Enter>.
12. A message appears displaying all the subhost information that you have entered.  
Check it to confirm whether it is correct; then type **y** or **n** <Enter>.
13. The next screen asks you to choose a location for the error log files.  
Choose a location and choose **1**, **2**, **3**, or **4** <Enter>.
14. A message appears requesting confirmation.  
Type **y** or **n** to verify if the information is correct <Enter>.
15. The next message asks if you would like to add a cgi-bin directory to the subhost.  
Type **y** or **n** <Enter>.
16. If you type **y**, choose a location for the cgi-bin directory and type **1**, **2**, **3**, or **4** <Enter>. We recommend that you not choose option #1, for security reasons. Any user could run a cgi script that could damage the content on your Virtual Server. See the Security Risks section in this module for further details.
17. Another message appears requesting confirmation.  
Type **y** or **n** <Enter>.
18. When the command prompt appears again, the subhost has been added.

## LIMITATIONS

Limitations to virtual subhosting include the following:

- Browsers must be HTTP/1.1-compliant
- No load balancing (one subhost could use more than its fair share of resources)
- No individual IP address
- No telnet access
- Email limitations
- Security risks

### ***HTTP/1.1-COMPLIANT***

To view subhosted domains, your browser must be HTTP/1.1 compliant. Virtual Servers require this type of browser. Netscape Navigator 2.0+ and Microsoft Internet Explorer 3.0+ are HTTP/1.1 compliant. Most other new browsers also tend to be HTTP/1.1-compliant.

### ***BALANCING SERVER LOADS***

A Virtual Server is capable of handling 30,000 to 50,000 hits per day (assuming the hits are 5 Kbytes of data). These are actual requests for data, not including visitors to the site. A request or hit to a .gif or .jpeg file on a website equals one hit.

If you are hosting five domains and all of them have about 10,000 hits a day, the performance of the server might be affected. If slowdowns occur, the Virtual Server Administrator has a few options:

- Upgrade one of the high traffic sites to its own Virtual Server
- Upgrade the Virtual Server package
- Move some subhosts to a less busy Virtual Server

For proper load balancing, the following limits are recommended for virtual subhosting:

- Server A: 5 subhosts
- Server B: 25 subhosts
- Server C: 60 subhosts

## SHARING AN IP ADDRESS

The resources of a single Virtual Server, including the single IP address, must be shared to accommodate multiple subhosted domains.

## NO TELNET

Virtual subhosts do not have Telnet access to the Virtual Server. However, they can be configured to access the Virtual Server using the following:

- FTP
- iManager
- FrontPage

## EMAIL LIMITATIONS

The Virtual Server does not recognize separate individual email addresses because all domains are associated with one IP address. For example, the Virtual Server will recognize `jack@northpoleinternet.com` and `jason@santas-sweets.com` as the same address. It will not recognize separate subhosted domains because they resolve to the same IP address.

**Note** You can overcome this limitation by creating *virtmaps* to recognize the different domain names.

## SECURITY RISKS

You should not offer your subhosted clients full `cgi-bin` access. While they might not have access to the entire server, with full `cgi-bin` access they could write a script that could damage much of the content on the server.

The following two solutions are available to avoid these security problems:

- Provide stock `cgi-scripts` in a controlled directory.

Most Web pages do not need custom CGI programming; however, you can provide “stock” CGI scripts for your clients. This stock library might include simple scripts like a counter, a guestbook, and so on. You can store these scripts in a subdirectory of your `cgi-bin` directory (for example, `vhlib`). Each virtual subhost can gain access to this library by adding the following string to their `<VirtualHost>` entry:

```
ScriptAlias /cgi-bin/ /usr/local/etc/httpd/cgi-bin/vhlib/
```

- Configure `cgi-bin` separate from subhosts directory:

Another alternative is to provide your subhosted clients with a `cgi-bin` that is not located in their home directory. This means that clients would need to send the script to you. You can review the script and install it in their `cgi-bin`. The following script can be configured to a sub directory in the main `cgi-bin` directory:

```
ScriptAlias /cgi-bin/ /usr/local/etc/httpd/cgi-bin/SUBDIRECTORY/
```

The subdirectory *SUBDIRECTORY* becomes the `cgi-bin` directory for the subhosted client.

## VIRTMAPS

If you send email to `jack@northpoleinternet.com` and `jack@santas-sweets.com`, the Virtual Server views these as the same address, because both domain names resolve to the same IP address (123.45.67.8). You can get around this limitation by using a proprietary utility called *virtmaps*.

A *virtmap* is a mapping between an address on a virtual subhost and the Virtual Server. When mail arrives for a subhost, the *virtmap* converts the address into an address or alias that the Virtual Server recognizes, which allows you to have the same email aliases or usernames for more than one domain.

The *Virtmaps* file is located in the `/etc` directory. Like the *Aliases* file, the real username or email address is in the right column. Unlike the *Aliases* file, the right column also can contain an alias, and the left column contains either a domain name or a complete email address as the *virtmap*, but not a username alone. No colon separates the columns.

## CREATING VIRTMAPS

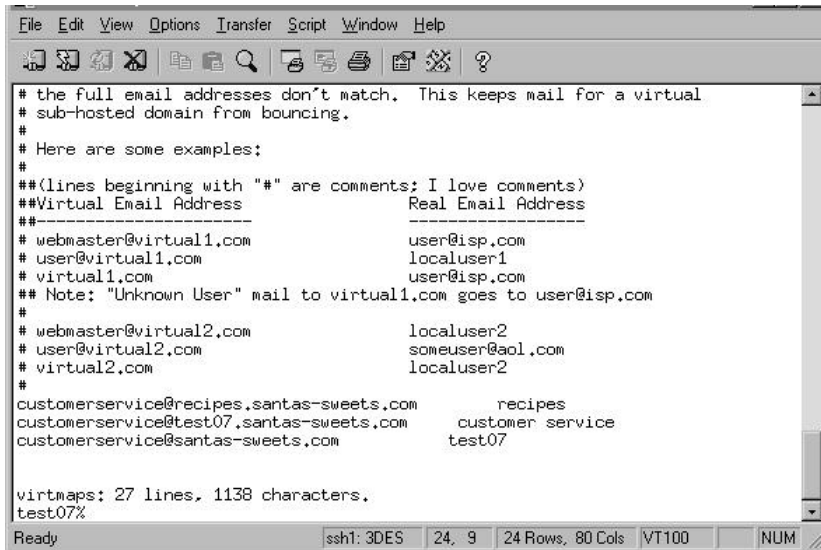
Using iManager to create a virtmap is covered in Module #3.

To create a virtmap from the command line:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd ~/etc` <Enter> to locate the Virtmap file in the /etc directory.
3. To edit the Virtmap file, at the command prompt, type `pico virtmaps` <Enter>.

**Note** If you would rather use the vi editor, type `vi virtmaps` <Enter>. The following example uses the vi editor.

4. To create a virtmap using vi, go to the next free line and type:  
`customerservice@testxx.santas-sweets.com      customerservice` <Enter> or a virtmap of your choice.



```
File Edit View Options Transfer Script Window Help
# the full email addresses don't match. This keeps mail for a virtual
# sub-hosted domain from bouncing.
#
# Here are some examples:
#
##(lines beginning with "#" are comments: I love comments)
##Virtual Email Address            Real Email Address
##-----
# webmaster@virtual1.com            user@isp.com
# user@virtual1.com                 localuser1
# virtual1.com                      user@isp.com
## Note: "Unknown User" mail to virtual1.com goes to user@isp.com
#
# webmaster@virtual2.com            localuser2
# user@virtual2.com                 someuser@aol.com
# virtual2.com                      localuser2
#
customerservice@recipes.santas-sweets.com      recipes
customerservice@test07.santas-sweets.com      customer service
customerservice@santas-sweets.com              test07

virtmaps: 27 lines, 1138 characters.
test07%
Ready            ssh1: 3DES    24, 9    24 Rows, 80 Cols    VT100    NUM
```

5. Save and exit your file editor program.
6. Type `vnewvirtmaps` <Enter> to update your server to read the edited Virtmaps file.

## VIRTMAPS AND AUTOREPLIES

The autoreplies you create will have return addresses that go directly to the Virtual Server instead of going to a virtmap. For a virtual subhost user, this will not be desirable because the email will contain the Virtual Server name rather than the subhost.

To solve this problem, do the following:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `cd ~/etc` <Enter>. The /etc directory appears.
3. To edit the Aliases file, at the command prompt, type `pico aliases` <Enter>.

If you would rather use the vi editor, type `vi aliases` <Enter>.

4. Add the following line, or another line based on this model:

```
info: jason@santas-sweets.com, "|/usr/bin/autoreply -f info-reply -a info@santas-sweets.com"
```

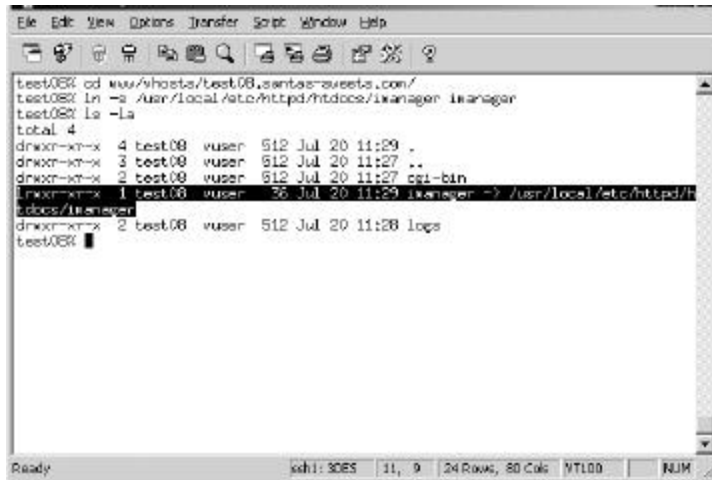
**Note:** *Autoreply* lists the email address that follows "-a" as the return address for the automatically generated response

## iMANAGER FOR SUBHOSTS

Your subhosts can be configured to access iManager with their own domain, instead of yours. To do this, you must create a symbolic link (a file that links to a file or directory in a different location).

To create a symbolic link for iManager:

1. Connect to your Virtual Server using SSH.



```

test08K cd www/vhosts/test08.santas-sweets.com/
test08K ln -s /usr/local/etc/httpd/htdocs/imanager imanager
test08K ls -la
total 4
drwxr-xr-x 4 test08 user 512 Jul 20 11:29 .
drwxr-xr-x 3 test08 user 512 Jul 20 11:27 ..
drwxr-xr-x 2 test08 user 512 Jul 20 11:27 cgi-bin
lrwxr-xr-x 1 test08 user 36 Jul 20 11:29 imanager -> /usr/local/etc/httpd/ht
docs/imanager
drwxr-xr-x 2 test08 user 512 Jul 20 11:28 logs
test08K

```

2. At the command prompt, type `% cd www/vhosts/testxx.santas-sweets.com` <Enter> or the domain of your choice, to get to the vhosts directory.
3. At the command prompt, type `% ln -s /usr/local/etc/httpd/htdocs/imanager imanager` <Enter> to make the symbolic link to the iManager directory.
4. At the command prompt, type `% ls -la` <Enter> to verify that the link was created.  
A list of files is displayed with the imanager symbolic link.
5. Your subhost can now use <http://testxx.santas-sweets.com/imanager> or substitute your domain name to access iManager.



## MODULE SUMMARY

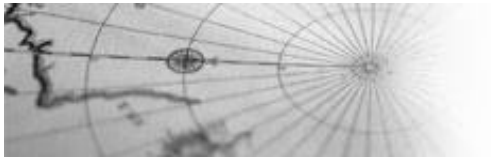
You have been introduced to the world of virtual subhosting. You have added domains to your Virtual Server and you also learned how to use the `vaddhost` command. You have also learned the limitations of subhosting. Here are some of the main points of the module:

Application	Important to Remember:
Adding domains to your server	Start browser   <a href="https://reseller.securesites.com/cgi-bin/iorder/wizard/domain.cgi">https://reseller.securesites.com/cgi-bin/iorder/wizard/domain.cgi</a> <Enter>   Reseller ID & password   <b>Start</b>   account to host the domain name, <b>Continue</b>   domain name, <b>Continue</b>   <b>Yes</b>   Select number of years to register the domain <b>Continue</b>   Organization information, <b>Continue</b>   Administrative Contact address, <b>Continue</b>   Administrative Contact information, <b>Continue</b>   Choose billing address same as contact address, <b>Continue</b>   If information is different, change it, <b>Continue</b>   Choose whether technical contact is same as the administrative contact, <b>Continue</b>   If different, enter the new information, <b>Continue</b>   Choose our DNS servers or your own. If your own, enter the information, <b>Continue</b>   If billing information is correct, click <b>Continue</b>   if not, change information, click <b>Continue</b>   Screen displays all information entered   If correct, <b>Finish</b> .
vaddhost command	Connect to your Virtual Server   Type <code>vaddhost</code> <Enter>   <code>domain.name [www.domain.name]</code> <Enter>   <code>end</code> <Enter>   <code>y</code> <Enter> if the entry is correct, <code>n</code> <Enter> to redo   type the <code>email@address</code> <Enter> for the person responsible for the domain   <code>y</code> <Enter> if the entry is correct, <code>n</code> <Enter> to redo the entry   location for subhost's Web site content: <code>1</code> or <code>2</code> <Enter>   <code>y</code> <Enter> if correct, <code>n</code> <Enter> to redo   <code>y</code> <Enter> to add log files for the subhost or type <code>n</code> <Enter> to not add log files   If <code>y</code> , choose a location for the access log files and type <code>1, 2, 3</code> or <code>4</code> <Enter>   Type <code>y</code> <Enter> if entry is correct, type <code>n</code> <Enter> to redo entry   Choose a location for the error log files and type <code>1, 2, 3</code> , or <code>4</code> <Enter>   To add a cgi-bin for the subhost, type <code>y</code> <Enter>, type <code>n</code> <Enter> to finish the entry   If <code>y</code> , choose a location for the cgi-bin <code>1, 2, 3</code> , or <code>4</code> <Enter>   Type <code>y</code> <Enter> if correct, or type <code>n</code> <Enter> to redo.
Limitations of virtual subhosting	There are some limitations for sub-hosts. They are <ul style="list-style-type: none"> <li>- Browsers must be HTTP/1.1-compliant</li> <li>- Load balancing</li> <li>- No individual IP address</li> <li>- No Telnet access</li> <li>- Email Limitations</li> <li>- Security Risks</li> </ul>
Creating virtmaps	Connect to Virtual Server   Type <code>cd ~/etc</code> <Enter>   Type <code>vi virtmaps</code> <Enter>   On next free line of <code>~/etc/virtmaps</code> file, type the virtual email address on the left side and the real email address on the right side. See example: <pre> service@testxx.santas-sweets.com      test07 </pre> Type <code>q</code> to exit the vi editor   Save changes.

Application	Important to Remember:
Virtmaps and autoreplies  For more information on autoreplies, please refer to Module #4.	Connect to Virtual Server   Type <code>cd ~/etc</code> <Enter>   Type <code>vi aliases</code> <Enter>   Add the following line:  <code>info: jason@santas-sweets.com, "/usr/bin/autoreply -f info-reply -a info@santas-sweets.com"</code>
Installing iManager for subhosts	Connect to Virtual Server   At the prompt type: <code>cd www/vhosts/testxx.santas-sweets.com</code> <Enter>   Type <code>ln -s /usr/local/etc/httpd/htdocs/manager imanager</code> <Enter>   Type <code>ls -la</code> <Enter>   You can now use the link: <a href="http://testxx.santas-sweets.com/manager">http://testxx.santas-sweets.com/manager</a> to access iManager

---

<b>Vadduser or iManager</b>	Add Wanda as a user.
<b>Vaddhost</b>	Add <code>www.snow-witch.com</code> as a subhost using a command line.
<b>Create alias</b>	Wanda wants to receive all mail addressed to <code>webmaster@www.snow-witch.com</code> . Create an alias named <i>webmaster</i> for the user Wanda.
<b>Create a symbolic link</b>	Wanda has requested that Snow-witch.com be able to use iManager. Configure your new subhost, <code>www.snow-witch.com</code> , to use iManager, using its own domain.



**North Pole Internet**

# **Virtual Server Training Guide**

## **FrontPage Extensions**

### **MODULE 6**

## MODULE 6: FRONTPAGE EXTENSIONS

### OBJECTIVE:

By the end of this module, you will be able to:

- Install FrontPage Extensions on your Virtual Server.
- Install FrontPage Extensions for subhosts on your server.
- Remove subhost Extensions.
- Remove FrontPage Extensions from your server.

**Scenario** One of your customers has requested that its Web site be compatible with FrontPage. In order to do this you must install the FrontPage Extensions on your Virtual Server. When that task is completed, you will install the FrontPage Extensions on your subhost's directory.

### INSTALLING FRONTPAGE EXTENSIONS

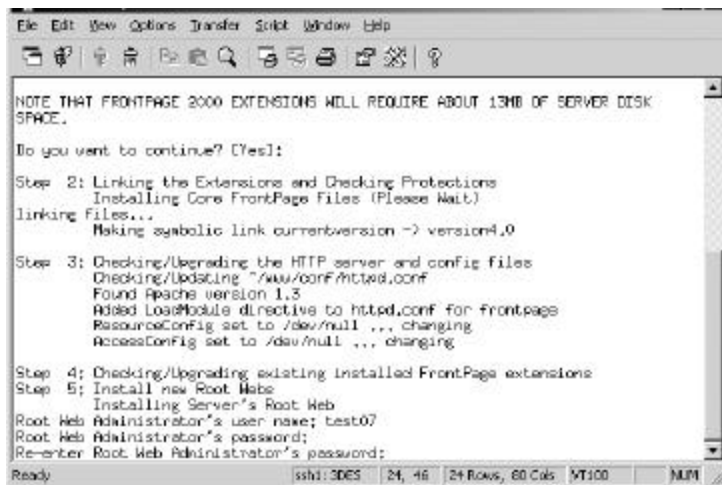
To install FrontPage Extensions on your Virtual Server:

1. Connect to your s Virtual Server using SSH.
2. At the command prompt, type `vininstall frontpage` <Enter>.
3. Script appears in the following window stating that FrontPage Extensions will require about 28MB of disk space, and asks if you want to continue the installation process.

To begin the installation, <Enter> or type **Yes** <Enter>.

**Note:** In a command line interface, the [default answer] in brackets may be selected by just pressing Enter.

4. Type the Root Web Administrator's user name and password. (For security purposes, make this username and password set different from your Virtual Server set.)
5. Type the password again <Enter> to begin installation on the main host, testxx.northpoleinternet.com. (or your own main host.)



```

File Edit View Options Transfer Script Window Help
NOTE THAT FRONTPAGE 2000 EXTENSIONS WILL REQUIRE ABOUT 28MB OF SERVER DISK
SPACE.

Do you want to continue? [Yes]:

Step 2: Linking the Extensions and Checking Protections
  Installing Core FrontPage Files (Please Wait)
linking files...
  Making symbolic link currentversion -> version4.0

Step 3: Checking/Upgrading the HTTP server and config files
Checking/Updastling ~/www/oonf/httded.conf
Found Apache version 1.3
Added LoadModule directive to httpd.conf for frontpage
ResourceConfig set to /dev/null ..., changing
AccessionFig set to /dev/null ..., changing

Step 4: Checking/Upgrading existing installed FrontPage extensions
Step 5: Install new Root Webs
  Installing Server's Root Web
Root Web Administrator's user name: test07
Root Web Administrator's password:
Re-enter Root Web Administrator's password:

Ready ssh: 3DES 24, 46 24 Rows, 60 Cols VT:100 NUP

```

6. The script next describes some available HTML administration forms and asks if you want to install them. Type **Yes** <Enter>.

```

File Edit View Options Transfer Script Window Help
Root Web Administrator's user name: test07
Root Web Administrator's password:
Re-enter Root Web Administrator's password:
Root Web Administrator's password:
Re-enter Root Web Administrator's password:

Starting install, port: 80, web: 'root web'

Creating web http://test07.northpoleinternet.com
Install completed.
Step 6: Checking/Restoring server config file entries
Restoring /dev/null entries to ResourceConfig/AccessConfig

Optional HTML Administration Forms

The FrontPage 2K server extensions package includes HTML administration Forms.
These are HTML Forms that can be used remotely to install and administer the
FrontPage Server Extensions from a standard web browser. These forms can be
copied to your virtual server as part of the FrontPage Server Extensions
installation. The URL for the forms would be:

http://test07.northpoleinternet.com/fp2k/fpadmin.htm

Do you want to install the HTML Administration Forms? [Yes]:
Ready ssh:3DES 24, 62 24 Rows, 60 Cols VT100 NUM

```

7. The script next searches the `httpd.conf` file for subhosts and asks if you want to install Extensions for them. Type **0** <Enter>.

```

File Edit View Options Transfer Script Window Help
Step 3: Checking/Upgrading the HTTP server and config files
Checking/Updating "/usr/local/etc/httpd.conf"
Found Apache version 1.3
Added LoadModule directive to httpd.conf for frontpage

Step 4: Checking/Upgrading existing installed FrontPage extensions
Step 5: Install new Root Webs
Installing Server's Root Web
Root Web Administrator's user name: test07
Root Web Administrator's password:
Re-enter Root Web Administrator's password:

Starting install, port: 80, web: 'root web'

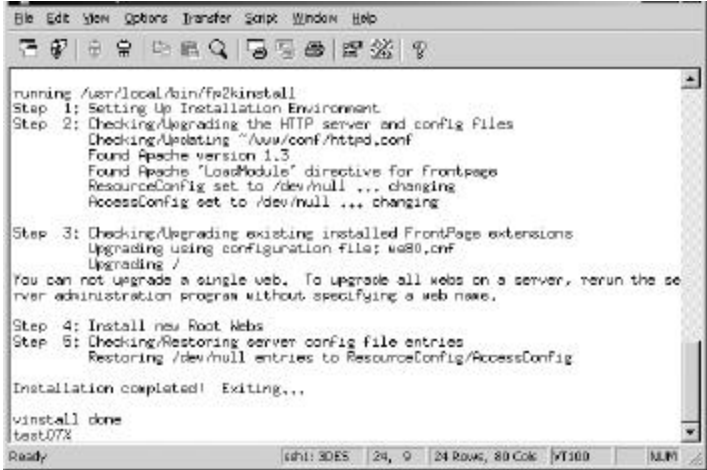
Creating web http://test07.northpoleinternet.com
Install completed.
Virtual hosts detected: Installing virtual host's Root Webs.
Note: In order for virtual hosts to have their own root web their
DocumentRoot directory can not be under /usr/local/etc/httpd/htdocs.
Virtual host without Root Webs:

1 www.show-switch.com

Select a virtual host to install a Root Web or type "0" to quit [0-1]:
Ready ssh:3DES 25, 73 25 Rows, 80 Cols VT100 NUM

```

- 8. After the forms are installed, the message `vinstall done` appears above the command line prompt. You have successfully installed FrontPage Extensions on your Virtual Server. Now you can use FrontPage to create html for `testxx.northpoleinternet.com`, or the domain of your choice.



Although you have installed FrontPage Extensions on your Virtual Server, you have not yet added the Extensions to your subhosts; therefore, the Web administrators for those domains have no means of publishing FrontPage files to their directories (see the following illustrations).

Virtual Server = Main host:  
`testxx.northpoleinternet.com`  
Contains FrontPage Extensions

Subhosted domain:  
`www.northpolaranch.com`  
No Extensions installed,  
no access to FrontPage Ext.

Subhosted domain:  
`www.snow-witch.com`  
No Extensions installed,  
no access to FrontPageExt.

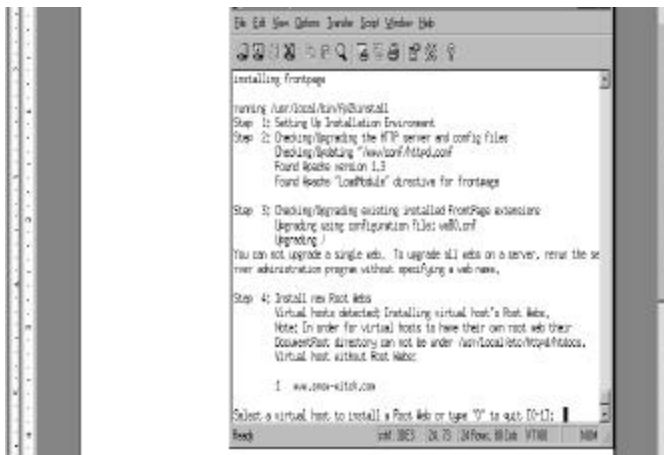
Subhosted domain:  
`www.santas-sweets.com`  
No Extensions installed,  
no access to FrontPage Ext.

## INSTALLING FRONTPAGE EXTENSIONS FOR SUB-HOSTS

After you have installed FrontPage Extensions on your Virtual Server, (the main host) you can then install Extensions for your subhosts as needed. The domain [www.snow-witch.com](http://www.snow-witch.com) will be used for the instructions below. You may substitute [www.snow-witch.com](http://www.snow-witch.com) with the sub-hosted domain of your choice.

To install FrontPage for your subhosts:

1. Connect to your Virtual Server using SSH.
2. Type `vininstall frontpage` <Enter> at the command prompt.
3. The script recognizes that you have already installed FrontPage on the Virtual Server. Rather than trying to install again, it simply upgrades any existing FrontPage Extensions. Ignore the upgrade error message displayed with Step 3 on your screen; it will not affect this installation.
4. After upgrading the main server Extensions, the script searches `httpd.conf` to find any sub-host entries that do not have FrontPage Extensions installed. The script displayed in the following window lists [www.snow-witch.com](http://www.snow-witch.com) as a subhost. If you want to select [www.snow-witch.com](http://www.snow-witch.com) for Extensions, type number **1** beside it <Enter>.

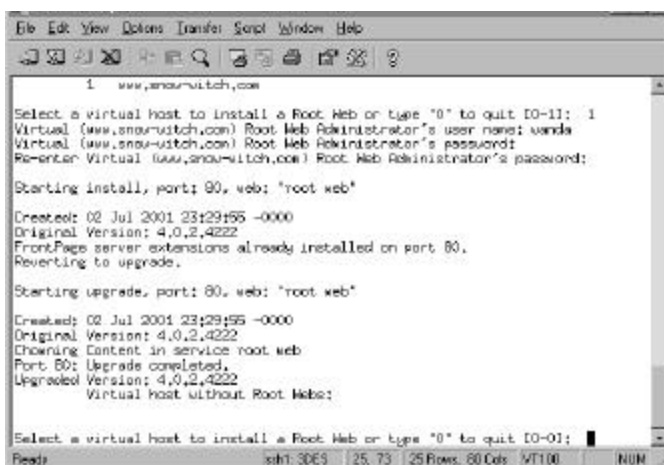


```

installing frontpage
running /usr/local/bin/vininstall
Step 1: Setting Up Installation Environment
Step 2: Checking/Upgrading the HTTP server and config files
  Checking/Installing "/usr/local/etc/httpd.conf"
  Found Apache "LoadModule" directive for frontpage
Step 3: Checking/Upgrading existing installed FrontPage extensions
  Upgrading setup configuration files: web0.conf
  Upgrading /
You can not upgrade a single web. To upgrade all webs on a server, rerun the se
rver administration program without specifying a web name.
Step 4: Install new Root Webs
  Virtual hosts detected: Installing virtual host's Root Web.
  Note: In order for virtual hosts to have their own root web their
  SourcePath directives can not be under /usr/local/etc/httpd/htdocs.
  Virtual host without Root Web:
  1 www.snow-witch.com
Select a virtual host to install a Root Web or type "0" to quit [0-1]:
  
```

The following window prompts you to supply the Administrator's user name.

Type the designated administrator's username and password; then re-enter the password. This is the userid and password that you will give your customer ([www.snow-witch.com](http://www.snow-witch.com)) for FrontPage administration.

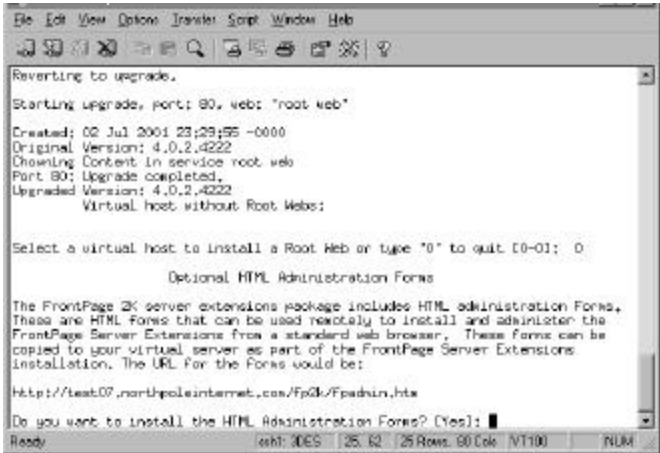


```

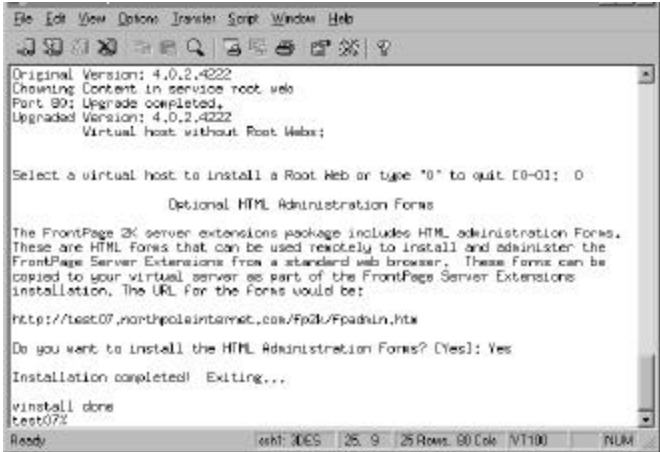
1 www.snow-witch.com
Select a virtual host to install a Root Web or type "0" to quit [0-1]: 1
Virtual (www.snow-witch.com) Root Web Administrator's user name: wanda
Virtual (www.snow-witch.com) Root Web Administrator's password:
Re-enter Virtual (www.snow-witch.com) Root Web Administrator's password:
Starting install, port: 80, web: "root web"
Created: 02 Jul 2001 23:29:55 -0000
Original Version: 4,0,2,4222
FrontPage server extensions already installed on port 80.
Reverting to upgrade.
Starting upgrade, port: 80, web: "root web"
Created: 02 Jul 2001 23:29:55 -0000
Original Version: 4,0,2,4222
Changing Content in service root web
Port 80: Upgrade completed.
Upgraded Version: 4,0,2,4222
Virtual host without Root Webs:
Select a virtual host to install a Root Web or type "0" to quit [0-0]:
  
```

5. The script checks the `httpd.conf` again for more sub-hosts. Again, you are asked to select a virtual host where you will install a Root Web. If you do not have any more sub-hosts that need Extensions, type **0** <Enter>.
6. You are asked about installing the HTML administration forms, as shown in the following window. Press <Enter>

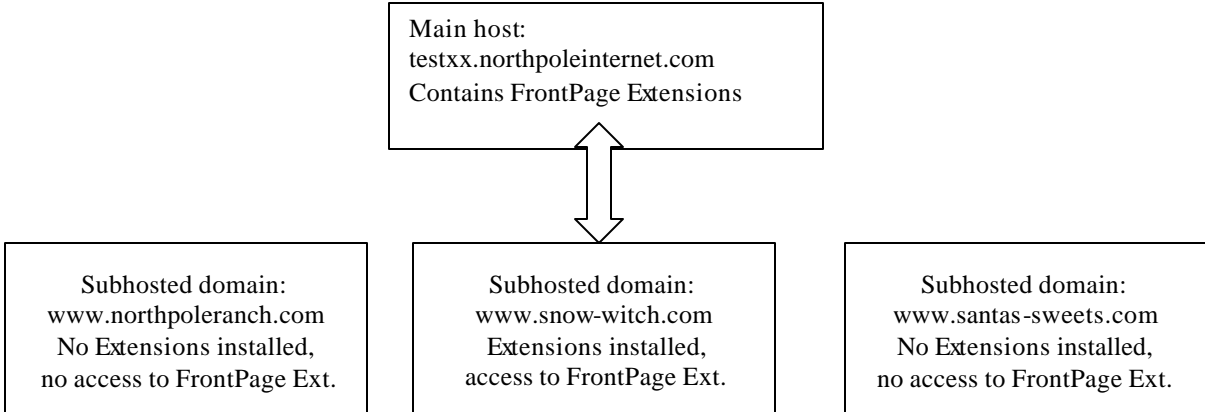




- 7. When `vinstall` done appears, as shown in the following window, the script finishes and exits. You must provide the new user name and password to your customer, `www.snow-witch.com`. Now the Web administrator can connect with FrontPage client software and begin working.



One subhost, `www.snow-witch.com`, has FrontPage Extensions installed, and now has access to the Extensions on the main server. The other two subhosts do not, as the illustration shows.



## REMOVING SUBHOST EXTENSIONS

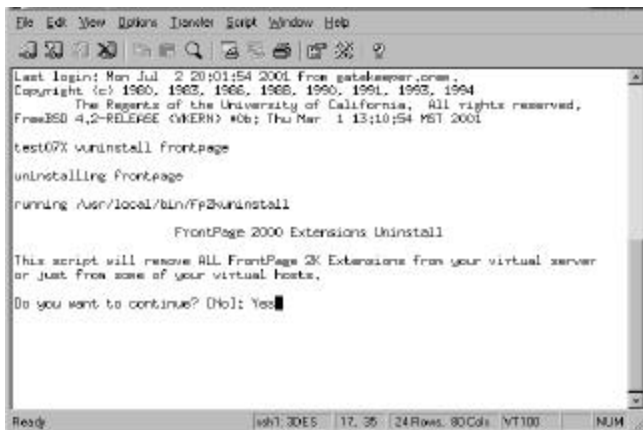
At some point in time, your customers might request changes. Luckily, removing the Extensions is even easier than installing them.

**Important:** Remember to inform your customer that by removing the FrontPage Extensions, any FrontPage enabled elements on their Web site will be broken.

### TO REMOVE SUBHOST EXTENSIONS:

1. Connect to your Virtual Server using SSH.
2. Type **guninstall frontpage** <Enter> at the command prompt.
3. The script informs you that it will remove all FrontPage Extensions from your Virtual Server, or just from some of your virtual hosts. Type **Yes** <Enter> to continue.

The script removes the Extensions for your selected subhost.



```

Last login: Mon Jul 2 20:01:54 2001 from gatakasper.com
Copyright (c) 1980, 1983, 1986, 1988, 1990, 1991, 1993, 1994
The Regents of the University of California. All rights reserved.
FreeBSD 4.2-RELEASE (KERN) #0: Thu Mar 1 13:10:54 MST 2001

test@X: guninstall frontpage
uninstalling frontpage
running /usr/local/bin/fp2kuninstall

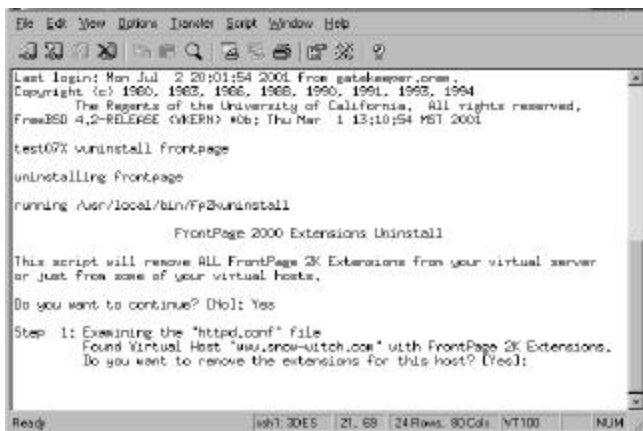
FrontPage 2000 Extensions Uninstall

This script will remove ALL FrontPage 2K Extensions from your virtual server
or just from some of your virtual hosts.

Do you want to continue? (Y/n): Yes

```

4. If there are more subhosts with Extensions, the script asks “Do you want to remove the Extensions for this host?” The script removes the Extensions from another subhost each time you press <Enter>.



```

Last login: Mon Jul 2 20:01:54 2001 from gatakasper.com
Copyright (c) 1980, 1983, 1986, 1988, 1990, 1991, 1993, 1994
The Regents of the University of California. All rights reserved.
FreeBSD 4.2-RELEASE (KERN) #0: Thu Mar 1 13:10:54 MST 2001

test@X: guninstall frontpage
uninstalling frontpage
running /usr/local/bin/fp2kuninstall

FrontPage 2000 Extensions Uninstall

This script will remove ALL FrontPage 2K Extensions from your virtual server
or just from some of your virtual hosts.

Do you want to continue? (Y/n): Yes

Step 1: Examining the "httpd.conf" file
Found Virtual Host "www.pnc-witch.com" with FrontPage 2K Extensions.
Do you want to remove the extensions for this host? (Yes):

```

- 5. If you remove the Extensions for all the subhosts on the Virtual Server, the script asks if you want to remove the core FP2k software from your Virtual Server. Type **No** <Enter>.

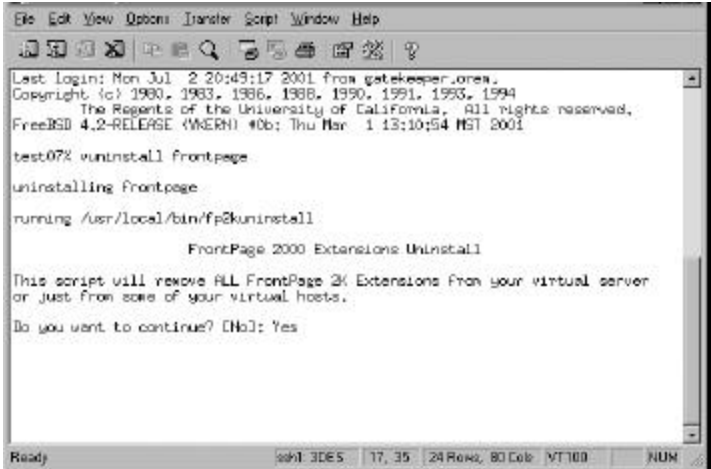


## REMOVING EXTENSIONS FROM THE MAIN SERVER

It might be possible that none of your subhosts requires FrontPage Extensions. Uninstalling the Extensions provides space on your server for other uses.

To uninstall the main Extensions:

1. Connect to your Virtual Server using SSH.
2. Type `guninstall frontpage` <Enter> at the command line.
3. You are informed about using the `guninstall` command. To remove the main (core) Extensions, type **Yes** <Enter>.



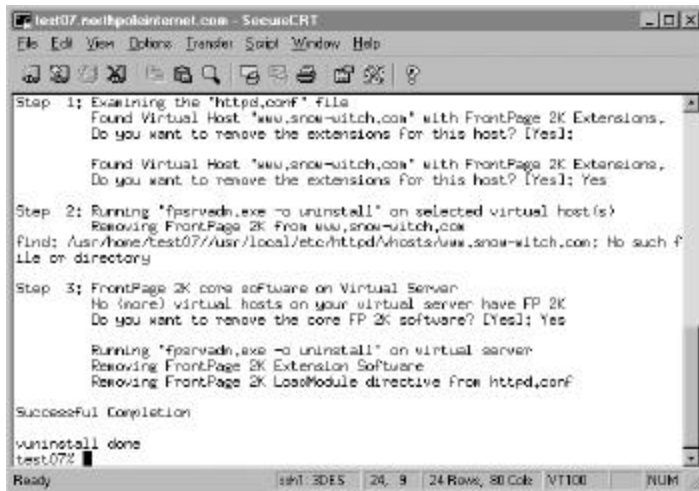
4. The script asks if you want to continue with the remove process. Type **Yes** <Enter>. The FrontPage connection between the main server and its subhost is broken, as illustrated:

Main host:  
testxx.northpoleinternet.com  
Contains FrontPage Extensions

Subhosted domain:  
www.northpolaranch.com  
No Extensions installed,  
no access to FrontPage

Subhosted domain:  
www.snow-witch.com  
Extensions uninstalled,  
no access to FrontPage

Subhosted domain:  
www.santas-sweets.com  
No Extensions installed,  
no access to FrontPage



```
test07@redhatpolarnet.com - SecureCRT
File Edit View Actions Transfer Script Window Help
Step 1: Examining the 'httpd.conf' file
Found Virtual Host 'www.snow-switch.com' with FrontPage 2K Extensions.
Do you want to remove the extensions for this host? [Yes]:
Found Virtual Host 'www.snow-switch.com' with FrontPage 2K Extensions.
Do you want to remove the extensions for this host? [Yes]: Yes

Step 2: Running "fpervad.exe -o uninstall" on selected virtual host(s)
Removing FrontPage 2K from www.snow-switch.com
Find: /usr/home/test07/usr/local/etc/httpd/vhosts/www.snow-switch.com; No such f
ile or directory

Step 3: FrontPage 2K core software on Virtual Server
No (more) virtual hosts on your virtual server have FP 2K
Do you want to remove the core FP 2K software? [Yes]: Yes

Running "fpervad.exe -o uninstall" on virtual server
Removing FrontPage 2K Extension Software
Removing FrontPage 2K LoadModule directive from httpd.conf

Successful Completion
vuninstall done
test07
```

When you see “vuninstall done,” you have successfully removed the FrontPage Extensions from your Virtual Server. Re-install the FrontPage Extensions. Practice is a good thing, especially for future times when there could be problems with FrontPage Extensions, and you need to uninstall and reinstall them.

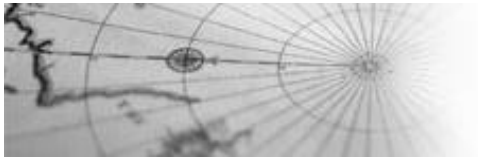
## MODULE SUMMARY

In this module, you have learned to do the following

- Install FrontPage Extensions on your Virtual Server.
- Install FrontPage Extensions for subhosts on your server.
- Remove subhost Extensions.
- Remove FrontPage Extensions from your server.

Listed below are some important processes and facts to remember:

Application	Important to Remember:
Telnet FrontPage Extensions installation on the Virtual Server	Start   Run   <b>telnet &lt;username.domain.name&gt;</b> <Enter>   <Login> <Password> <Enter>   <code>vinstall frontpage</code> <Enter>   follow the script as directed
Telnet FrontPage Extensions installation for subhosts	Start   Run   <b>telnet &lt;username.domain.name&gt;</b> <Enter>   <Login> <Password> <Enter>   <code>vinstall frontpage</code> <Enter>   follow the script as directed
Telnet FrontPage Extensions uninstall	Start   Run   <b>telnet &lt;username.domain.name&gt;</b> <Enter>   <Login> <Password> <Enter>   <code>vuninstall frontpage</code> <Enter>   follow the script as directed
IManager	You <i>cannot</i> add subhosts through iManager, only through the command line, using the <code>vaddhost</code> command. (Refer to the Subhosting Module.) The <code>vaddhost</code> process automatically creates subhost directories at: <code>/usr/local/etc/httpd/vhosts/subhosteddomain.name</code>
FrontPage Extensions	FrontPage requires its own administrator user name and password. This is completely separate from your own Virtual Server administrator username and password. This is login information you give to your subhosted domain's Web administrator, so they can manage the Web site for that subhost.
Subhosts or virtual hosts	For virtual hosts to have their own root Web, their Document Root directory cannot be under <code>/usr/local/etc/httpd/htdocs</code> They should be under <code>/usr/local/etc/httpd/vhosts/&lt;subhost&gt;</code>



**North Pole Internet**

# **Virtual Server Training Guide**

## **Server Maintenance**

### **MODULE 7**

## MODULE 7: VIRTUAL SERVER MAINTENANCE

As the Virtual Server administrator, you are responsible for daily maintenance. This module introduces and explores the options that are available to assist you.

### OBJECTIVES

By the end of this module you will be able to

- Install Analog and generate some log file reports.
- Rotate and clear log files.
- Check and manage the Virtual Server quota.
- Check the Virtual Server load.
- Manage existing users (modifying, removing, etc.).
- Learn basic troubleshooting techniques.

### Scenario

It has been crazy at the North Pole since you first ordered your Virtual Server. With Christmas coming, you cannot afford to have anything go wrong. Because you are the administrator, you must become comfortable with certain commands to ensure quality performance from your Virtual Server.

### MANAGING LOG FILES

Your Virtual Server uses three types of log files: Web, email, and FTP. For this training module we will focus mainly on the Web log files. Everything that happens on your Virtual Server is recorded in the log files. The following instructions will help you locate and manage the Web log files located in the `~/www/logs` directory. The 2 main types of Web log files are: Error Logs and Access Logs.

#### ***ERROR\_LOGS***

Every time an error occurs on your Virtual Server, an entry is made in your `error_log` files. The following is an `error_log` file entry example:

```
[Mon Jul 24 00:49:04 2001] [notice] Apache/1.3.11 :Safe-SSL/1.38 (Unix)
configured - resuming normal operations
[Mon Jul 24 01:29:12 2001] [notice] caught SIGTERM, shutting down
```

The first entry reports that the Web server was running. The second entry reports that it shut down. Most entries in the `error_log` file are self-explanatory. Some error logs entries specify the location of the problem and provide instructions on how to fix the error.

#### ***ACCESS\_LOGS***

The access logs record all information concerning the activity on your server, such as the volume of activity on the site, the types of browsers used to access the site, where the visitors came from, and other pertinent information.

A lot of information is recorded in these files; therefore, they can grow in size very quickly. The log files can be managed in several ways. We will discuss one of those ways here.



## URCHIN WEB LOG ANALYZER PROGRAM

The actual data logged in the log files is difficult to decipher. A log file analysis program is useful for processing and analyzing the log file data. In this module we will focus on the Urchin Web Log Analyzer program.

The Urchin Web Log Analyzer is a fast and simple log analysis tool. It is a server side application that creates HTML-based graphical reports of your Web server traffic, allowing you to access your statistics from almost any Web browser. Urchin also has several special features such as multi-language reporting, e-commerce log reporting, and virtual sub-hosting support.

Urchin has been compiled and configured to work on your Virtual Server. This includes subhosts with log files.

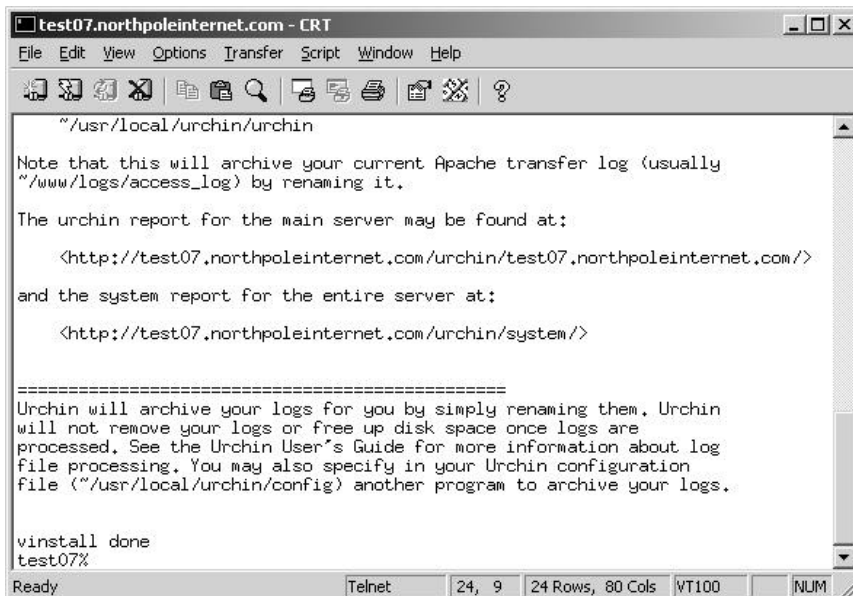
Urchin generates the following reports:

- **TRAFFIC:** Displays the most recent activity. Statistics can be viewed in monthly, daily, and hourly sections.
- **PAGES:** Displays the busiest pages, directories with the most activity, files accessed on the site, status/error responses, the forms filled out on the site.
- **REFERRALS:** Displays specific search engines and sites visitors use to reach your Website.
- **DOMAIN:** Displays the domains, networks and even countries accessing your Website.
- **BROWSERS:** Displays the browsers and operating systems that customers use to access your site.
- **TRACKING:** Displays statistics such as length of visit to your site, usernames, which entrance the users encountered.
- **E-COMMERCE:** Displays the basic sales information from the Website such as top products sold, most popular categories of products, which locations buyers came from.

## INSTALLING URCHIN

To install Urchin on your Virtual Server:

1. Connect to your Virtual Server using SSH.
2. At the command prompt type **vinstall urchin** <Enter>.
3. The message **vinstall done** appears on the screen.



```
test07.northpoleinternet.com - CRT
File Edit View Options Transfer Script Window Help
~/usr/local/urchin/urchin
Note that this will archive your current Apache transfer log (usually
"/www/logs/access_log") by renaming it.

The urchin report for the main server may be found at:

<http://test07.northpoleinternet.com/urchin/test07.northpoleinternet.com/>

and the system report for the entire server at:

<http://test07.northpoleinternet.com/urchin/system/>

=====
Urchin will archive your logs for you by simply renaming them. Urchin
will not remove your logs or free up disk space once logs are
processed. See the Urchin User's Guide for more information about log
file processing. You may also specify in your Urchin configuration
file ("usr/local/urchin/config) another program to archive your logs.

vinstall done
test07%
Ready Telnet 24, 9 24 Rows, 80 Cols VT100 NUM
```

## USING URCHIN

After Urchin has been installed, run the Urchin program to create an HTML (or Web page) with your Virtual Server's Web statistics.

To run the Urchin program:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `virtual /usr/local/urchin/urchin <Enter>`.

When you see the prompt again, a report has been generated for the entire Virtual Server at:

`http://YOUR-DOMAIN.NAME/urchin/system/`

For individual subhosts, the reports can be found at the following location:

`http://YOUR-DOMAIN.NAME/urchin/YOUR-DOMAIN.NAME`

## URCHIN DOCUMENTATION

The Urchin Installation and Administration Guide is available on your Virtual Server at the following location:

`~/usr/local/urchin/MANUAL_D3300.pdf`

## CLEARING LOG FILES (VNUKELOG)

The `vnukelog` command is used to delete all log files to create more space on your server, including log files on your sub-hosts.

**Caution:** You cannot retrieve this data after it is deleted.

To use this `vnukelog` command:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `vnukelog <Enter>`.

When the prompt appears again, the log files have been deleted.

```

File Edit View Options Transfer Script Window Help
-----
Usage Statistics for /www
Report Generated on Mon Jul 2 10:28:12 2001
-----
Bytes Used Virtual Directory Path
-----
/www

test00 vlistuser
-----
UserName FullName Home Directory Quotas
FTP Mail
root System Administrator / -- --
northpole North Pole Internet Services / NO NO
santa Santa Claus /usr/local/etc/httpd/vhosts/san 5 5
-----
Quota Totals: 5 5
* /usr...htdocs => /usr/local/etc/httpd/htdocs
* Quota: "--" = does not have FTP/Mail Services, "NO" = NO Quota
* /usr/local/bin/vlistuser -h for help.
test00 cd
test00
test00
test00
test00 vnukelog
Ready [ctrl: 3DES 30, 16 30 Rows, 97 Cols VT100]

```

## MANAGING QUOTAS

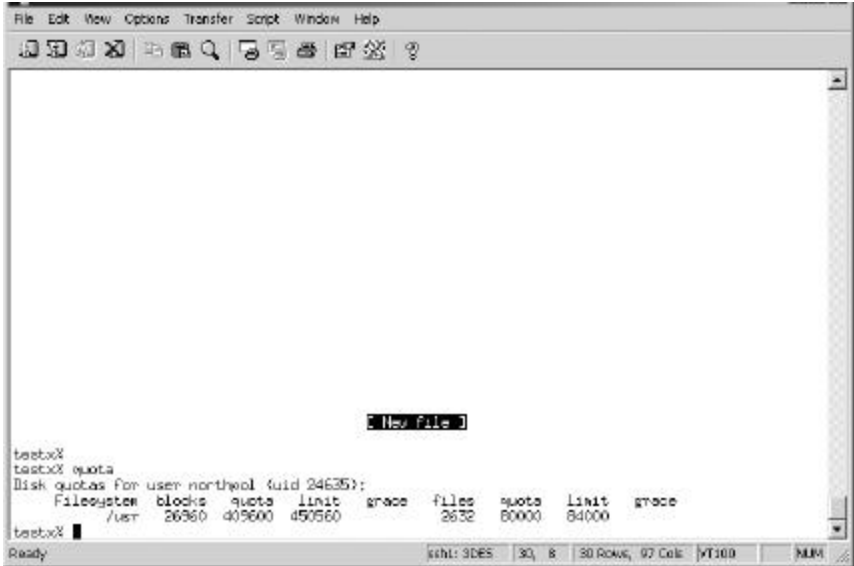
Each Virtual Server has a disk space quota that depends on the type of Virtual Server (A, B, or C) that you have. You can purchase additional disk space if your limit exceeds your quota; however, allowing log files to grow is the most common reason that servers exceed their quota.

### CHECKING QUOTAS

To check the **quota** on the server:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type **quota** <Enter>.

The following information appears.



The following table describes the measurements in the **quota** command:

Name	Description
Blocks	This measurement indicates the space that is currently being used. A block is 1024 bytes. This server of
Quota	The quota is the amount of disk space allowed to a Virtual Server. This amount is a soft limit meaning the server will still function when it has reached this limit, but very slowly.
Limit	The limit is a hard limit meaning the Virtual Server is unable to function when it reaches this limit.
Grace	The grace period is a time allowed for being over quota before the hard limit is reached. The grace period for going over your soft limit is 7 days. You can go over your quota amount and function for 7 days as long as your hard limit is not reached.
Files	Files are also controlled in the quota. The files limit has a quota and space, which functions like the disk space, but is rarely a problem.

## USING VDISKUSE

The command `vdiskuse` initiates a detailed check on the quota of your server. This is useful for determining the size of each file and directory. This command is especially helpful for determining if the log files need to be deleted.

To use `vdiskuse`:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `vdiskuse` <Enter>.
3. A full list of directory files and their size appears.

## MANAGING VIRTUAL SERVER LOADS

Each Virtual Server is allocated a specified amount of resources (processes, memory, and so on) on the physical machine. Because each server has limits, one server cannot abuse another or the physical machine. Load management is necessary for consistent performance. The term “load” refers to the following allocated characteristics of the Virtual Server:

- Memory size
- CPU performance
- Number of files open
- Concurrent processes running

This section describes three ways to check and manage the resources allocated to your Virtual Server.

### USING THE TOP COMMAND

The `top` command displays the top processes and the load averages on your Virtual Server.

To use the `top` command:

1. Connect to your Virtual Server using SSH.
2. At the command prompt type: `top` <Enter>.
3. The session displays the following results:

```

Last pid: 79789: load averages: 0.00, 0.00, 0.00          up 2+19:08:14 11:25:17
11 processes: 1 running, 10 sleeping
CPU states: 16.6% user, 0.0% nice, 8.5% system, 0.0% interrupt, 74.9% idle
Mem: 322M Active, 78M Inact, 72M Wired, 22M Cache, 61M Buf, 7664K Free
Swap: 1024M Total, 3032K Used, 1021M Free

  PID USERNAME PRI NICE  SIZE  RES STATE   TIME  %CPU  %MEM COMMAND
 79786 northeal 20  0 1396K  964K RUN     0:00  9.74%  0.93% top
  409 northeal  2  0 11224K 1012K poll    0:02  0.00%  0.00% mysqld
  649 northeal 18  0 2240K 1264K pause   0:00  0.00%  0.00% httpd
  807 northeal 18  0 2276K 1316K lockf   0:00  0.00%  0.00% httpd
  803 northeal  2  0 2276K 1316K select 0:00  0.00%  0.00% httpd
  808 northeal 18  0 2276K 1316K lockf   0:00  0.00%  0.00% httpd
  806 northeal 18  0 2276K 1316K lockf   0:00  0.00%  0.00% httpd
  804 northeal 18  0 2276K 1316K lockf   0:00  0.00%  0.00% httpd
  805 northeal 18  0 2276K 1316K lockf   0:00  0.00%  0.00% httpd
 5883 northeal 18  0 2296K 1392K lockf   0:00  0.00%  0.00% httpd
 79264 northeal 18  0 1280K  788K pause   0:00  0.00%  0.00% ssh
  
```

To exit the top display, type `q`.

**INTERPRETING TOP TERMINOLOGY:**

Term	Definition
PID	Process ID number. Each program is provided with a unique PID number.
USERNAME	The name of the user that is running the process.
PRI	Priority. Some processes are more important than others. The priority is the kernel's way of determining which process gets processor time first.
NICE	Determines how "nice" a program is and modifies how the kernel allocates priorities. Each program is assigned a <i>nice</i> setting from 1 to 20 that provides the program with a priority rating. For example, a program with a nice setting of 10 would allow many other programs to get CPU time before it. A program with a setting of 5 would allow priority to fewer programs.
SIZE	Size describes the total size of a process, including memory and actual program size.
RES	The amount of resources being used (typically memory), normally less than the SIZE.
STATE	What the process is doing, such as sleeping (waiting for something), running, or polling (checking that the input condition has been met).
TIME	The amount of time the process has used.
WCPU	The percentage of processes waiting for CPU.
CPU	A measurement of all available CPU time that the process is using.
COMMAND	An explicit instruction from the running program.

**USING PROCESSES**

A process is a program that is running, sleeping, or waiting. For example, when your Web site receives a hit, a process is used.

**USING THE KILL COMMAND**

This command is used to "kill" or stop a process when that process is taking up a large portion of the Virtual Server's resources.

To use the kill command:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `top` <Enter>.
3. While `top` is running, type `k`.
4. Type the process ID (PID) <Enter>.
5. A message confirms that the process has been terminated.
6. To quit `top` press `q`.

**Note:** The left column stores the Process ID number (PID). To kill multiple processes, type multiple PID numbers on one kill line and separate each with a space.

**Caution:** Only kill a process that is hung and using up your resources.

## MANAGING USERS

As a Virtual Server administrator, you are responsible for the following:

- Adding users
- Removing users
- Modifying user profiles

During this module, you have performed one of these responsibilities by adding a user to your account using SSH or iManager. The remainder of this section provides instructions for performing other Virtual Server administrator responsibilities.

### MODIFYING EXISTING USERS

To make any changes to an existing user:

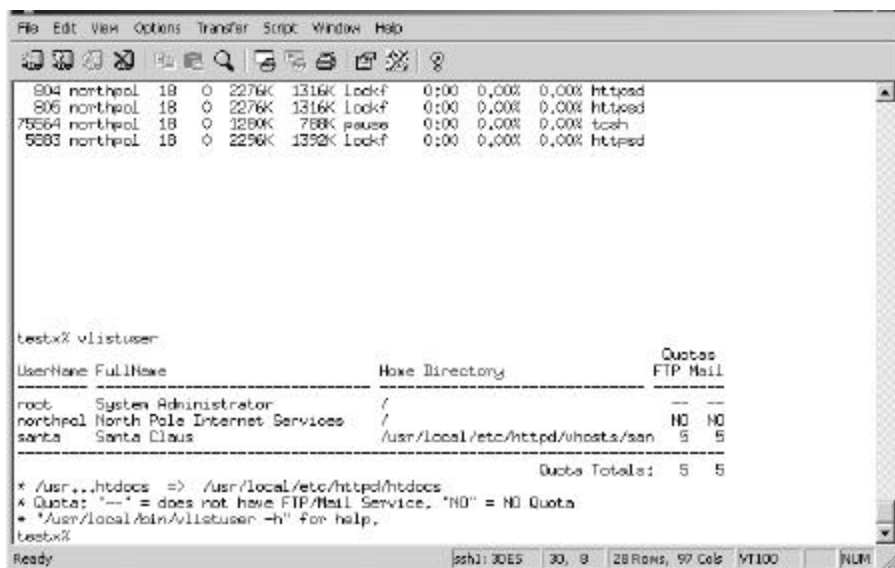
1. Connect to your Virtual Server using SSH.
2. At the command prompt, type **vadduser** <Enter>.
3. Press <Enter> again to continue.
4. At the prompt to enter the Email/FTP User name, type the **username** you would like to modify.  
The next prompt will ask you if you want to edit this account entry.
5. Type **yes** <Enter> if you want to edit the entry.  
Type **no** <Enter> if you do not want to edit the entry.
6. Answer the questions in the **vadduser** fields.

### LISTING USERS ON YOUR SERVER (VLISTUSER)

This command lists all the users you have added to your Virtual Server and the directories where they are located.

To list the name, userid, home directory, and email/ftp quotas:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type **vlistuser** <Enter>.
3. A list of the users, their locations, and their quotas appears:



```

File Edit View Options Transfer Script Window Help
-----
804 northpol 18 0 2276K 1316K Lock-f 0:00 0,00% 0,00% httpd
806 northpol 18 0 2276K 1316K Lock-f 0:00 0,00% 0,00% httpd
75564 northpol 18 0 1280K 788K pause 0:00 0,00% 0,00% ssh
5683 northpol 18 0 2256K 1352K Lock-f 0:00 0,00% 0,00% httpd

testx% vlistuser
-----
UserName FullName Home Directory Quotas
FTP Mail
-----
root System Administrator / -- --
northpol North Pole Internet Services / NO NO
santa Santa Claus /usr/local/etc/httpd/htdocs/san 5 5
-----
Quota Totals: 5 5

* /usr/.htdocs => /usr/local/etc/httpd/htdocs
* Quota: "--" = does not have FTP/Mail Service, "NO" = NO Quota
* /usr/local/sbin/vlistuser -h" for help.
testx%
Ready ssh: 30E5 30, 8 28 Rows, 97 Cols MT100 NUM

```

### REMOVING USERS (VRMUSER)

This command removes a user from your Virtual Server.

To run **vrmsuser**:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `vruser` <Enter>.
3. At the prompt, type the username to be removed <Enter>.
4. The next prompt checks whether to remove the username or not. Type `y` or `n` <Enter>.
5. If you typed `y`, a message confirms that the user name was removed.

### **CHANGING A USER'S PASSWORD**

You can change the password for any user on your Virtual Server.

To change a user's password:

1. Connect to your Virtual Server using SSH.
2. At the command prompt, type `vpasswd username` <Enter>.
3. The next prompt asks for a new password. Type the new password <Enter>.
4. Type the new password again <Enter>.
5. When the command line prompt appears again, the password has been changed for the user.

## **TROUBLESHOOTING VIRTUAL SERVERS**

As the Virtual Server administrator, you are required to troubleshoot problems that occur from time to time. Although a few of the troubleshooting steps have already been mentioned, we will explore them here again.

### **CHECKING QUOTAS**

When the hard quota limit is met, the disk cannot be written to. Email is not accepted, log files are not written, installs do not complete, and so on. The quota has a soft limit (which you may temporarily exceed) and a hard limit (which you may never exceed). You can use the `quota` or `vdiskuse` command to determine if the server is over quota. If it is, you can use the `vnukelog` command to provide more space by removing log files or you can order more megabytes (MB) on your Virtual Server.

### **CHECKING LOG FILES**

All errors and system messages are recorded in the Virtual Server's log files. If you or your users are having problems on the server, first check the quota; then check the log files. If the problems concern email or FTP, check the `~/usr/log/messages` file. Problems with the website will be recorded in the `~/www/logs/error_log` file. If a client is reporting an obscure client error, it is useful to use the `tail` command. When you use the `tail` command, you can watch the error messages as they are being added to the log files. This way, you can see what is being added to the log files as the user duplicates the error.

To use the `tail` command:

1. Connect to your Virtual Server using SSH.
2. At the command prompt type `tail -f ~/usr/log/messages` <Enter>. (You can substitute the messages directory with `~/www/logs/error_log` file, depending on the error message.)
3. Have the user duplicate the error while you are running the `tail` command.

### **CHECKING PROCESSES**

If you are getting errors, use the `top` command to check the length of time a current processes has been running. If it is idle and has been running a long time, it could be hung and causing problems on your server. For example, an FTP process can hang if you improperly disconnect from your server. Use the `kill` command to shut down a hung process.

If you cannot kill the process, contact support through email for information about the nature of the problem and its solution. You can keep that information for future reference. The support section of the website is a valuable resource with hundreds of pages devoted to supporting the Virtual Server.

## MODULE SUMMARY

The following is a summary of the commands we have covered in this training module:

Application	Description	Quick Click Through
<b>Analog</b>	A log file analysis program	Connect to Virtual Server   <b>vinstall analog</b> <Enter>   message says: vinstall done.
<b>Analog</b>	Creates a Web page with your statistics.	Connect to Virtual Server   <b>virtual/usr/local/analog/analog</b> <Enter>
<b>vnukelog</b>	Deletes all log files from your server.	Vnukelog procedure: Connect to your Virtual Server   type: <b>vnukelog</b> <Enter>   log files deleted.
<b>quota</b>	Displays the amount of disk space used.	Quota procedure: Connect to your Virtual Server   type: <b>quota</b> <Enter>   quota is displayed.
<b>vdiskuse</b>	Displays a detailed description of the disk space used.	Connect to your Virtual Server   type: <b>vdiskuse</b> <Enter>   used disk space is displayed.
<b>top</b>	Shows the top processes and load averages.	Connect to your Virtual Server   <b>top</b> <Enter>   top processes are displayed.
<b>kill</b>	Kills or stops a process.	Connect to Virtual Server   type: <b>top</b> <Enter>   Type <b>k</b> and <b>PID</b> <Enter>   message confirms process was killed.
Modifying an existing user	Makes changes to any existing users on the server.	Connect to Virtual Server   type: <b>vadduser</b> <Enter>   <Enter> again   <b>yes</b> to edit entry   fill in fields to edit user
<b>vlistuer</b>	Lists all users on your server.	Connect to Virtual Server   type: <b>vlistuser</b> <Enter>   users are displayed.
<b>vruser</b>	Removes a user from a server.	Connect to Virtual Server   <b>vruser</b> <Enter>   type <b>username</b> (to be removed) <Enter>   Type <b>y</b> <Enter>   a message confirms user's name was removed.
<b>user password</b>	Changes a user's password.	Connect to Virtual Server   <b>vpasswd username</b> <Enter>   type: <b>newpassword</b> <Enter>   type <b>newpassword</b> again <Enter>
<b>tail</b>	Allows admin to see the error messages as they are created.	Connect to Virtual Server   <b>tail -f ~ /usr /log /messages</b> <Enter>   Have your user duplicate the error message while you run the <b>tail</b> command.



## SERVER MAINTENANCE REVIEW

### SCENARIO 1

Santa's marketing department ran an ad campaign and they want to know how successful they were in attracting new customers to the North Pole Web site.

To learn how effective the campaign was, you need to find out how many people visited the site before and after the campaign was launched. This information would be located in the access\_log files.

Q. What are some of the possible ways to view access log files?

Q. If you were going to use Analog to generate log file reports, which reports would be the most useful?

Q. If you wanted to learn where your customers were visiting from, which report would you choose?

### SCENARIO 2

There have been some changes made to the North Pole Web site. Now the site is down. You must view the error log file to see what is causing the problems.

Q. Where are the error log files located?

Q. What do the different parts of the error log entries mean?

Q. What would you use to see an error message as the user creates it?

### SCENARIO 3

An elf named Knobby has created a new nickname for himself: Knobster. He wanted to have his user account reflect this nickname, but he cannot make the changes. To make matters worse, Knobster has forgotten the password to his email/FTP account. Update Knobster's user account and change the password.

Q. How would you effectively change the information on Knobby's user account?

## GLOSSARY

**alias** A forwarding email address. Email sent to an alias will simply forward to the address you specify. This allows you to create email addresses for yourself and users without having to create additional email accounts.

**autoreply** A predetermined reply sent to anyone that sends email to specific email address. A message is sent to the sender of the original message. An autoreply can perform a number of functions such as confirmation on product delivery.

**autoresponder** See *autoreply*.

**client** A computer, person or organization that accesses the shared network resources provided by another computer (server).

**client-server relationship** A server is a high-capacity, high-speed computer that performs a specific service. A client is any computer that can access the server. The relationship consists of a client sending a request to the server to perform a specific function, such as storing files and running programs stored on the server's hard disk.

**dedicated server** A powerful computer that is used as a network server only. The main function of a dedicated server is to provide services (email, FTP, Web) to clients.

**delimit** The limits set on some entity using a symbol called a *delimiter*. Some programming languages usually delimit variable elements such as comments, strings, and program blocks. See also *delimiter*.

**delimiter** A special character that separates individual items in a program or set of data. Examples include commas, semi-colons, and tabs.

**directory** A catalog system for files and additional directories on a disk. It is useful for organizing and grouping files. Also known as a folder.

**domain name** An address that identifies the computer system that stores the user information.

**email (electronic mail)** The use of a communications network to send and receive electronic text messages.

**FreeBSD 3.3** A type of Unix operating system.

**FTP (File Transfer Protocol)** A simple protocol used to copy and move files to and from remote computer systems on a network using the Internet.

**FTP client** A program that enables the user to move, upload and download files to and from an FTP site over a network, such as the Internet. For example, WS\_FTP is an ftp client.

**file** A basic unit of storage that is named so the computer can distinguish one set of information from another.

**flat file** A file that does not permit the information stored within it to be changed or linked to data in other files.

**folder** See *directory*.

**hostname** The domain name associated with the IP address on a Virtual Server.

**iManager** A Web-based program designed for the Virtual Server administrative tasks.

**IMAP (Internet Message Access Protocol)** An email program that accesses the messages stored on the mail server. Since the messages are stored on the server, the user is able to access their messages from more than one location.

**IP address (Internet Protocol address)** A number that uniquely identifies a host connected to the Internet for purposes of communication. IP addresses are composed of four chunks of numbers separated by periods.

**log files** A record of the activity on the server.

**main server** See *dedicated server*.

**module** A self-contained component that provides a complete function to a system and be interchanged with other modules that perform similar functions.

**modular structure** This structure has separated the different functions of the system, so problems can be easily isolated and parts replaced without having to redo the system.

**multitasking capability** The ability to allows the computer to perform a number of functions at the same time.

**multiuser capability** The ability to allow multiple users to log on and use the same computer.

**operating system** A group of programs that help the computer's components function together smoothly.

**POP (Post Office Protocol)** This protocol accesses the mail server and downloads email to your local computer. Customers can receive, store and transmit messages by connecting to the server through an Internet connection.

**process** A process is a program that is running, sleeping or waiting. For example, when your website receives a hit, a process is used.

**quota** The amount of disk space assigned to each Virtual Server.

**root** The highest level in an organized, hierarchal set of information.

**SSH (Secure Shell protocol)** A text based protocol that allows users to securely access their Virtual Server. Uses UNIX commands to operate and is very similar to Telnet. There are many types of Secure Shell clients available, such as Secure CRT, a commercial SSH client that supports a variety of protocols.

**SMTP (Simple Mail Transfer Protocol)** This enables computers to send mail over the Internet. It is used to send messages from one computer to another on a network.

**Sendmail** Sendmail is the UNIX-based SMTP server software program that the Virtual Server uses to route its mail and read the aliases file.

**sector** A pie shaped portion of the data storage area on a disk. The disk is divided into 9 such wedges.

**server** A high capacity, high speed computer that performs all or some procedures on a network and responds to the client.

**Solaris 2.6** A type of Unix operating system.

**subdirectory** A directory located within another directory.

**subhost** A domain located under a host domain.

**subhosted domain** See *subhost*.

**symbolic link** A shortcut to another directory in the form of a directory. For instance, the www directory takes you to the usr/local/etc/httpd directory.

**tab delimited file** A data file in which data is separated using the tab key.

**Telnet** A text-based legacy Internet service that allows users to access remote computers as if they were directly attached.

**troubleshoot** To isolate the source of a problem in a computer, program or system and isolate it.

**UNIX** A family of multi-tasking, multi user operating systems. There are many different flavors of Unix operating systems such as FreeBSD and Solaris.

**virtual subhost** See *subhost*.

**virtual root** The highest level of hierarchal access on a Virtual Server. You do not have access to the entire computer, but you do have full access to your Virtual Server.

**virtmap** A mapping between an address on the virtual subhost and the Virtual Server. The virtmaps feature forces the Virtual Server SMTP to recognize the name of incoming email and helps create catch-alls for subhosted domains.

**Virtual Server** A Virtual Server occupies a section of a powerful dedicated server that is partitioned at the root level and is assigned its own IP address

**Web mail** An email program that allows the user to check email using a Web browser. Examples include iManager and hotmail.

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