



Netra Proxy Cache Array Configuration Guide

Version 1.0

Part No: 805-1793-10
Revision A, January 1998



Netra Proxy Cache Array Configuration Guide

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Part No: 805-1793-10
Revision A, January 1998

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Preface

The *Netra Proxy Cache Array Configuration Guide* tells you how to perform initial software configuration on an array of Netra Proxy Cache Servers. These instructions are designed for an experienced system administrator with a knowledge of the Solaris™ operating environment and network administration.

This manual is a companion to the *Netra Proxy Cache Array User's Manual*. That document describes advanced configuration and tells you how to monitor and troubleshoot the Netra Proxy Cache Array.

How This Book Is Organized

Chapter 1," presents tables that you fill out before starting Netra Proxy Cache configuration.

Chapter 2," gives you a step-by-step procedure for initial host configuration of a Netra Proxy Cache Server.

Chapter 3," gives you instructions for configuring proxy cache and array software on all the hosts in a Netra Proxy Cache Array from a single host.

Chapter 4," provides a procedure for configuring the Netra Proxy Cache Array through use of a command-line program.

Appendix A," provides instructions on connecting a serial terminal, PC, or another Sun machine to your Netra Proxy Cache Server through the server's serial port.

Using UNIX Commands

This document does not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See the *Solaris Handbook for SMCC Peripherals* (included with the Netra Proxy Cache product) for instructions on basic UNIX administration commands. If you have Internet access, you can view all Solaris documentation (and most Sun customer manuals) at:

<http://www.sun.com/docs>

Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output.	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output.	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Command-line variable; replace with a real name or value.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be <code>root</code> to do this. To delete a file, type <code>rm filename</code> .

Shell Prompts

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Related Books

This manual, the *Netra Proxy Cache Array Configuration Guide*, is a companion to the hardware documentation that accompanies your Netra Proxy Cache Server and to the *Netra Proxy Cache Array User's Manual*.

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Preparing for Installation and Configuration

- “Why You Should Read This Chapter” on page 1
- “Configuration Overview” on page 2
- “Key Concepts” on page 4
- “Hardware Required” on page 7
- “Configuration Tables” on page 7
- “Netra Administration GUI Icons” on page 15
- “Summary” on page 16

Why You Should Read This Chapter

You will spend less time in bringing the Netra Proxy Cache Array online if you read this chapter and then perform the configuration tasks than if you dive directly into the configuration tasks.

Configuration of a Netra Proxy Cache Array involves concepts and terminology that might not be familiar to you. Also, most of the work in configuring an array is in the preparation—for example, obtaining IP addresses and assigning a Domain Name Service (DNS) subdomain to the array—rather than in the interaction with the administrative web pages.

Configuration Overview

The following figures illustrate the installation and configuration tasks involved with bringing up a Netra Proxy Cache Array.

Figure 1-1 illustrates hardware-related installation tasks. Instructions for these tasks are presented in the hardware documentation that accompanies the Netra Proxy Cache product.

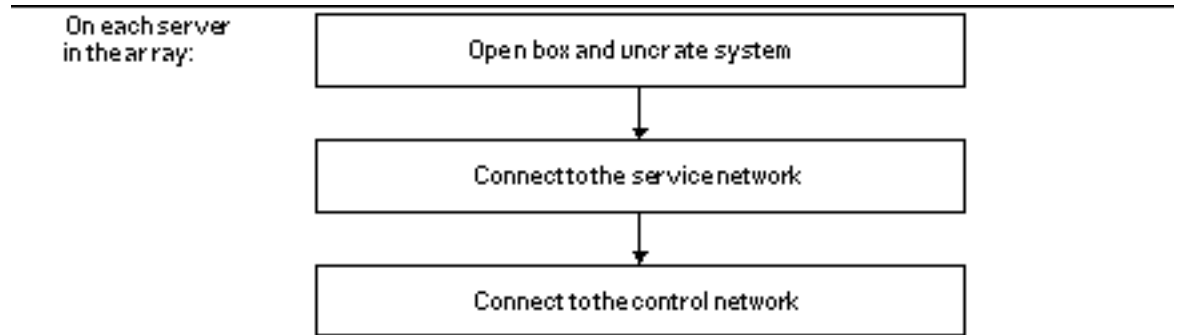


Figure 1-1 Hardware Installation

The *service network* is the LAN over which your array hosts interact with clients. The *control network* is a private network used by the array software. These terms are described in detail in “Key Concepts” on page 4.

Figure 1-2 gives a high-level view of the tasks required to configure the software for a Netra Proxy Cache Array.

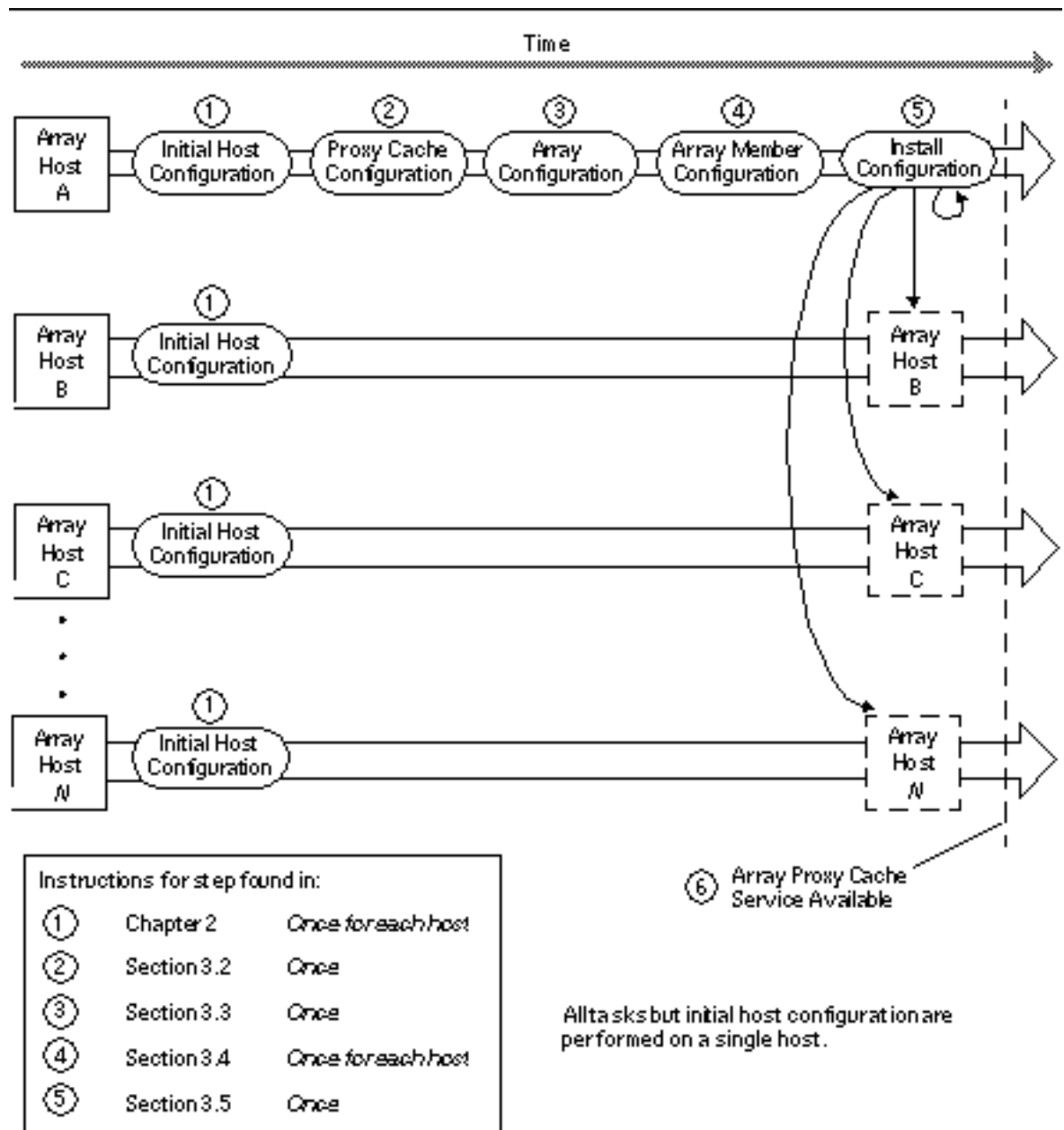


Figure 1-2 Software Configuration Sequence

The tasks in the boxes in Figure 1-2 are described in detail in Chapter 2” and Chapter 3.”

Key Concepts

Understanding of the concepts listed below is required to configure a Netra Proxy Cache Array. Please refer to Figure 1–3 as you read the following definitions.

name of the Netra Proxy Cache Array

The set of hosts that form a Netra Proxy Cache Array are known to clients by a single name—the name of the DNS subdomain formed by the array—and, in fact, the array appears as a single proxy cache service to clients.

role of DNS

Each Netra Proxy Cache Array has one host that acts as the authoritative server for zone formed by the array. The remaining array hosts act as hot spares for the DNS server. Array software modifies the DNS round robin to provide load-balancing. An existing DNS server must delegate the subdomain formed by the Netra Proxy Cache Array. Chapter 2” provides an example of how to do this.

Netra Proxy Cache Array software

Consists of a daemon and software objects that run on each of the machines in a Netra Proxy Cache Array. The array software is what enables multiple servers to provide a single, reliable proxy cache service. On a periodic basis, the array software monitors the health (reachability, load, presence of server processes) of the hardware resources and proxy cache service on each machine. It also monitors the instance of the DNS running on one of the hosts in the array.

control network

An isolated (private) subnet over which the array software sends snapshots of the health of each machine in the array. Netra Proxy Cache Servers are equipped with a second network interface (`hme1`) to enable connection to a control network. This second interface is referred to as the *control interface*.

service address

The resource managed by the array software. This is a logical IP address that is associated with the proxy cache service on each host in the array. (There is also a service address associated with the DNS on one machine.) If a machine fails or becomes overloaded, array software can remove the availability of the service address or move the address to a different machine in the array. A critical distinction between a service address and the host IP address is that the service address can move to a different host in the array, while the host address remains fixed.

service network

The network over which server-client interactions occur. The service network is, most often, the local area network (LAN) over which clients access a variety of network services. A Netra Proxy Cache Server connects to the service network through the

service interface, which is the interface (hme0) associated with the server's host name. There is no exchange of packets between the service and control networks.

TABLE 1-1 Interfaces and Required Addresses

Interface Name	Addresses Associated with	Subnet Number
service interface, used to connect to service network	host IP address service address for proxy cache service service address for DNS (on one host in array)	Same subnet number used for host IP address and service address(es)
control interface, used to connect to control network	control address	Different subnet number from that used for host name and service address(es)

Figure 1-3 illustrates the concepts described above.

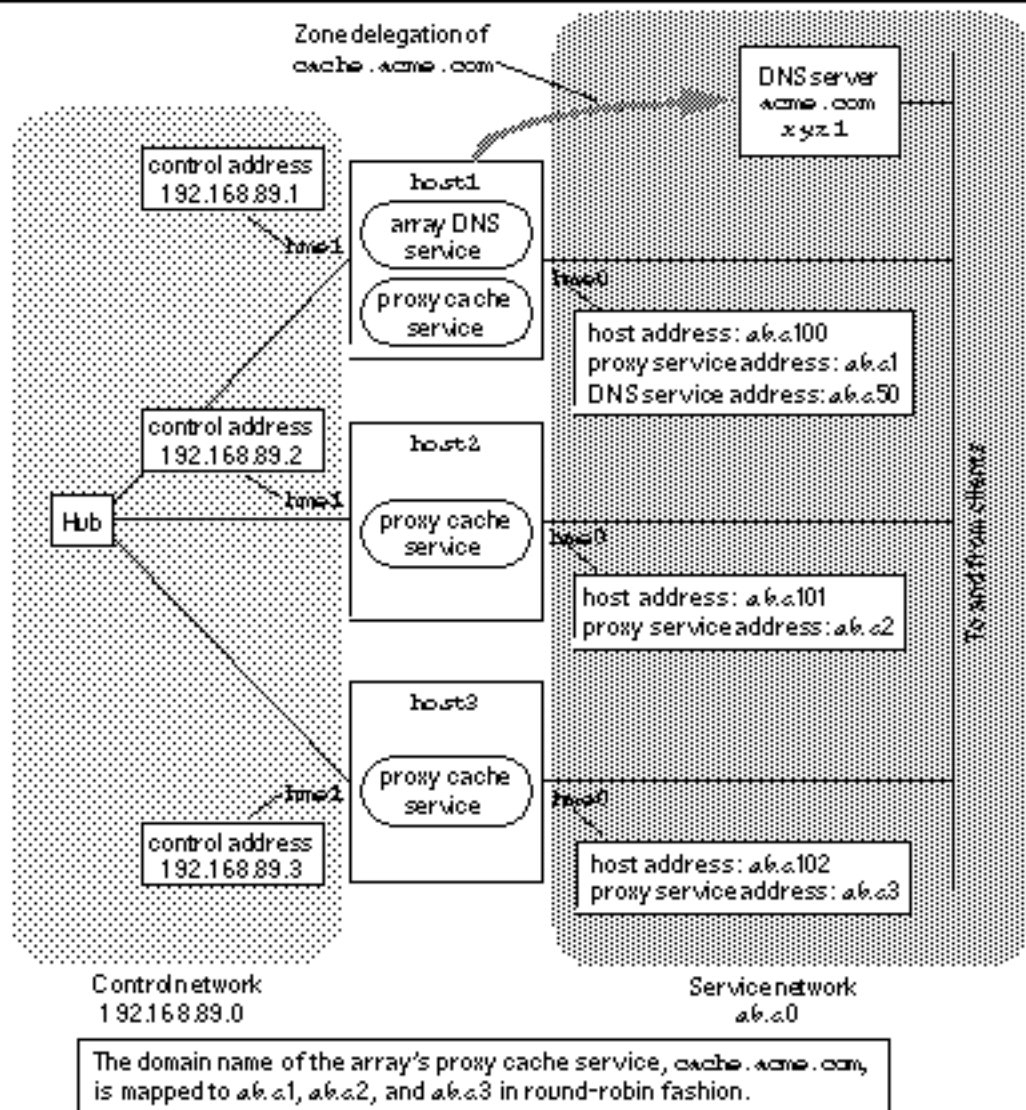


Figure 1-3 Example Netra Proxy Cache Array

The addresses shown in Figure 1-3 are used as examples in the configuration tables that follow. It is important to note relationship among addresses:

- The host, proxy cache service, and DNS service addresses all use the same subnet number
- The control addresses use a different subnet number from that used for the addresses mentioned in the previous bullet

Hardware Required

For the control network, you need an Ethernet hub and an RJ-45 cable for each machine, to connect the `hme1` interface on each host in the array to the hub. It is not critical for the operation of the control network that your hub support 100 Mbs. The `hme1` interface supports either 10 or 100 Mbs.

If you have a two-host array and do not have a hub, you need a back-to-back RJ-45 cable.

If you plan to establish a TTY connection to your Netra Proxy Cache Server, you need a serial cable. See Appendix A, "for requirements."

Configuration Tables

This section contains tables that you can use when performing the tasks described in Chapter 2." It is recommended that you make a copy of these pages and fill out the tables before starting the procedures in Chapter 2."

Initial Host Configuration

Initial host configuration divides into the following sequence:

1. Network interface configuration
2. Completing initial host configuration (time zone, root password, and so on)

You can perform network interface configuration by either of two ways, the *TTY method* or the *diskette method*. These methods, as well as the entire initial host configuration process, are illustrated in Figure 1-4.

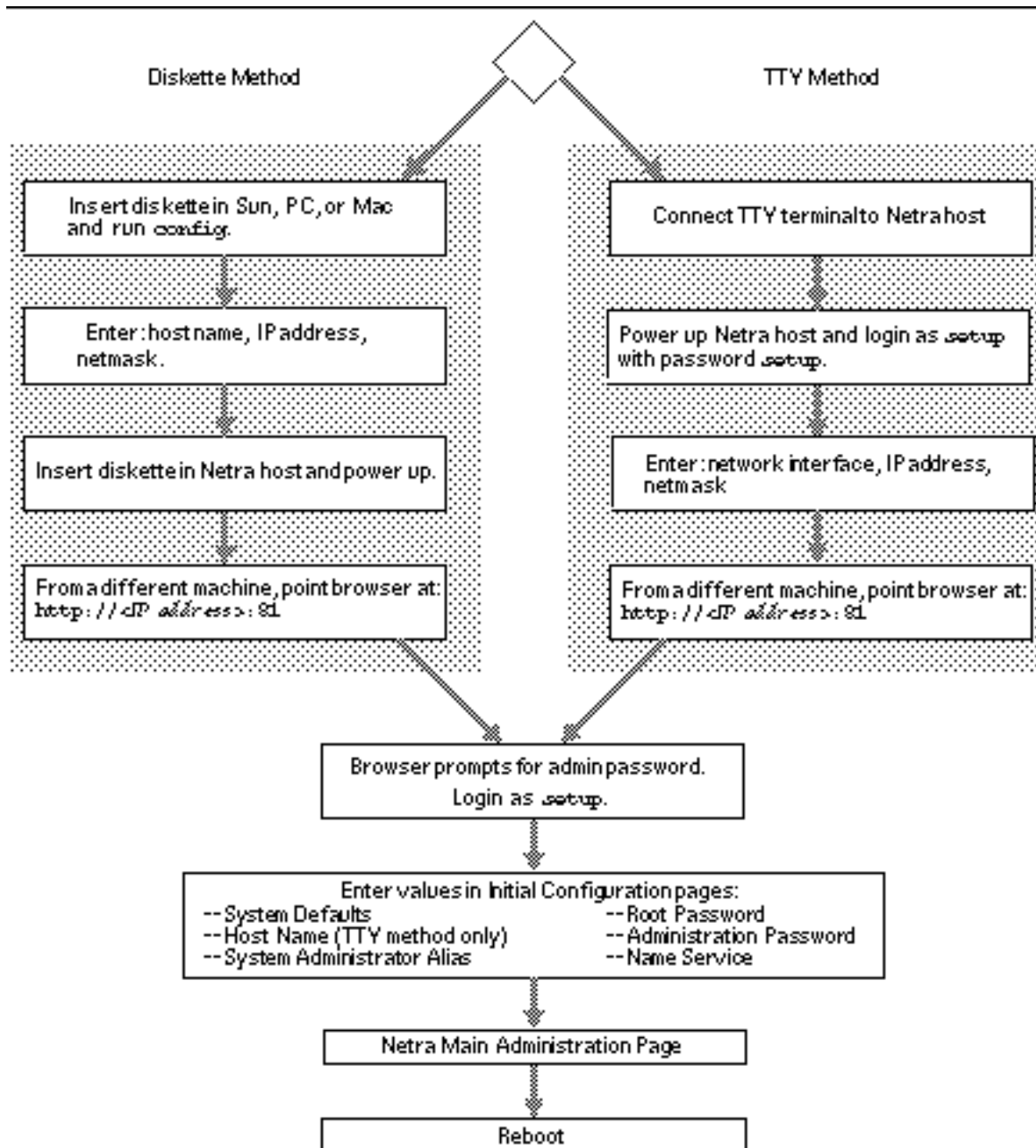


Figure 1-4 Initial Host Configuration

In terms of what you need to know, there is no difference between the TTY and diskette methods. In the diskette method, you enter the Netra Proxy Cache Server's

host name during network interface configuration. In the TTY method, you specify a host name following network interface configuration.

Table 1–2 lists the data required for network interface configuration. You perform this configuration on each host in a Netra Proxy Cache Array. Among the data in the table, only the host name and IP address are unique to a single host. The remaining items apply to all hosts in the array.

TABLE 1–2 Data Required for Network Interface Configuration

Parameter Name	Description	Enter Value Here:
network interface (TTY method only)	This is the network interface (hme0) with which your host name is associated. Your server's other interface (hme1) is used for the control network. Example: hme0	hme0
host name of Netra Proxy Cache Server (diskette method only)	For convenience, this should be registered in your NIS and/or DNS maps. Example: host1	
host IP address of Netra Proxy Cache Server	Use dotted decimal notation. Make a note of this address. You will use it when configuring the Netra Proxy Cache software. Example: 129.144.118.2	
netmask	Netmask used in service network, in dotted decimal notation. Example: 255.255.255.0	

After you perform network interface configuration, you point a browser at your Netra Proxy Cache Server and complete initial host configuration using the product's administration web pages. Table 1–3 lists the data required to complete initial host configuration.

TABLE 1-3 Data Required to Complete Initial Host Configuration

Parameter Name	Description	Enter Value Here:
time zone	Time zone in which host resides. Example: US/Pacific	
locale	Locale in which host resides. Example: English (Only choice in the current release)	
host name of Netra Proxy Cache Server (only if you performed TTY method for network interface configuration)	For convenience, this should be registered in your NIS and/or DNS maps. Example: host1	
System administrator alias	Email addresses that will receive mail addressed to <code>root@<netra host name></code> or <code>Postmaster@<netra host name></code> .	
root password	There is no default. That is, you start with no root password.	
administration account name	The administration account name is <code>setup</code> .	
administration password	The default password is <code>setup</code> . You need this password to access the Netra Proxy Cache administration web pages and the <code>setup</code> system account.	
DNS domain name (if DNS is used)	Domain in which your Netra Proxy Cache host resides. Examples: <code>acme.com</code> or <code>sales.acme.com</code>	

TABLE 1–3 Data Required to Complete Initial Host Configuration *(continued)*

Parameter Name	Description	Enter Value Here:
IP address of DNS server (if DNS is used)	Use dotted decimal notation. This is the DNS server outside of the Netra Proxy Cache Array that will resolve the name of the subdomain formed by the array. Example: 129.144.91.24	
NIS domain name (if NIS is used)	NIS domain in which your Netra Proxy Cache host resides. Examples: acme.com or eng.acme.com	

Choosing an Administrative Host

Following initial configuration on each host in the Netra Proxy Cache Array, you configure the Netra Proxy Cache software. You perform this configuration on one host in the array. The choice of which machine is arbitrary. We refer to the machine on which you perform configuration as the *administrative host*.

1. My administrative host is: _____ .

Proxy Cache Service Configuration

Use your entries in the following tables to respond to prompts in the administrative web pages. In these pages, configuration is broken down as follows:

- Proxy cache configuration
- Array configuration
- Array member configuration

The tables correspond to pages you find in the administrative web pages.

Use the values you enter in Table 1–4 and Table 1–5 to configure the proxy cache service.

TABLE 1-4 Data for Basic Proxy Cache Configuration

Parameter Name	Description	Enter Value Here:
HTTP port	Port number used by the Netra Proxy Cache Server for receiving web requests. Most users can accept the default of 8080. Example: 8080	
Inside firewall?	In a corporate setting, most proxy cache servers are inside a firewall.	
Domains inside firewall	For domains not on this list, if the server cannot find a requested object in its local cache, it always tries to fetch the URL from a parent or sibling.	
Parent proxies	If you are inside a firewall, you probably have a parent proxy. You can have multiple parents. See following table.	

The Netra Proxy Cache Server supports multiple parent and sibling proxies. For each parent of your server, find out the following information:

- The port it uses for HTTP
- The port it uses for the Inter Cache Protocol (ICP)
- Whether it supports tunneling of the Secure Sockets Layer (SSL) protocol
- Whether it supports persistent connections (as supported by popular browsers such as Netscape Navigator and Internet Explorer)

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If your parent is a Netra Proxy Cache Server, keep in mind that the server uses default port numbers of 8080 and 3130, for HTTP and ICP, respectively. Also the Netra Proxy Cache Server supports SSL tunneling and persistent connections.

If your Netra Proxy Cache Server is part of an array, sibling configuration is automatic: there is no need to specify other machines in the array as your siblings. You can specify machines not in the array as siblings.

If your parent is not a Netra Proxy Cache Server, consult the documentation for that server to determine whether it supports ICP, SSL tunneling, and persistent connections.

TABLE 1-5 Parent Proxies (Enter Names and Values)

Parent Name	HTTP Port	ICP Port (Enter 0 if ICP not supported)	Support SSL tunneling? (y/n)	Support persistent connections (y/n)

Use the values in Table 1-6 to complete basic array configuration.

TABLE 1-6 Data for Basic Array Configuration

Parameter Name	Description	Enter Value Here:
control network	Subnet number of the control network, expressed as, for example, x.x.x.0 for a Class C netmask. It is recommended that you use 10.0.0.0 or 192.168.0.0. Example: 192.168.89.0	
control network netmask	You can probably accept the default of 255.255.255.0. Example: 255.255.255.0	
service network	Subnet number of the service network, expressed as, for example, x.x.x.0 for a Class C netmask. This value must be different from the subnet number used for the control network. Example: 129.144.118.0 (Note that this is the subnet portion of the host IP address and of the proxy cache and DNS service addresses)	
service network netmask	The default is 255.255.255.0. Example: 255.255.255.0	

TABLE 1-6 Data for Basic Array Configuration *(continued)*

Parameter Name	Description	Enter Value Here:
Proxy cache domain name	Name of the DNS domain formed by the hosts in the array. Example: <code>cache.acme.com</code>	
Array DNS service address	An IP address associated with the DNS on the array DNS server. As a service address, this address is subject to moving to a different host upon host failure. Example: <code>129.144.118.200</code>	
Array DNS host name	Host name of the host within the array that will act as the DNS server for the domain formed by the array. You can choose any machine in the array. It is strongly recommended that you use your administrative host. Example: <code>host1</code>	

Use the data in Table 1-7 to complete basic array member configuration.

TABLE 1-7 Data for Basic Array Member Configuration

Parameter Name	Description	Enter Value Here:
<i>For each host in the array:</i>		
host name	Just as you entered it during initial configuration. See Table 1-1. Example: <code>host1</code>	









TABLE 1-7 Data for Basic Array Member Configuration *(continued)*

Parameter Name	Description	Enter Value Here:
host address	IP address associated with hme0 interface. This is the address you specified as the IP address of the Netra Proxy Cache Server during initial configuration. See Table 1-1. Unlike a service address, this address is not subject to moving to a different host. This address must have the same subnet number that you specified for the service network. Example: 129.144.118.2	
control address	IP address associated with the hme1 interface, used to connect to the control network. This address must have the same subnet number that you specified for control network. See Table 1-5. Example: 192.168.89.1	
service address	An IP address associated with the proxy cache service on a host. As a service address, this address is subject to moving to a different host upon host failure. This address must have the same subnet number as the host address, above. This is also the same subnet number you specified for the service network. See Table 1-5. Example: 129.144.118.100	

Netra Administration GUI Icons

You perform a portion of the software configuration of a Netra Proxy Cache Array or Server through a set of administration web pages. Table 1-7 displays the icons used to navigate through and display the status of the Netra Proxy Cache administration pages.

TABLE 1-8 Netra GUI Icons

Icon	Description
	Home icon. This navigation icon returns to the Netra Main Administration page.
	Help icon. This icon will open the help window, where the help pages are displayed. The help window can be moved, iconified or dismissed independent of the main browser window. The help window will update the help pages as requested.
	Back Arrow icon. This navigation icon goes back one page.
	Top-of-Module icon. This navigation icon goes to the first administration page of a particular module.
	Forward Arrow icon. This navigation icon moves forward to the next initial configuration module.
	Reminder icon. This icon calls attention to important messages in response to successfully configuring a module.
	Error icon. This icon indicates errors in configuring a module.
	Success icon. This icon shows that a module has been configured successfully.

Summary

To summarize the data you need:

- For each host in Netra Proxy Cache Array, you need three IP addresses, the address associated with the host name (which remains fixed to a host), a service address associated with the proxy cache service (which is subject to moving to a different host in the array), and a control address.

- For one host in the array, you need an IP address in addition to those mentioned above: a service address for the DNS that runs on that host.
- You need a DNS domain name for the subdomain (zone) formed by the array. For example, if your domain name is `acme.com`, you might choose `cache.acme.com`.

You need a few items in addition to these. However, with this minimal set you can configure the array and later make changes to the configuration to suit your needs.

Initial Host Configuration

- “Hardware Installation” on page 19
- “Setting Up Your Control Network” on page 20
- “Network Interface Configuration” on page 21
- “Using a Browser to Complete Initial Configuration” on page 27
- “Alternatives for Completing Configuration” on page 44

This chapter explains how to perform initial host configuration on Netra Proxy Cache Server. You perform these procedures on each host in a Netra Proxy Cache Array. It is strongly recommended that you read Chapter 1,” and fill out the tables in that chapter before starting the procedures described here.

Hardware Installation

The following tasks are covered in the hardware documentation that is shipped with the Netra Proxy Cache product.

▼ To Prepare for Initial Configuration

For each machine in your Netra Proxy Cache Array:

- 1. Open the shipping box and uncrate your Netra Proxy Cache Server.**
- 2. Connect the server’s hme0 interface to the service network.**

Figure 2-1 illustrates the location of the `hme0` and `hme1` interfaces, as well as serial port A, on the back panel of the Netra Proxy Cache Server.

Setting Up Your Control Network

The control network is required for the operation of the Netra Proxy Cache product's array software.

▼ To Set up Your Control Network

1. Obtain your Ethernet hub and an RJ-45 cable for each machine, as described in “Hardware Required” on page 7.
2. On each machine in the array, connect the `hme1` interface to the hub.
See Figure 2-1, above, for an illustration of the location of the `hme1` interface.

Note - If you have only one machine with array software—in effect, a one-host array—and you configure the array software (as described later in this chapter) you must connect the `hme1` interface to a hub, just as you would if you had multiple machines in the array. If you have a two-machine array, you can use a back-to-back RJ-45 cable, instead of a hub.

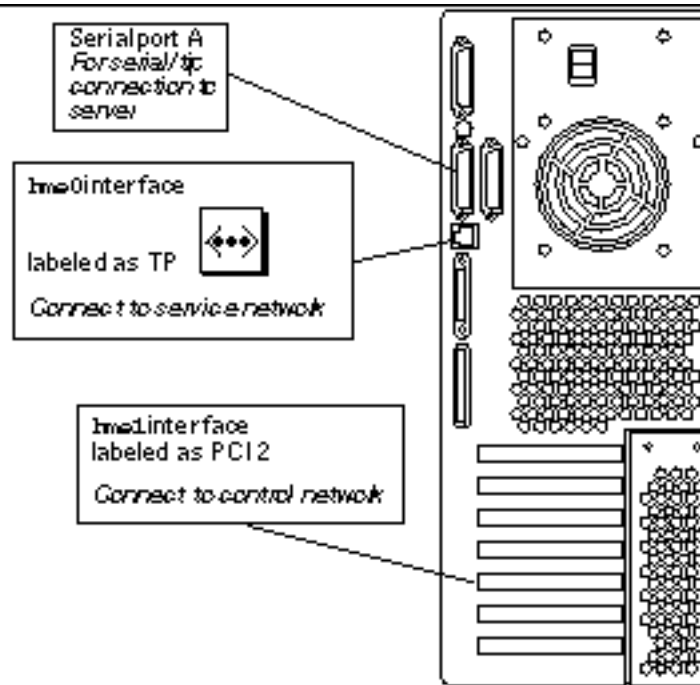


Figure 2-1 Location of Service and Control Network Interfaces

Network Interface Configuration

The Netra Proxy Cache product supports network interface configuration by either of two means:

- Establishing a serial connection from a terminal, another Sun machine, or a PC to the Netra Proxy Cache Server and using `tip` to connect to the server. Appendix A, “ provides instructions for making this connection. This method of initial configuration is referred to as the *TTY method* and is described in “TTY Method” on page 22.
- Inserting a configuration diskette in another Sun machine, a Mac, or a PC and running a configuration program, then booting the Netra Proxy Cache Server with that diskette in the server’s drive. The configuration diskette is shipped with the Netra Proxy Cache product. This method of network-interface configuration is referred to as the *diskette method* and is described in “Diskette Method” on page 24.

See Table 1-2 for the information you need to complete either of the following procedures. You must perform network-interface configuration on each machine in a Netra Proxy Cache Array.

Use the method, TTY or diskette, that is more convenient for you. Following initial host configuration, you will find a serial connection to the server to be very useful for troubleshooting.

Note - If you use DNS or NIS, it is useful to register the name and IP address of a Netra Proxy Cache Server in advance of network-interface configuration. By doing this, a Netra Proxy Cache machine is known throughout your network at the time you configure it.

TTY Method

Skip to “Diskette Method” on page 24 for instructions for the diskette method.

In this section it is assumed that you have connected a terminal, workstation, or PC to your Netra Proxy Cache Server. See Appendix A,” for instructions.

▼ To Use the TTY Method to Configure the Network Interface

1. Power on the Netra Proxy Cache Server.

2. At the Netra Proxy Cache Server, log in as user `setup` with the password `setup`.

```
NewNetra console login: setup
Password: setup password
you enter is not displayed
```

Later, you have an opportunity to change the administration password.

3. Enter 1 to configure the local area network interface.

```
Welcome to the Netra server setup account
```

```
Select from the following options:
1) Configure the local area network interface.
2) Restore configuration from floppy.
3) Exit
Enter an option: 1
```

4. Press Return or enter 1 to accept the default choice for network interfaces:

```
This program configures the local area network interface.
Values shown in square brackets are the default values.
```

Hit <return> to accept these values.

The following interfaces are available:

1) SunFastEthernet 2.0 Port 0

2) SunFastEthernet 2.0 Port 1

Enter the number corresponding to the interface
to be configured [1]:

5. Enter the host IP address for the Netra Proxy Cache Server:

Enter the local area network host address for the
Netra server:

Use dotted-decimal notation; for example, 129.144.118.2

6. Enter the netmask used on the network to which the Netra Proxy Cache Server is connected, or press Return to accept the default of 255.255.255.0:

Enter the local area network netmask for the
Netra server [255.255.255.0]:

7. Press Return or enter 1 to accept the values just entered, or enter 2 to repeat the steps just described:

The following configuration information has been entered:

Interface: hme0
Host Address: <your IP address>
Netmask: <your netmask>

Select from the following options:

1) Configure hme0 with these values.

2) Discard these values and input new values.

3) Discard these values and exit.

Enter an option [1]:

After you accept the entered values, the following message is displayed:

SunFastEthernet 2.0 Port 0 has been configured for TCP/IP operation.

Host Address: <your IP address>

Netmask: <your netmask>

Welcome to the Netra server setup account

Select from the following options:

1) Configure the local area network interface.

2) Restore configuration from floppy.

3) Exit

Enter an option: 3

8. Make a note of the values displayed for host address and netmask.

9. Enter 3 (Exit).

The NewNetra console login is displayed:

```
NewNetra console login:
```

At this point, on a machine that is network-accessible to the Netra Proxy Cache Server, you can use a browser to connect to the Netra Proxy Cache machine.

10. To ensure network connectivity, on the machine on which you will run the browser for further configuration, enter:

```
non-netra% ping <netra host IP address>
```

If the host name and IP address of the Netra Proxy Cache machine is known to a name service, you can `ping` the host by name, instead of numeric address. If you receive a response indicating that the Netra Proxy Cache Server is reachable, proceed. If you cannot `ping` the Netra Proxy Cache machine, you must have entered the host IP address or netmask incorrectly. Check the values you noted in Step 7 on page 26. If necessary, repeat the steps just described to configure your network interface.

11. On the machine on which you are running the browser, point the browser at:

```
http://<netra host IP address>:81
```

The string `<netra host IP address>` is the address you specified in the `ping` command, above.

Note - Depending on the capabilities of your router, you might need to use a browser on a host on the same subnet as the Netra Proxy Cache Server.

12. At this point, proceed to “Using a Browser to Complete Initial Configuration” on page 27.

Diskette Method

If you used the TTY method, as described in “TTY Method” on page 22, skip to “Using a Browser to Complete Initial Configuration” on page 27.

In this section it is assumed that you have the configuration diskette (labeled “Netra Proxy Cache Utilities Diskette”) that is shipped with your Netra Proxy Cache Server.

▼ To Use the Diskette Method to Configure the Network Interface

1. Make a copy of the Netra Proxy Cache Utilities diskette.

To make a copy on a Solaris machine, do the following:

a. Insert the utilities diskette in your diskette drive and enter the following sequence of commands:

```
% mkdir /tmp/hold
This directory is an example
% volcheck
% cp /floppy/floppy0 /tmp/hold
```

b. Eject the utilities diskette.

c. Insert a blank, formatted diskette and enter the following sequence of commands:

```
% volcheck
% cp /tmp/hold /floppy/floppy0
```

d. Eject the copy of the utilities diskette.

Note - The copying of your utilities diskette is critical. The diskette shipped with the product is read-only.

2. Insert the copy of the configuration diskette in the drive of another Unix machine (not the Netra Proxy Cache Server), a Mac, or a PC.

3. Invoke the `config` program on the diskette, as appropriate for your machine.

For example, on a PC that has a diskette drive A, invoke `a:\config`. For a Solaris machine, insert your diskette and enter the following sequence of commands:

```
% volcheck
% cd /floppy/floppy0
% ./config.ksh
```

When `config` comes up, it displays the following:

```
This program generates a configuration file
for the local area network interface.
Values shown in square brackets are the default values.
```

4. Enter the host name of the Netra Proxy Cache Server:

Enter the Host Name for the Netra Server:

5. Enter the IP address of the Netra Proxy Cache Server:

Enter the local area network host address for the
Netra server:

Use dotted-decimal notation. For example, 129.144.88.112.

6. Enter the netmask used on the network to which the Netra Proxy Cache Server is connected, or press Return to accept the default of 255.255.255.0:

Enter the local area network netmask for the
Netra server [255.255.255.0]:

The information you entered is saved on the diskette. This diskette now contains network-interface-configuration information for your Netra Proxy Cache Server.

7. Make a note of the values you entered for host name, host address, and netmask.

8. Eject the diskette from the drive.

9. Insert the same diskette in the diskette drive of your Netra Proxy Cache Server.

10. Power on the Netra Proxy Cache Server.

Wait (about a minute) till the Netra Proxy Cache Server completes the boot process. Then, on a machine that is network-accessible to the Netra Proxy Cache Server, you can use a browser to connect to the Netra Proxy Cache machine.

11. To ensure network connectivity, on the machine on which you will run the browser for further configuration, enter:

```
non-netra% ping <netra host IP address>
```

If the host name and IP address of the Netra Proxy Cache machine is known to a name service, you can `ping` the host by name, instead of numeric address. If you receive a response indicating that the Netra Proxy Cache Server is reachable, proceed. If you cannot `ping` the Netra Proxy Cache machine, you must have entered the host name, host address, or netmask incorrectly. Check the values you noted in Step 7 on page 26. If necessary, repeat the steps just described to configure your network interface.

12. On the machine on which you are running the browser, point the browser at:

`http://<netra host IP address>:81`

The string `<netra host IP address>` is the address you specified in the `ping` command, above.

Note - Depending on the capabilities of your router, you might need to use a browser on a host on the same subnet as the Netra Proxy Cache Server.

At this point, proceed to the next section.

Using a Browser to Complete Initial Configuration

Whether you use the TTY or the diskette method for network-interface configuration, use a browser to perform the rest of the initial configuration. Use the data gathered in Table 1-2 to complete this procedure.

You must perform the steps described here on each host in the Netra Proxy Cache Array.

▼ To Complete Initial Configuration

After using a browser to connect to the Netra Proxy Cache Server (as described in the preceding section), you receive the display of the Administration Password Dialog Box, as shown in Figure 2-2.



Figure 2-2 Administration Password Dialog Box

1. Enter setup in both the User ID and Password fields, then click OK.
The Netra Proxy Cache Welcome page is displayed, as shown in Figure 2-3.

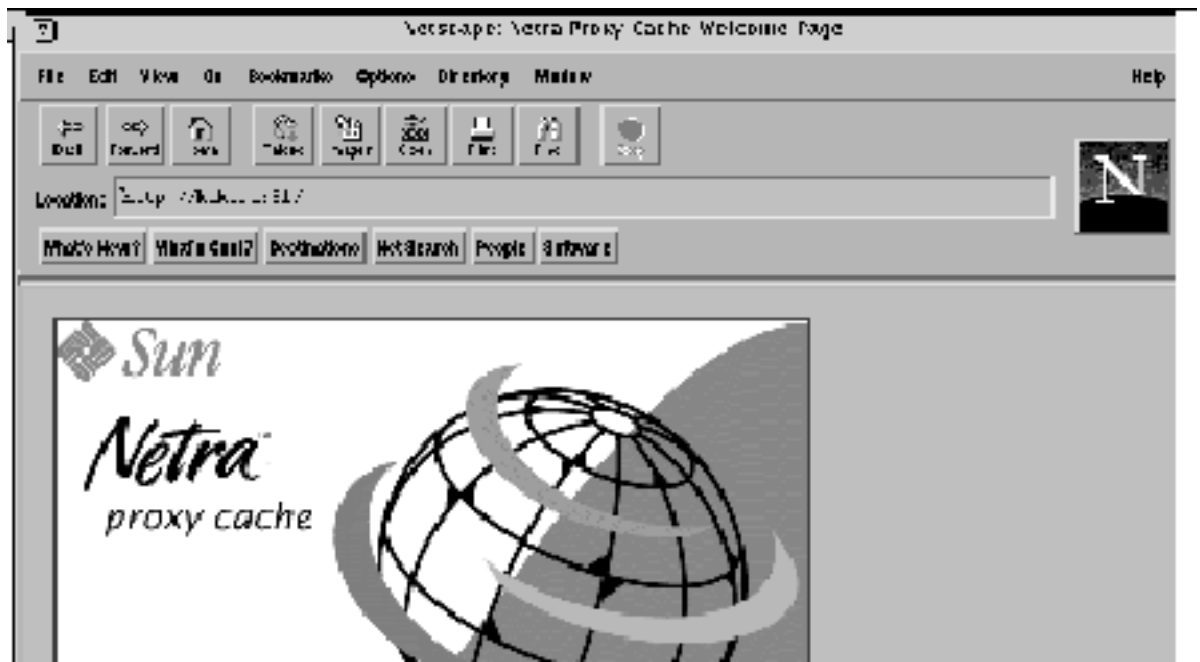


Figure 2-3 Netra Welcome Page

2. Click the Administration link.
The Initial Configuration page is displayed, as shown below.



Figure 2-4 Initial Configuration Page

Because the Netra Proxy Cache Server is being configured for the first time, the Initial Configuration page takes the place of the Main Administration page until the listed modules are configured. During a complete initial configuration, the following modules are configured:

- System Defaults
- Host Name (only if you used the TTY, rather than the diskette, method of network-interface configuration)
- System Administrator Alias
- Root Password
- Administration Web Server
- Name Service

Note - If the initial configuration is being done on a partially configured server, all six modules might not be displayed. This is because the Netra Proxy Cache software has already interrogated the system and determined that a given module does not require configuration.

The examples in this manual show a complete initial configuration when configuring a Netra Proxy Cache Server for the first time.

Configure modules in the order listed in the Initial Configuration page. The link for the module to be configured next is highlighted in the web page.

3. Click System Defaults.

The System Defaults Administration page is displayed, as shown below.

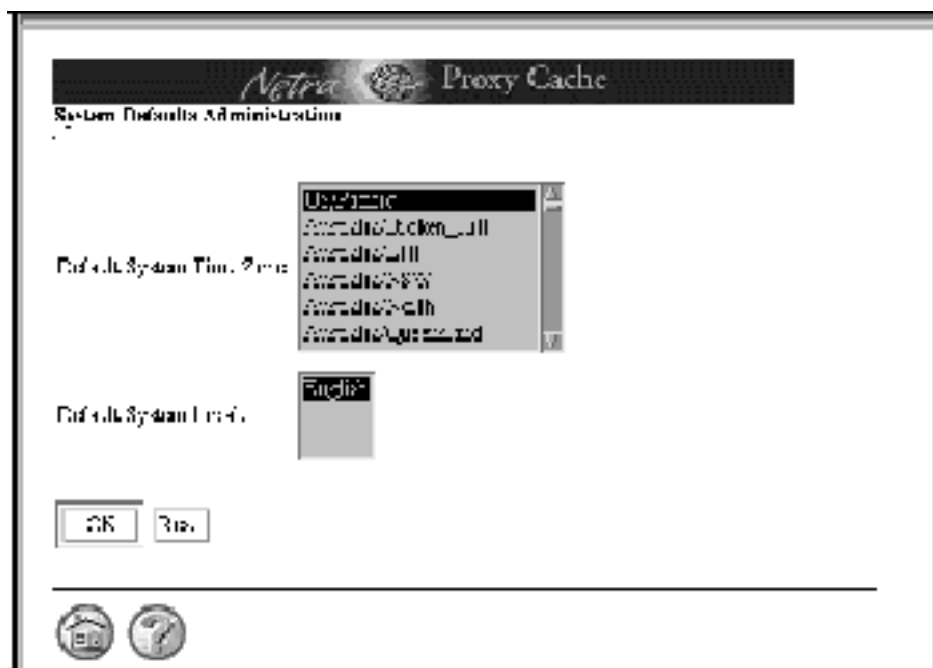


Figure 2-5 System Defaults Administration Page

Use this page to configure the server's time zone and locale.

4. To set the time zone, scroll down the list and click the country/time zone appropriate for your location.
5. In the Default System Locale menu, click the appropriate country/language.

In the current release, there is only a single item in the menu, English. Additional locales will be supported in future releases.

At the bottom of the page are two circular icons, one a house, the other a question mark. These icons are links to the home page and to a help page, respectively. While performing the initial configuration, clicking the home icon returns to the Initial Configuration page. Following initial configuration, clicking the home icon returns you to Netra Main Administration page. The help icon in Figure 2-5 loads a help page for the System Defaults module. Most administration modules have a help page.

- 6. Click OK to enter the system defaults information.**

A page indicating that the operation succeeded is displayed, as shown below.

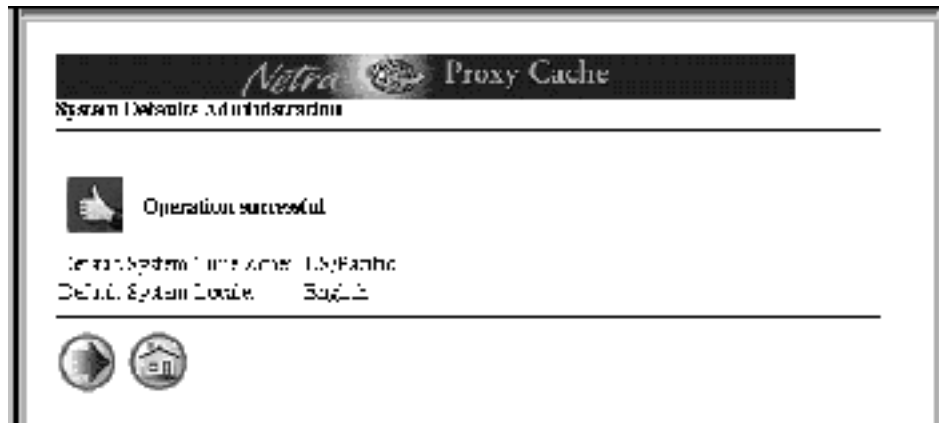


Figure 2-6 System Defaults Administration Success

The “thumbs-up” page indicates that the System Defaults Administration module has been successfully configured with the displayed values.

At the bottom of the page is the home icon and a circular icon with a right-pointing arrow, called the forward-arrow icon. Clicking this link moves forward to the next task for the initial configuration.

7. Click the forward-arrow icon.

The page that is displayed next depends on whether you used the TTY or the diskette method of network-interface configuration:

- If you used the TTY method, the Host Name Administration page is displayed. Proceed to Step 8 on page 32.
- If you used the diskette method, you have already configured your host name. The System Administrator Alias Administration page is displayed. Skip to Step 10 on page 34.

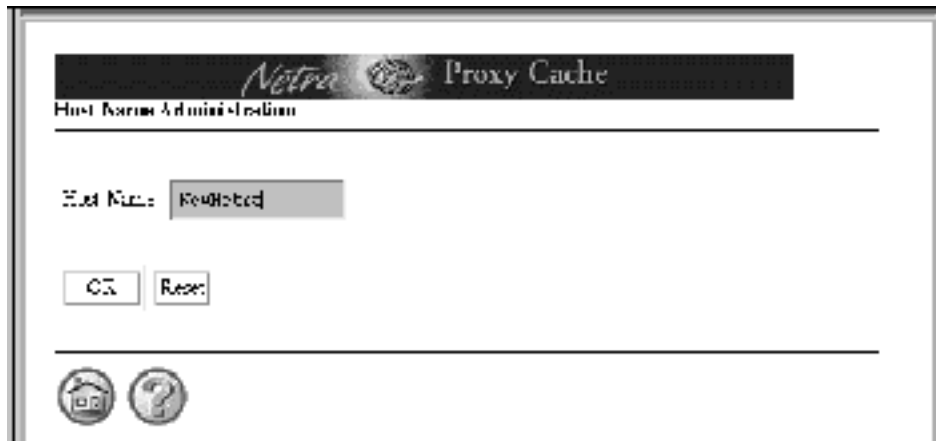


Figure 2-7 Host Name Administration Page

- 8. In the Host Name Administration page (shown in Figure 2-7), replace the name NewNetra with your machine's host name in the Host Name field and click OK.**

A host name can be of 24 or fewer characters. Valid characters are:

0-9 a-z A-Z - _

The host name cannot end in a hyphen.

A reminder page is displayed (shown below) telling you that you must reboot your machine for the host name update to take effect. You will perform this reboot later in the procedure.

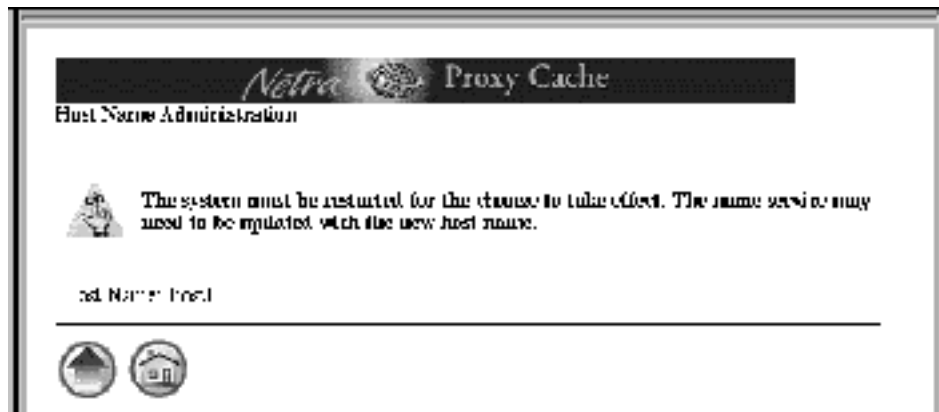


Figure 2-8 Host Name Reminder Page

9. Click the forward-arrow icon.

The System Administrator Alias Administration page is displayed, as shown below.

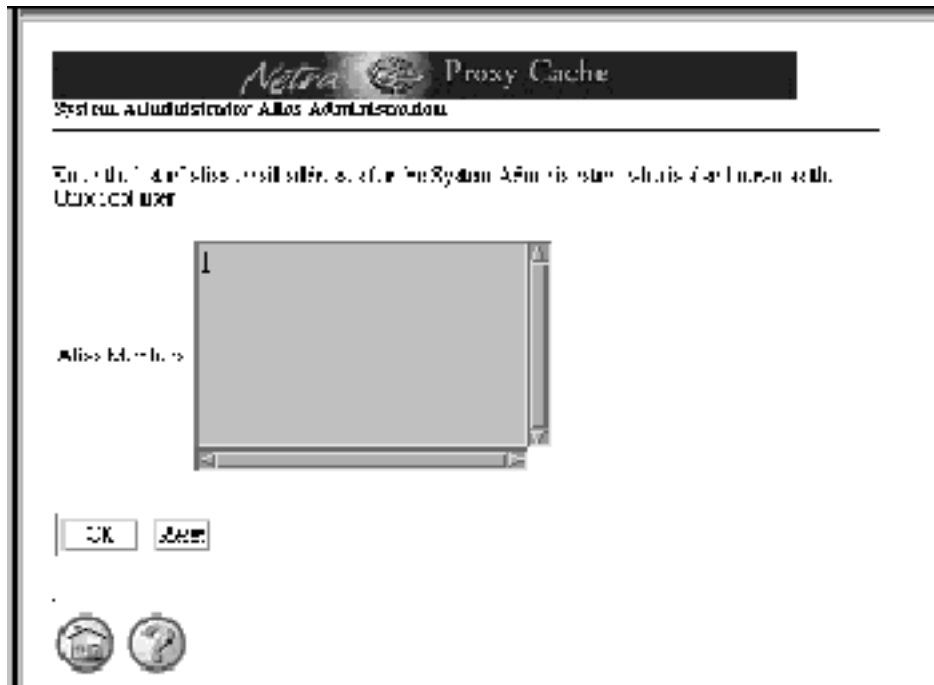


Figure 2-9 System Administrator Alias Administration Page

This page enables the addition of email addresses for users who will receive email addressed to `root@<netra host name>` or `Postmaster@<netra host name>`.

10. In the System Administrator Alias Administration page, click the Alias Members field and enter one email address per line.

You must enter at least one address. Press Return after entering an address to enter another address.

11. After entering one or more email addresses, click OK.

A success page is displayed, as shown below.

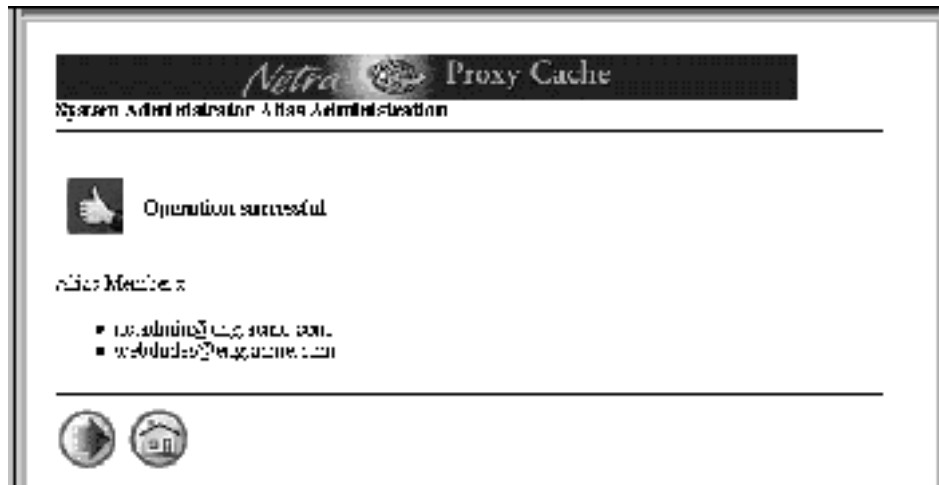


Figure 2-10 System Administrator Alias Administration Success Page

12. Click the forward-arrow icon.

The Root Password Administration page is displayed, as shown below.

Figure 2-11 Root Password Administration Page

This page enables the changing of the root password. For initial configuration, the Current Root Password field is blank, as there is none.

Note - The password you enter is passed as clear text over the LAN to the Netra Proxy Cache Server.

13. Enter the new root password in the middle field and enter it a second time in the lower field.

14. Click OK.

The success page indicates that the root password has been changed.

Should an error icon be displayed, type the correct password where indicated and click OK.

15. In the success page, click the forward-arrow icon.

The Administration Password page is displayed, as shown below.

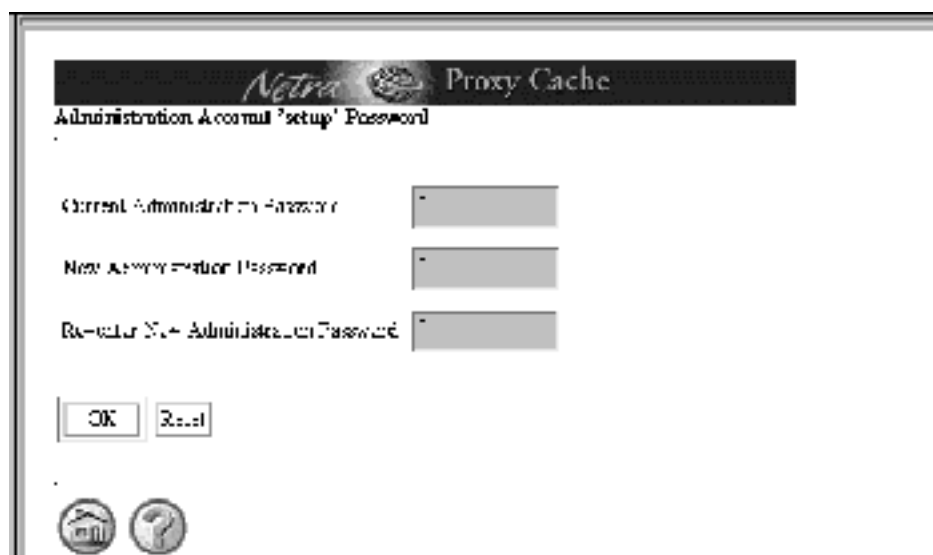
The screenshot shows a web browser window with the title "Netra Proxy Cache". Below the title bar, the text "Administration Account 'setup' Password" is displayed. There are three input fields: "Current Administration Password", "New Administration Password", and "Re-enter New Administration Password". Below the input fields are two buttons: "OK" and "Cancel". At the bottom of the window, there are two circular icons: one with a house and one with a question mark.

Figure 2-12 Administration Password Page

This page enables the changing of the administration password, which gives you access to the Netra Proxy Cache Main Administration page and the server `setup` account, described in "TTY Method" on page 22.

16. Enter `setup` in the top field, Current Administration Password.

17. Enter a new administration password into the middle and lower fields and click OK.

Note - The password you enter is passed as clear text over the LAN to the Netra Proxy Cache Server.

Following successful administration password configuration, the page shown in Figure 2-13 is displayed.

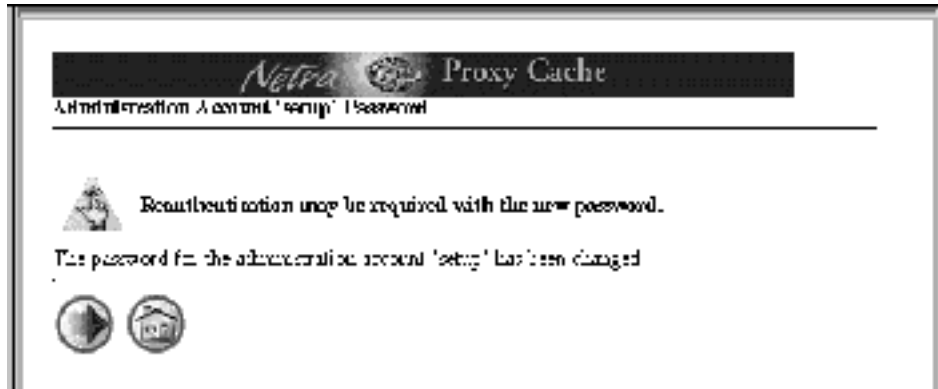


Figure 2-13 Reminder: Reauthentication May Be Required

18. In the page such as that shown in Figure 2-13, click the forward-arrow icon.
If you did not change the administration password, skip to Step 21 on page 38.
19. If you changed the administration password (from `setup`), at this point, a pop up window is displayed, indicating that authorization failed and asking for a retry. Click OK in the pop up window.
20. In a second pop up window, you are prompted to login, with `setup` as the administration user. In the login pop up window, enter the administration password you just specified in Step 17 on page 37 and click OK.
At this point, whether you changed the administration password or left it as `setup`, the Name Service Administration page is displayed, as shown below.

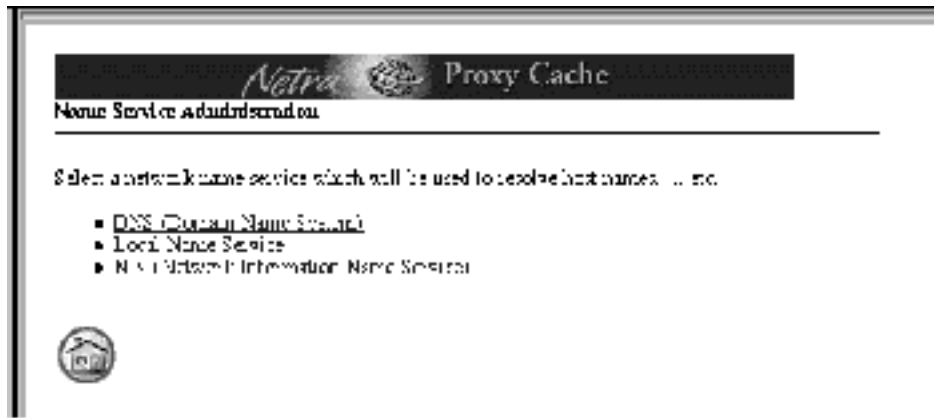


Figure 2-14 Name Service Administration Page

21. Click the link for the name service you use.

Use the instructions appropriate for your name service selection.

Note - It is strongly recommended you use DNS or NIS and not a Local Name Service. You can use both DNS and NIS. If you choose DNS and/or NIS, do not configure the Local Name Service.

For the DNS:

1. Click DNS. The page shown below is displayed.



Figure 2-15 Configure DNS Resolver

2. In the DNS Administration page, click Configure DNS Resolver. The page shown below is displayed.

Figure 2-16 DNS Domain Name and Name Server Addresses

3. In the second DNS Administration page, enter the following:
 - The name of the DNS domain in which the Netra Proxy Cache Array resides
 - The IP address of a DNS server in your enterprise. Make sure there is a route between your Netra Proxy Cache Server or Array and the DNS server you specify. If you are uncertain about network connectivity, from a machine on the same subnet as the Netra Proxy Cache Server, ping the DNS server to confirm the existence of a route between the two machines.
 - Optionally, IP addresses of two additional DNS servers in your enterprise

Note - This host will be configured to use the Internet Domain Name System to resolve host names. The information you supply will be used to set up the `resolv.conf` configuration file. Please see the `resolv.conf(4)` man page for more information. The default domain is the domain considered local to the host. Normally, it is everything after the first period in the fully qualified domain name of the host. For example, the host name `host1.acme.com` implies a default domain of `acme.com`. The name of the DNS domain in which the Netra Proxy Cache Array resides is different from the name of the subdomain formed by the Netra Proxy Cache Array. Most often, the latter is a subdomain of the former. For example, the DNS domain might be named `acme.com`, while the subdomain (the name of the array) is `cache.acme.com`.

4. Click OK. A success page is displayed, showing your DNS entries.

5. Click the home icon. For the first time, the Netra Main Administration page, shown in Figure 2-17, is displayed.

In the Main Administration page note the line “There are configuration changes which have not been saved and which require a system restart.” The word “save” refers to backing up your configuration. You perform this step in “Backing Up Your Configuration” on page 67. You will restart (reboot) the server starting with Step 22 on page 42, below.

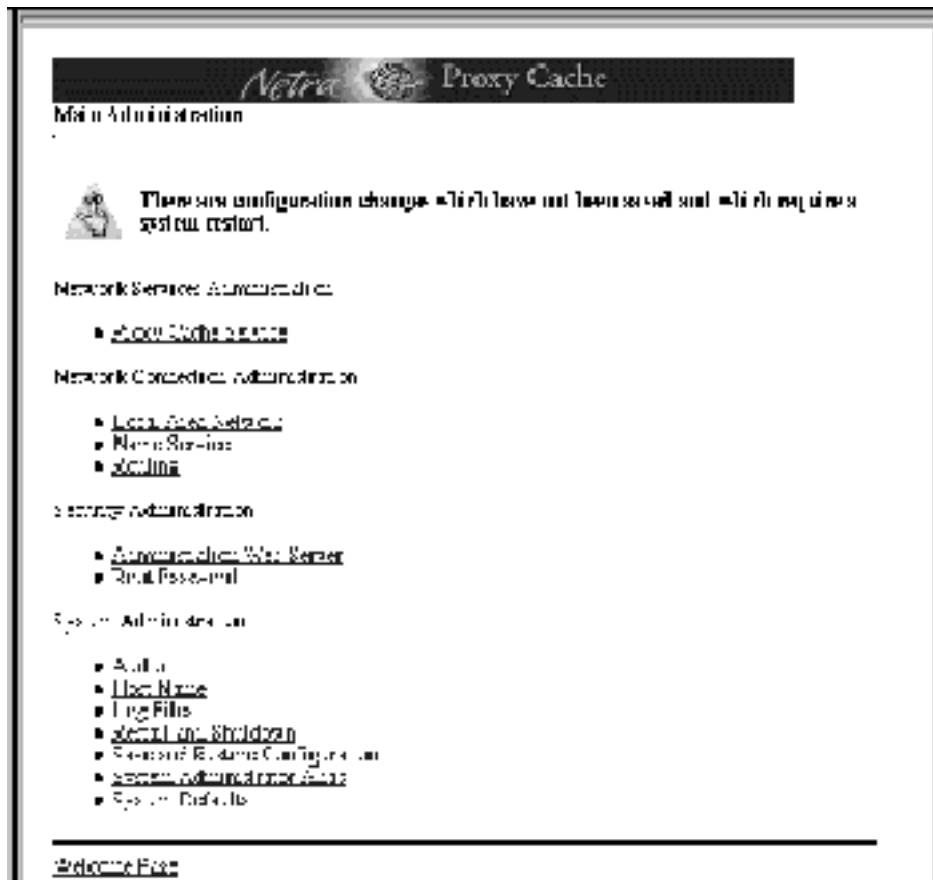


Figure 2-17 Main Administration Page

For a local name service (/etc/hosts):

Note - It is not recommended that you rely on a local name service for a Netra Proxy Cache Array or Server.

1. In the Name Service Administration page, shown in Figure 2–14, click Local Name Service. The page shown in Figure 2–18 is displayed.

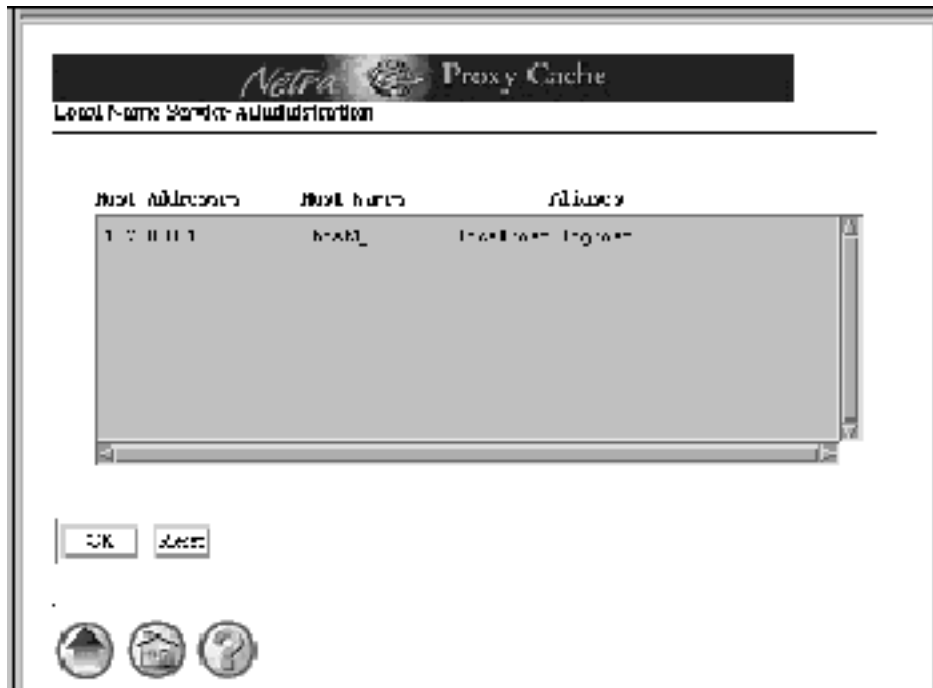


Figure 2–18 Local Name Service Administration

2. In the editable field, arrange entries as follows:

```
127.0.0.1 localhost
<ip address> <netra host name>
loghost
```

3. Click OK. A success page is displayed.
4. Click the home icon in the success page. For the first time, the Netra Main Administration page, shown in Figure 2–17, is displayed.

For the NIS:

1. In the Name Service Administration page, shown in Figure 2–14, click NIS. The page shown in Figure 2–19 is displayed.



Figure 2-19 NIS Administration Page

2. Enter your NIS domain name.
3. Click OK. A success page is displayed.
4. Click the home icon in the success page. For the first time, the Netra Main Administration page, shown in Figure 2-17, is displayed.

If you want to configure a name service in addition to the one you just configured, click the Name Service link in the Main Administration page and follow the instructions for the additional name service in Step 21 on page 38.

22. In the Main Administration page, click Restart and Shutdown under the System Administration heading.

The Restart and Shutdown Administration page is displayed, as shown in Figure 2-20.



Figure 2-20 Restart and Shutdown Administration Page

23. In the Restart and Shutdown Administration page, click Restart and click OK.

A success page is displayed. After a minute, the restart process begins. After about two minutes, you can reload the Main Administration page from just-configured Netra Proxy Cache Server. If you have a TTY connection to the Netra Proxy Cache Server, you can observe the progress of the restart. At the point at which the server displays the login prompt, you can reload the Main Administration page.

24. Confirm your initial configuration by checking your name service and host name.

In the Main Administration page, click the Name Service and Host Name links and examine the values displayed. If there are errors make the appropriate changes. If you change your host name, your NIS or DNS domain name, or your time zone, you must restart the server (see Step 22 on page 42 and Step 23 on page 43, above).

Upon completion of the reboot, your Netra Proxy Cache Server is operational as a proxy cache server with the following default values:

- Listens for HTTP requests on port 8080
- Listens for Inter Cache Protocol (ICP) requests on port 3031

- No parent proxies configured.

Alternatives for Completing Configuration

See Figure 1-2. At this point, you have finished with Step 1 in that figure. Except for initial host configuration, the remaining steps are all performed on a single host in the array. You have the following alternatives:

If you completed initial host configuration on your administrative host (see “Choosing an Administrative Host” on page 11), you can proceed as follows:

1. **On the administrative host, configure the proxy cache service as described in “Basic Proxy Cache Configuration” on page 51. This section corresponds to Step 2 in Figure 1-2.**
2. **On the administrative host, configure the array, as described in “Basic Array Configuration” on page 56. This section corresponds to Step 3 in Figure 1-2.**
3. **On the administrative host, configure array members (assigning addresses for the use of the array software), as described in “Basic Array Member Configuration” on page 61. This section corresponds to Step 4 in Figure 1-2.**
4. **Perform initial host configuration on the remaining hosts in the array, as described in this chapter.**
Again, Step 1 in Figure 1-2.
5. **On the administrative host, install your configuration on the hosts in the array, as described in “Install Configuration” on page 64. This section corresponds to Step 5 in Figure 1-2.**
6. **On each host, backup your configuration, as described in “Backing Up Your Configuration” on page 67. This step is not illustrated in Figure 1-2**

An alternative path:

1. **Perform initial host configuration on the remaining hosts in the array, as described in this chapter.**

- 2. Perform Step 1 on page 44, Step 2 on page 44, Step 3 on page 44, Step 5 on page 44, and Step 6 on page 44 as described above.**

You perform all steps except initial host configuration and backup by interacting with web pages loaded from your administrative host.

Using either of the just-described alternatives, you conclude by configuring your enterprise DNS to delegate the zone for the Netra Proxy Cache Array to the array's DNS server, as described in "Updating the DNS" on page 69.

Proxy Cache Array Configuration

- “Starting the Proxy Cache Administration Server” on page 48
- “Basic Proxy Cache Configuration” on page 51
- “Basic Array Configuration” on page 56
- “Basic Array Member Configuration” on page 61
- “Install Configuration” on page 64
- “Backing Up Your Configuration” on page 67
- “Updating the DNS” on page 69

This chapter explains how to configure an array of Netra Proxy Cache Servers. Except for the backup of your configuration, you perform these procedures on a single host in the array, the administrative host.

After completing the instructions in this chapter, you will have performed:

- Configuration of the proxy cache, array, and array member properties.
- Installation of the proxy cache and array configuration on each host in the array from the administrative host
- Configuration of your existing DNS so it can resolve the name of the Netra Proxy Cache Array
- Backing up of your complete Netra Proxy Cache configuration to diskette.

It is strongly recommended that you read Chapter 1,” and fill out the tables in that chapter before starting the procedures described here.

If you want, you can perform the procedures described in this chapter using a command-line program, instead of using the web pages described here. See Chapter 4,” for instructions.

Starting the Proxy Cache Administration Server

For this step, refer to the machine you specified in “Choosing an Administrative Host” on page 11. You make all configuration changes for the proxy cache service, for the array software, and for the array members on a single machine, referred to as the *administrative host*. You then install those changes on all hosts in the array.

1. **On a remote machine that is not part of your Netra Proxy Cache Array, point your browser at the administrative host, as follows:**

```
http://<administrative host>:81
```

where *<administrative host>* is the host name of a Netra Proxy Cache Server. If the host name is not known to a network name service, you must specify the numeric IP address of the administrative host. Depending on the capabilities of your router, you might need to use the browser on a machine on the same subnet as the Netra Proxy Cache Array.

Upon successful connection, you receive a prompt for an administrator's name and password. Enter the password you specified in Step 17 on page 37 in “To Complete Initial Configuration” on page 27. Following successful login, the Netra Proxy Cache Main Administration page is displayed, as shown below:

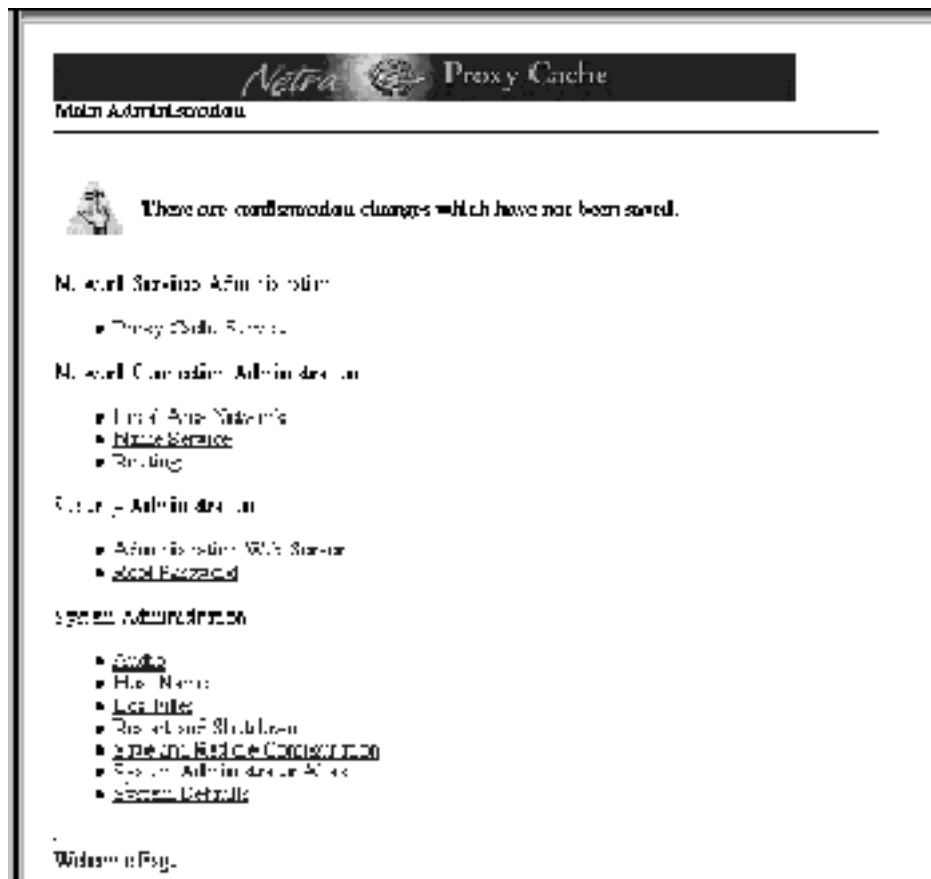


Figure 3-1 Main Administration Page Following Initial Configuration

Regarding the reminder note at the top of the Main Administration page, you will backup your configuration later in the configuration procedure.

1. In the Main Administration page, click Proxy Cache Service.

The Proxy Cache Administration page is displayed, as shown below.

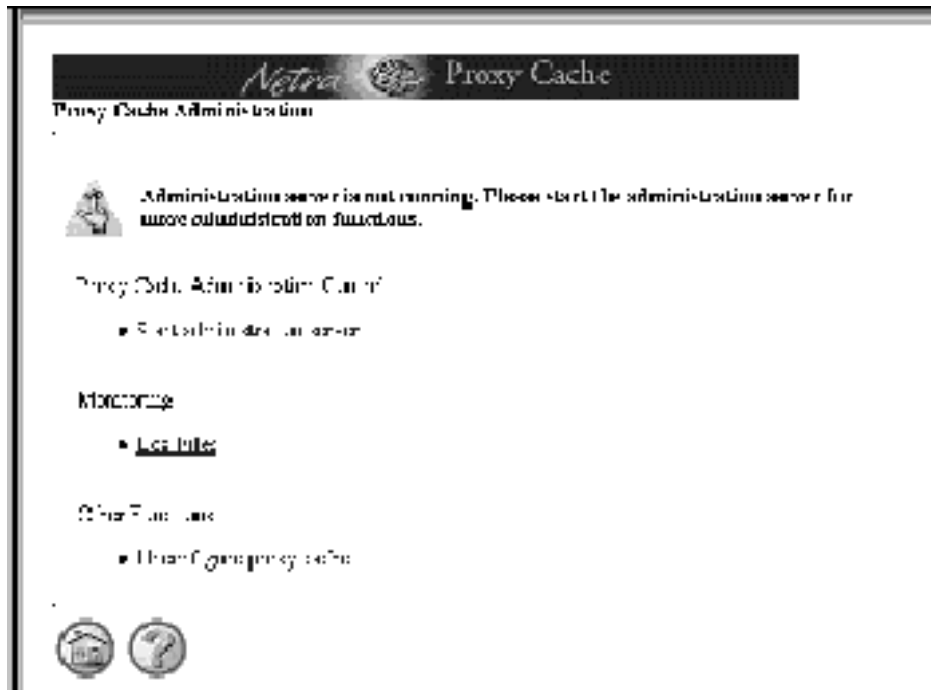


Figure 3-2 Proxy Cache Administration Page: Server Stopped

2. In the Proxy Cache Administration page, click Start Administration Server.
3. A page indicating a successful operation is displayed. In this page, click the up-arrow icon to return to the Proxy Cache Administration page.
This time, the Proxy Cache Administration page displays a full set of options for configuration, as shown below.

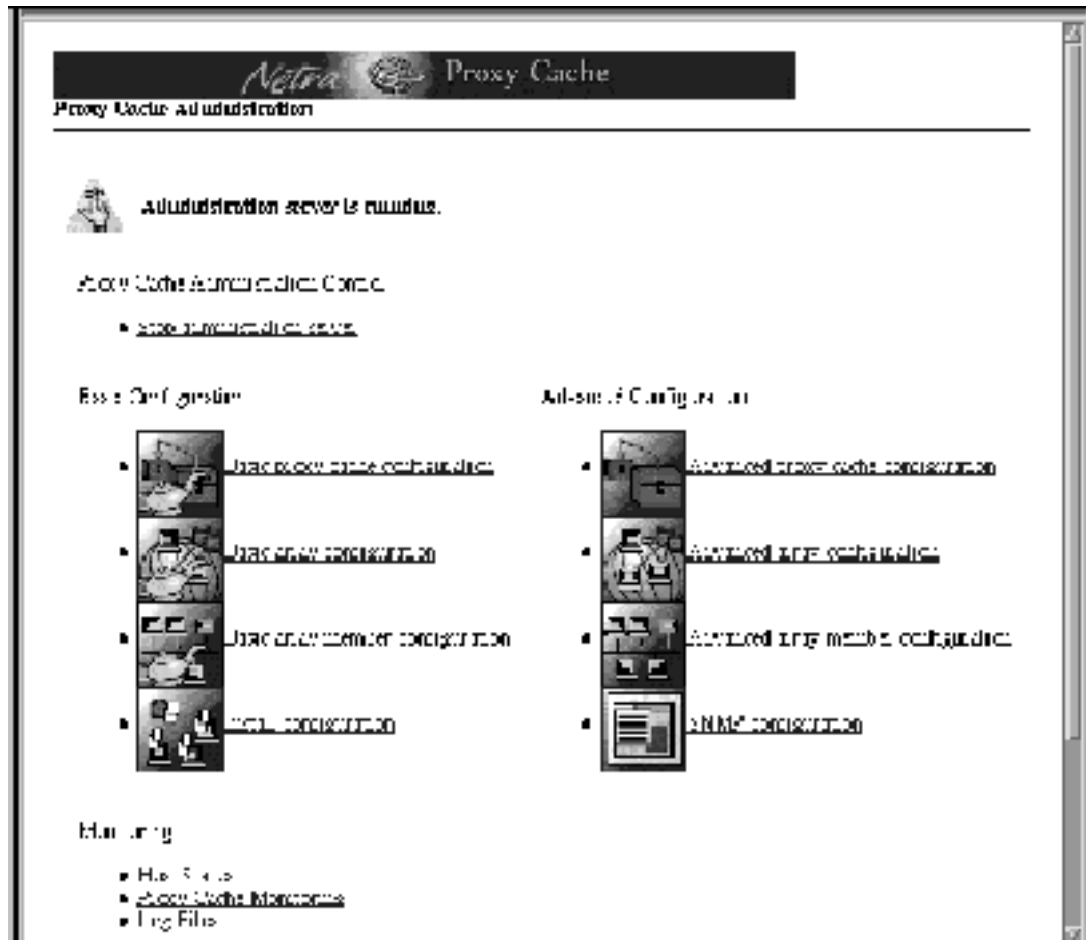


Figure 3-3 Proxy Cache Administration Page: Server Started

Proceed to the next section for instructions on configuring the proxy cache service.

Basic Proxy Cache Configuration

The procedure described here presumes you have started the proxy cache administration server on your administrative host, as instructed in “Starting the Proxy Cache Administration Server” on page 48.

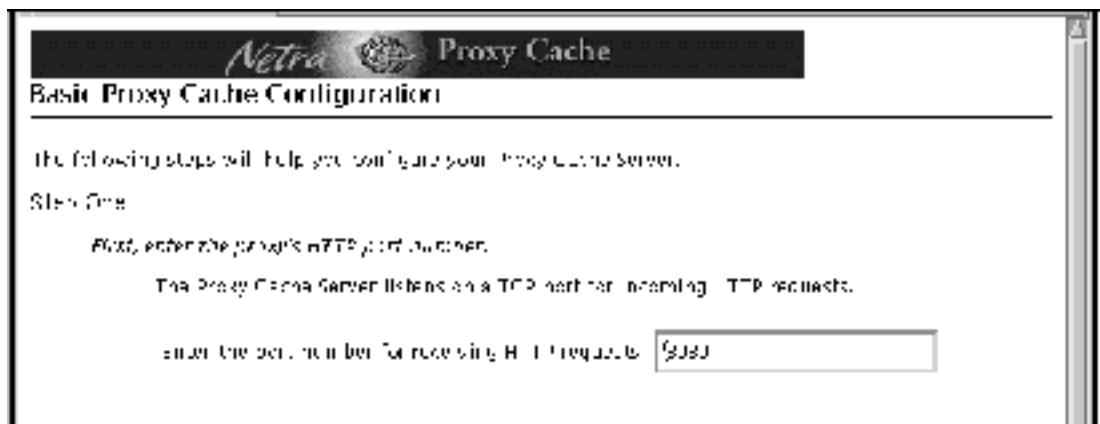
▼ To Configure the Proxy Cache Service

For the following procedure, use the data you gathered in Table 1-4 and Table 1-5.

When configuring the proxy cache service for the first time, use the basic proxy cache configuration link. After you have completed first-time configuration, you can use the advanced proxy cache configuration pages to fine-tune properties, such as access lists, timeouts, and object size limits.

1. In the Proxy Cache Administration page, click the **Basic proxy cache configuration link**.

The Basic Proxy Cache Configuration page is displayed, the top part of which is shown in Figure 3-4.



The screenshot shows a web browser window with the title "Netra Proxy Cache". The main heading is "Basic Proxy Cache Configuration". Below this, it says "The following steps will help you configure your Proxy Cache server." and "Step One". The instruction is "First, enter the proxy's HTTP port number." followed by "The Proxy Cache Server listens on a TCP port for incoming HTTP requests." and "Enter the port number for receiving HTTP requests:" with a text input field containing "8080".

Figure 3-4 Basic Proxy Cache Configuration: Step One

1. In the Step One segment, shown in Figure 3-4, enter an HTTP port number or accept the default of 8080.
2. Scroll down (if necessary) to the Step Two segment of the page, shown in Figure 3-5.

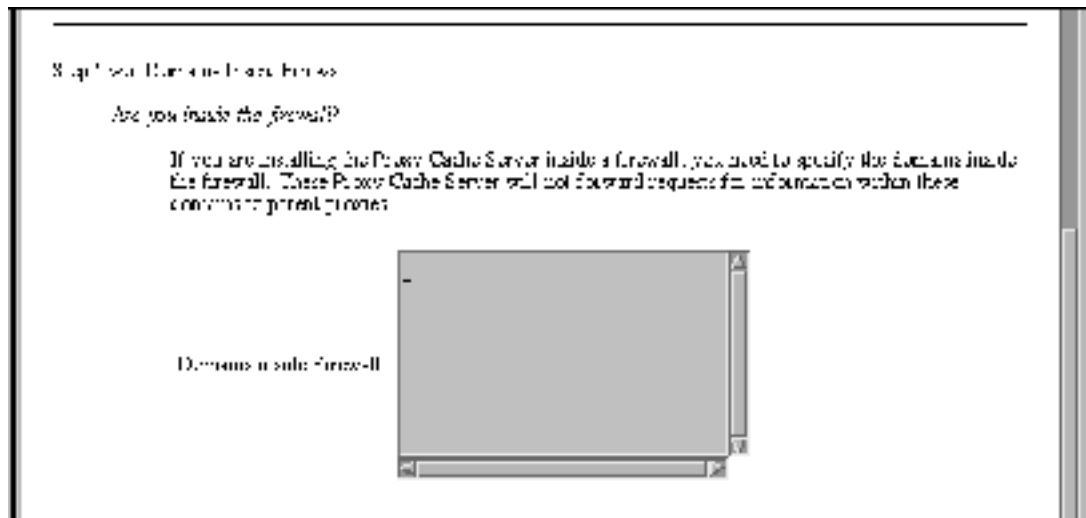


Figure 3-5 Basic Proxy Cache Configuration: Step Two

3. **If the Netra Proxy Cache Server is inside a firewall, you can list the domains that are inside the firewall.**

For URLs containing domains *not* in this list, the Netra Proxy Cache Server always tries to fetch the object from a parent or sibling cache, if it does not have the object in its local cache. Domains added to this list are also added to the Local Domains property, described in Chapter 4 of the *Netra Proxy Cache Array User's Manual*.

4. **When you are finished entering domain names or if your server is outside of a firewall, scroll down to display the Step Three segment, shown in Figure 3-6.**

Step Three: Parent Proxies

Now, please enter the names of the parent proxy servers.

A Parent Proxy Connection exists if you enter a non-zero port number for the HTTP or ICP ports. If you enter a non-zero port number for the ICP port, you must also enter a non-zero port number for the HTTP port.

Parent Proxy Name	HTTP Port	ICP Port	SSL	Persistence
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

Figure 3-6 Basic Proxy Cache Configuration: Step Three

5. If your Netra Proxy Cache Server has one or more parent proxy servers, enter the following data in the fields provided:

- Name of parent proxy server
- Port number at which the parent listens for HTTP requests
- Port number at which the parent listens for Inter Cache Protocol (ICP) requests (if the parent supports ICP—a 0 in the field indicates non-support for ICP)
- Whether the parent supports the tunneling of the Secure Socket Layer protocol
- Whether the parent supports persistent connections

Use the data you gathered in Table 1-5 to fill in the parent proxy information. Note that Netra Proxy Cache Servers support ICP, SSL tunneling, and persistent connections. If you are unsure whether a given proxy cache server supports SSL tunneling or persistence, do not click the check boxes.

If you have more than five parent proxies, click the button to add additional rows to the table.

6. After adding all parent proxies, click OK.

If you make an error, either the same page or a special error page is displayed. In both cases, the error is cited on the page. If the same page is displayed, correct the error and click OK to proceed. If an error page is displayed, correct the error, then use the browser's back button to return to the Basic Proxy Cache Configuration page. In this page, click OK to proceed.

After you have submitted a correct set of proxy cache properties, a page is displayed indicating success and displaying your selections. An example of such a page is shown below.

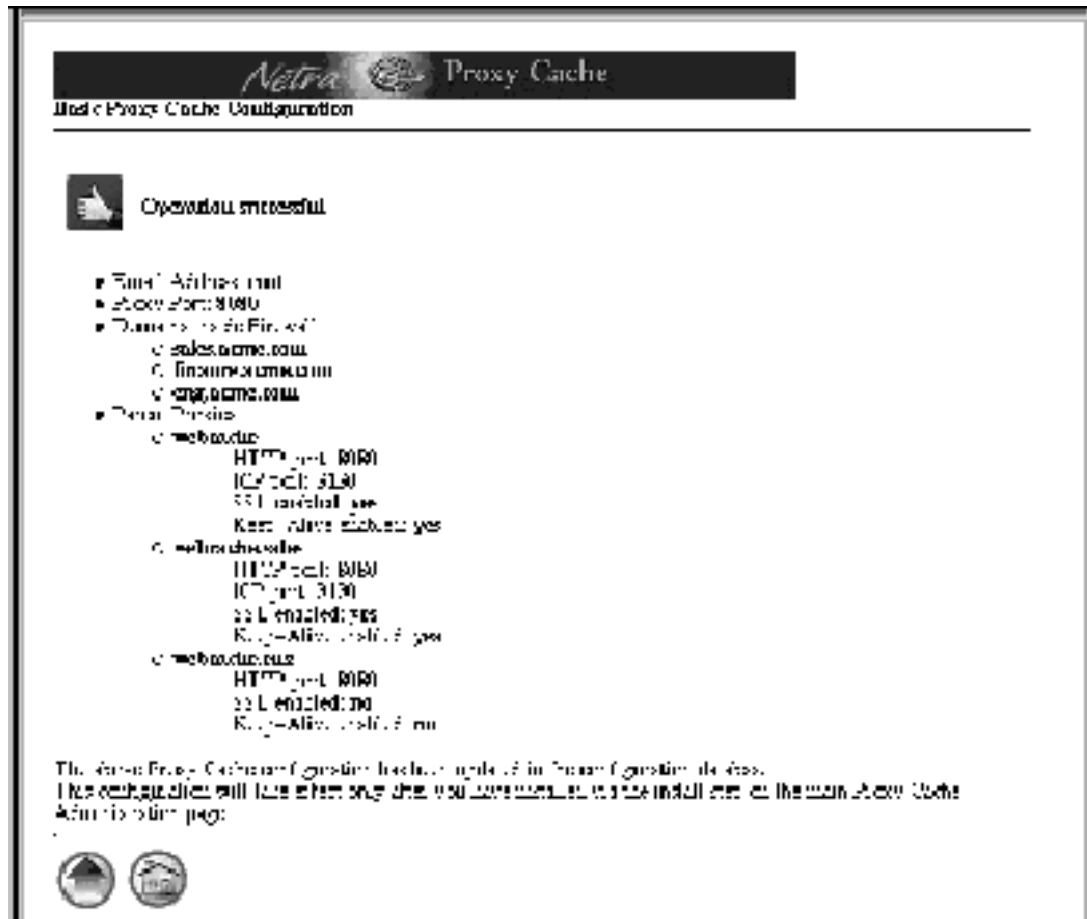


Figure 3-7 Successful Basic Proxy Cache Configuration

7. **In the success window, click the up-arrow icon to return to the Proxy Cache Administration page.**

At this point, your proxy cache configuration is recorded in a configuration database. Later, you will install your configuration. Proceed to basic proxy cache array configuration.

Basic Array Configuration

The order of the basic proxy cache configuration and basic array configuration sequences is not significant. However, for these instructions, it is assumed you have completed the basic proxy cache configuration, as described in the preceding section.

▼ To Perform Basic Array Configuration

To enter values for the array configuration properties, use the data you gathered in Table 1-6.

When configuring the proxy cache array for the first time, use the basic array configuration link. After you have completed first-time configuration, you can use the advanced array configuration pages to fine-tune properties, such as timeout values.

1. **In the Proxy Cache Administration page, click the Basic Array Configuration link. The Basic Array Configuration page is displayed, as shown in Figure 3-8.**

Netra Proxy Cache

Basic Array Configuration

The following steps will help guide you through the array configuration.

Step One: Control Network

Configure your Control Network

The Control Network is a private isolated network used solely for proxy management exchange: heartbeat and load information. The Control Network is connected to the second wife control plane (typically heartbeats) Controller using a private IP subnet from 192.168.0.0 or 10.0.0.0.

Control Subnet:

Netmask:

Step Two: Service Network

NOTE: Please enter your Service Network

The Service Subnet is the network over which the Proxy Cache service communicates with inside Fast proxy member's heartbeat to exchange the control plane. The Service Network is connected to the primary network interface (typically heartbeats).

Service Subnet:

Netmask:

Figure 3-8 Basic Array Configuration Page

2. In the Step One segment shown in Figure 3-8, enter the subnet number and netmask for your control network.

Enter a subnet number with zero(s) in the host portion. For example, 192.168.89.0, for a Class C subnet address.

3. In the Step Two segment, also shown in Figure 3-8, enter the subnet number and netmask for your service network.

An example subnet number is 129.144.118.0, for a Class C subnet address.

4. Scroll down to the Step Three segment, which is shown in Figure 3-9.

Step 3: Enter Proxy Cache Domain Name

Finally, enter the Domain Name for the array's Proxy Cache service.

The array's Proxy Cache service is given a single DNS name such as 'cache.example.com'. Clients will configure their browsers to access the Proxy Cache via this name.

Proxy Cache Domain Name:

Figure 3-9 Basic Array Configuration: Step Three

5. In the segment shown in Figure 3-9, enter the name of the DNS domain formed by the hosts in your array.
6. Scroll down to the Step Four segment, shown in Figure 3-10.

Step 4: Enter DNS

Now, enter the Array DNS Service Address and Local Name.

The array uses the Array DNS Service. This service is in addition to the DNS service in your organization, but is responsible for the majority of the array's Proxy Cache domain name operations in our theory. The DNS in your organization should delegate the zone to the Array DNS Service. The single IP address associated with the Array DNS Service is the Array DNS Service Address.

Array DNS Service Address:

Select from the fields in the array to set the Array DNS Service. This field is linked to the Array DNS Local Name. The service address of the Array DNS Service is automatically populated in the Array DNS Service Address.

Array DNS Local Name:

Figure 3-10 Basic Array Configuration: Step Four

7. In the Step Four segment shown in Figure 3–10, enter the name of the DNS host for your array, as well as the DNS service address.

For the DNS host name, enter only the host name, not the host name and the domain name.

8. Click OK.

If you make an error, either the same page or a special error page is displayed. In both cases, the error is cited on the page. If the same page is displayed, correct the error and click OK to proceed. If an error page is displayed, correct the error, then use the browser's back button to return to the Basic Array Configuration page. In this page, click OK to proceed.

After you have submitted a correct set of array properties, a page is displayed indicating success and displaying your selections. An example of such a page is shown below.

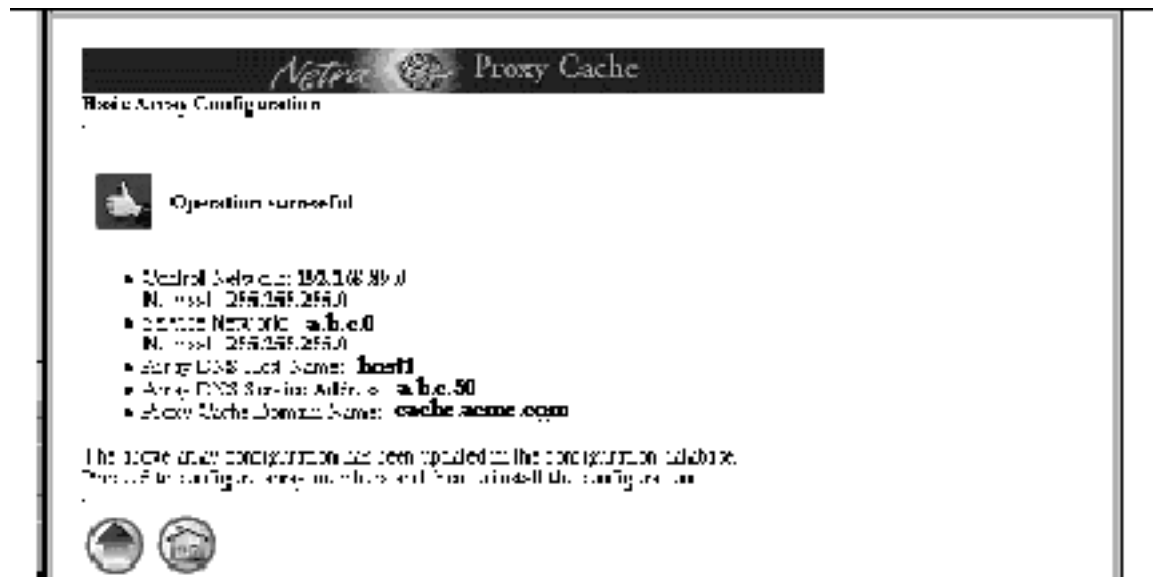


Figure 3–11 Successful Basic Array Configuration

9. Click the up-arrow icon in the page shown in Figure 3–11.

You return to the Main Administration page, as shown in Figure 3–12.

At this point, your array configuration is recorded in a configuration database. Later, you will install your configuration. Proceed to basic array member configuration.

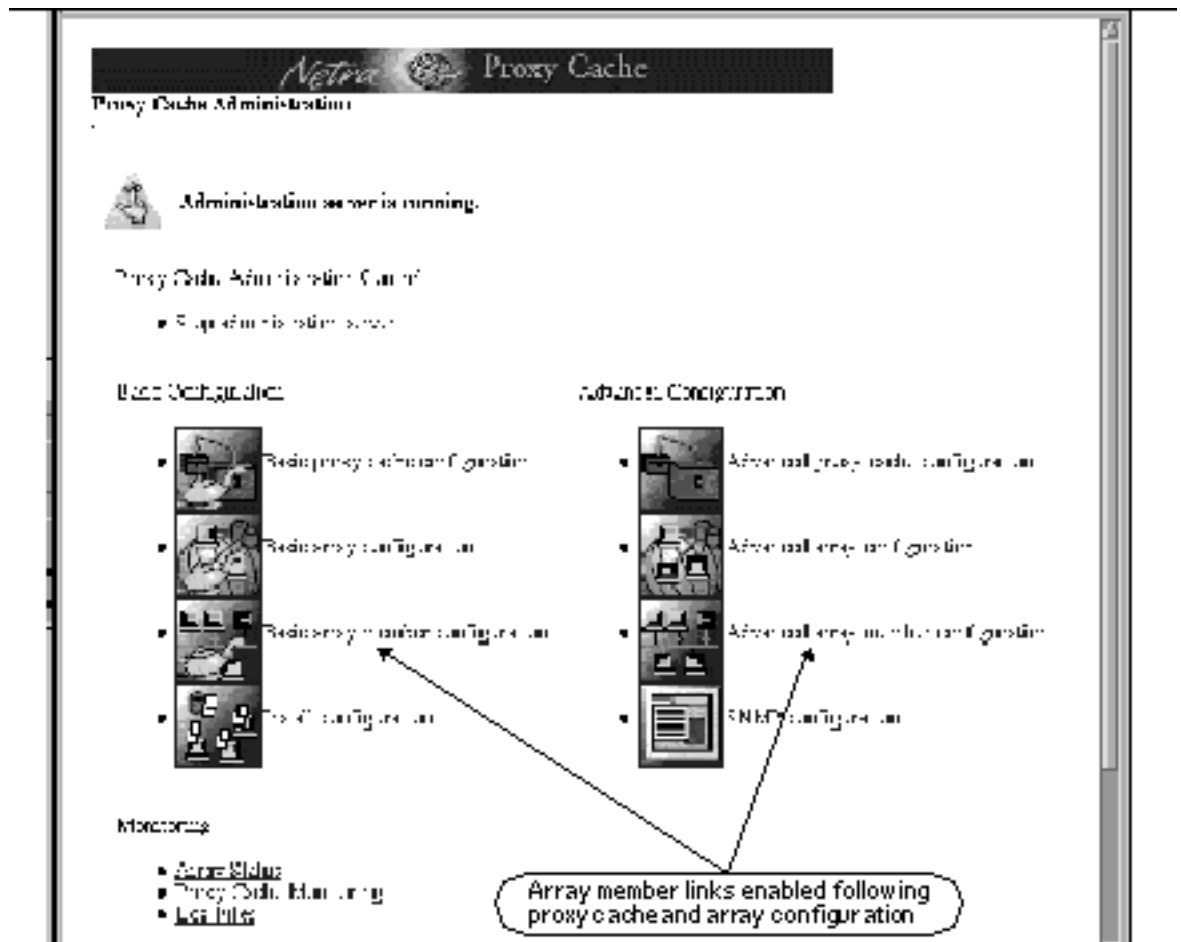


Figure 3-12 Return from Basic Array Configuration

In Figure 3-12, note that the two host links, basic and advanced, are enabled, indicating that you have valid proxy cache and array configurations. Compare this figure to Figure 3-3.

Basic Array Member Configuration

You must have completed basic proxy cache and basic array configuration before starting the procedure described here. Pointing your browser at the administrative host, you must perform this procedure for each host in your Netra Proxy Cache Array, including the administrative host.

▼ To Perform Basic Array Member Configuration

To fill in values for basic array member configuration, you need the data you gathered in Table 1-7.

1. In the **Proxy Cache Administration** page, click the **Basic array member configuration** link.

The Basic Array Member Configuration page is displayed, as shown in Figure 3-13.

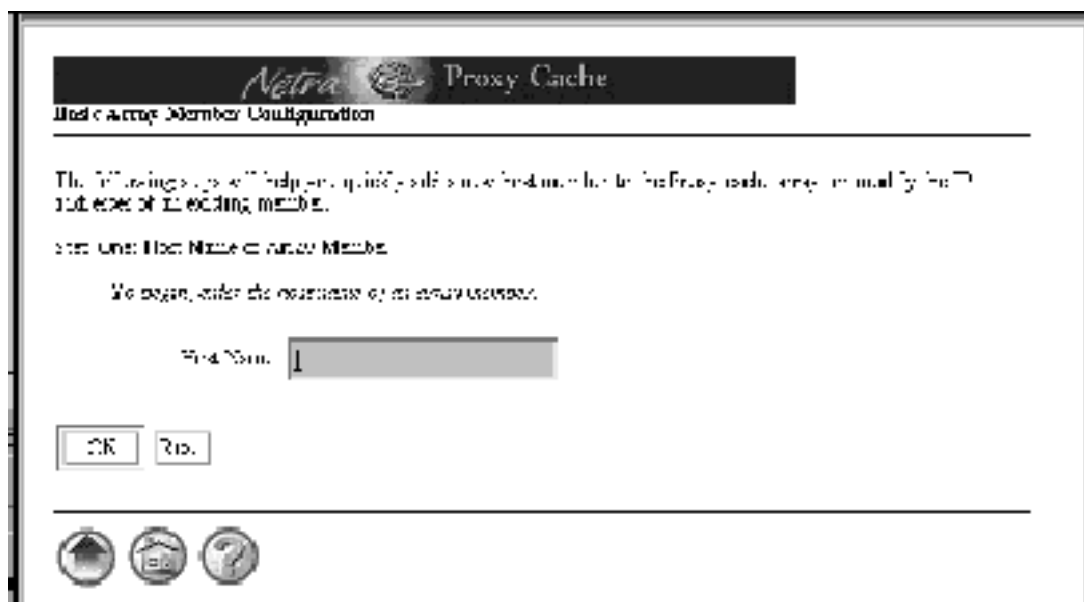
The screenshot shows a web browser window with the title "Netra Proxy Cache". The page header includes the Netra logo and the text "Proxy Cache". The main heading is "Basic Array Member Configuration". Below this, there is a paragraph of text: "The following page will help you quickly add a new host member to the Proxy Cache array. It must be the IP address of the existing member." This is followed by a label "Enter the IP Address of the Member" and a text input field containing the value "1". Below the input field are two buttons: "OK" and "Cancel". At the bottom of the page, there are three circular icons: a home icon, a list icon, and a question mark icon.

Figure 3-13 Basic Array Member Configuration Page

2. In the Step One segment, enter the host name of the Netra Proxy Cache Array member and click OK.

The Basic Array Member Configuration page redisplay, with the remaining configuration step displayed.

3. Scroll down to the Step Two segment, as shown in Figure 3-14.

STEP ONE: Host Name of Array Member

We begin, enter the configuration of an array member.

Find Your:

STEP TWO: Host Address of Array Member

*Any placeholder the number 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and letter a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z.

The Host Address is the primary address of the host on the Service Network.

Host Address:

The Control Address is the address of the host on the Control Network.

Control Address:

Client will connect to the Proxy Cache service on the Service Address. The control on the Service Network will automatically respond if the host fails.

Service Address:

Figure 3-14 Basic Array Member Configuration: Step Two

4. In the Step Two segment of the page shown in Figure 3-14, enter the following items:

- Host Address
- Control Address
- Service Address (for the proxy cache service)

5. Click OK.

If you make an error, either the same page or a special error page is displayed. In both cases, the error is cited on the page. If the same page is displayed, correct

the error and click OK to proceed. If an error page is displayed, correct the error, then use the browser's back button to return to the Basic Array Member Configuration page. In this page, click OK to proceed.

After you have submitted a correct set of array member properties, a page is displayed indicating success and displaying your selections. An example of such a page is shown below.

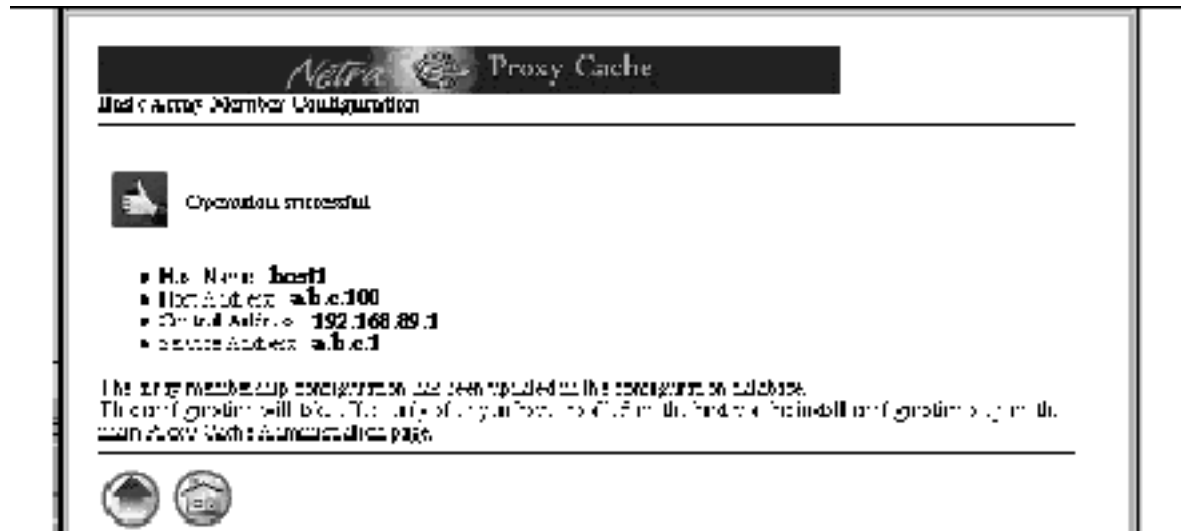


Figure 3-15 Successful Array Member Configuration

6. In the page shown in Figure 3-15, click the up-arrow icon.

You return to the Proxy Cache Administration page, as shown in Figure 3-12.

You must perform array member configuration for each host in your array. For each additional machine, click the Basic Array Member Configuration link in the Proxy Cache Administration page and repeat the steps described here.

After you enter array member configuration information for all hosts in the array, you will install the updated configuration on those hosts, as described in the following section.

Install Configuration

Pointing your browser at the administrative host, you perform this procedure after you have completed the procedures described in the preceding sections.

▼ To Install Your Software Configuration

At this point, your proxy cache, array, and array member configuration is recorded in a configuration database. You need to install the configuration on all of the hosts in the array (including the administrative host) for your choices to take effect.

1. In the **Proxy Cache Administration** page, click **Install Configuration**.

The Install Configuration page is displayed, as shown in Figure 3-16.

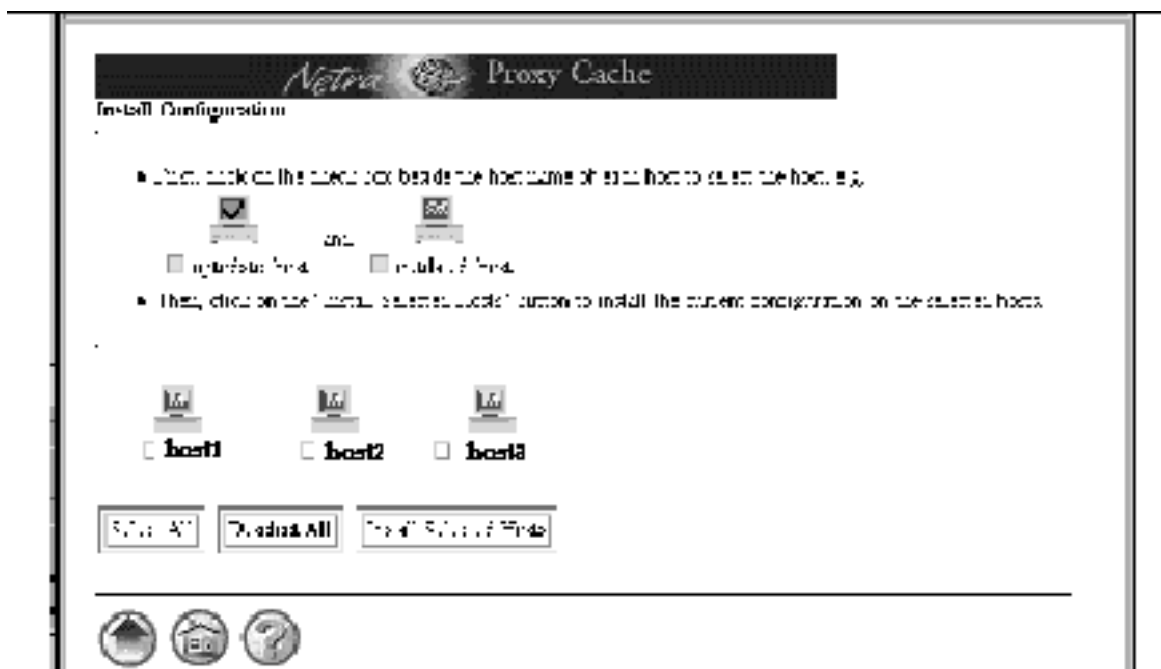


Figure 3-16 Install Configuration Page

The page shown in Figure 3–16 is an example. The Install Configuration page displays the hosts you have configured using the array member configuration procedure described in the preceding section. For first-time configuration, the icon for each host is displayed in orange, without a check mark, indicating the host needs updating with configuration information you have just specified.

1. **Click Select All.**

The Install Configuration is redisplayed, with the check boxes next to each host name filled in, indicating selection.

1. **Click Install Selected Hosts.**

A page such as that shown in Figure 3–17 is displayed.

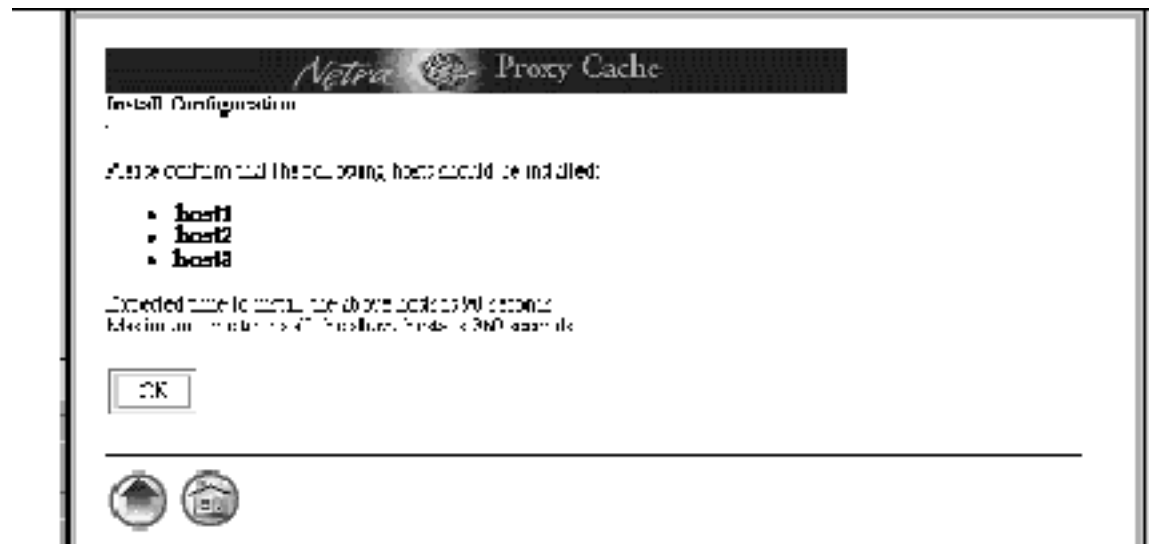


Figure 3–17 Install Configuration Confirmation

2. **Click OK to start installation.**

When installation completes, a page such as the following is displayed.

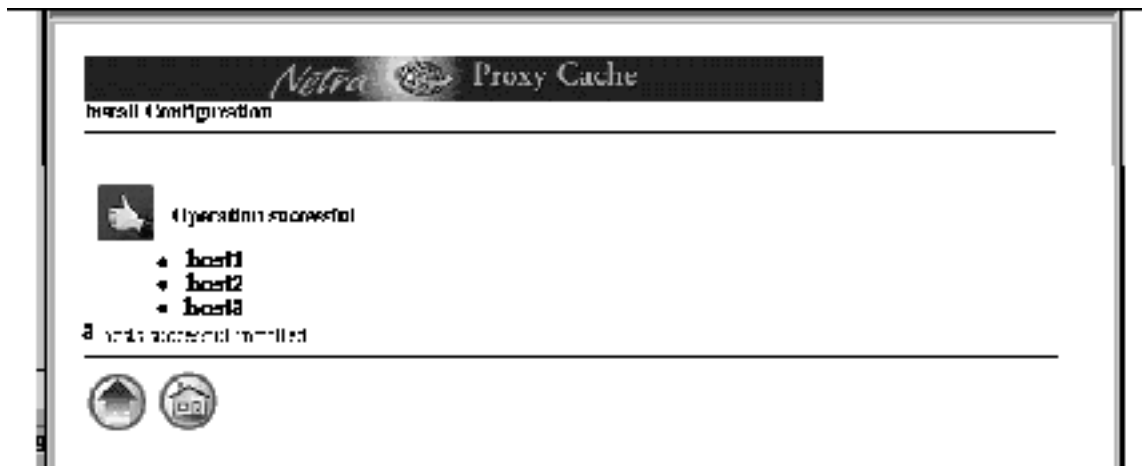


Figure 3-18 Installation Success

If installation fails for one or more hosts, note the reason in the page that reports the failure. The following conditions must be in effect for successful installation:

- Each array member must be running and must be configured, as described in Chapter 2.”
- All host and service addresses must be unique and must have the same subnet number.
- One host in the array must be configured as a DNS server for the array and must have a unique service address with the same subnet number as the host and proxy cache service addresses.
- All control addresses must be unique and must have the same subnet number.
- If you configured a local name service (not recommended), you might have made a mistake so that, for example, on one or more hosts, the loopback interface is configured with the host address.

There are other, relatively remote possibilities, such as the update process being dead on a given array member. You could probably correct such an obscure problem by rebooting the affected host.

In the event of installation failure, consult the error logs.

To view installation error logs:

- a. Click the home icon to load the Main Administration page.
- b. Click Proxy Cache Service to load the Proxy Cache Administration page.
- c. Under the Monitoring heading, click Log Files.
- d. In the Proxy Cache Log Administration page, click View for the Administration Client Error log or the Configuration Installation Error log.

- e. **Following a successful installation, click the up-arrow icon, to return to the Install Configuration page.**
The appearance of the host icons in the Install Configuration page changes to show a check mark. This check mark indicates that a host has received an updated configuration.
- f. **Click the up-arrow icon.**
You return to the Proxy Cache Administration page.
- g. **Following a successful installation, click on the home icon to return to the Main Administration page.**

At this point, the only task remaining to make your Netra Proxy Cache Array fully operational is to configure the DNS to delegate the domain of the Netra Proxy Cache Array to the array DNS server (by that server's DNS service address). This task is described in "Updating the DNS" on page 69.

Before performing DNS configuration, use a link in the Netra Main Administration page to backup your Netra Proxy Cache Server configuration. This configuration includes Solaris, proxy cache, and array data.

Backing Up Your Configuration

For this procedure, you need a formatted diskette. Perform this procedure on each host in your array. The procedure described here backs up your Solaris and proxy cache configuration.

▼ To Backup a Netra Proxy Cache Server

1. **Insert a formatted diskette in the drive of your Netra Proxy Cache Server.**
The server detects the presence of a diskette in its drive and does not offer you the option of backing up to diskette unless the diskette is in place.
2. **Point your browser at the URL for the Netra Welcome page on the machine in which you have inserted a diskette:**

`http://<netra server name>:81`

3. Log in to the Netra Proxy Cache Server.

Enter user name `setup` and the administration password for that server.

4. In the Welcome page, click the Administration link.

5. In the Main Administration page, under the System Administration heading, click Save and Restore Configuration.

The Save and Restore Configuration Administration page is displayed, as shown below.

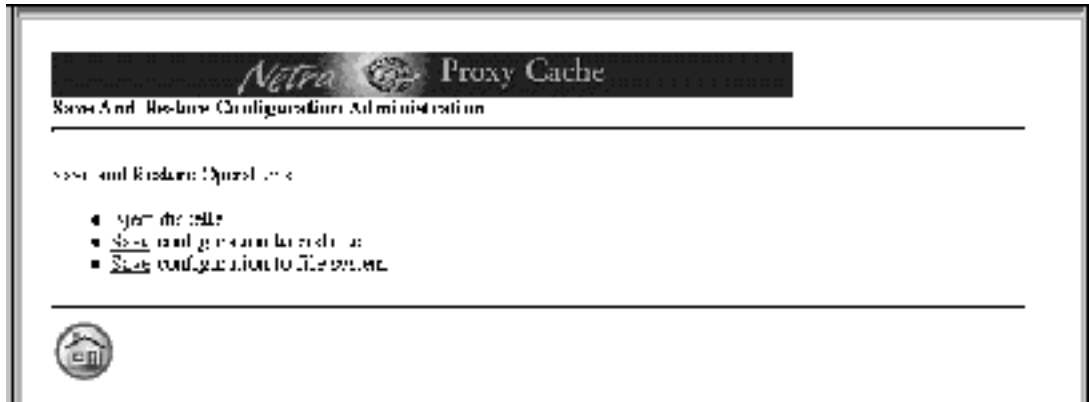


Figure 3-19 Save and Restore Configuration Administration Page

Because this is the first time the configuration is saved, there is no link for restoring a configuration.

6. Click Save configuration to diskette.

A confirmation page is displayed.

7. Click OK to confirm the save operation.

The copy operation begins. Upon completion, a success page, shown below, is displayed.

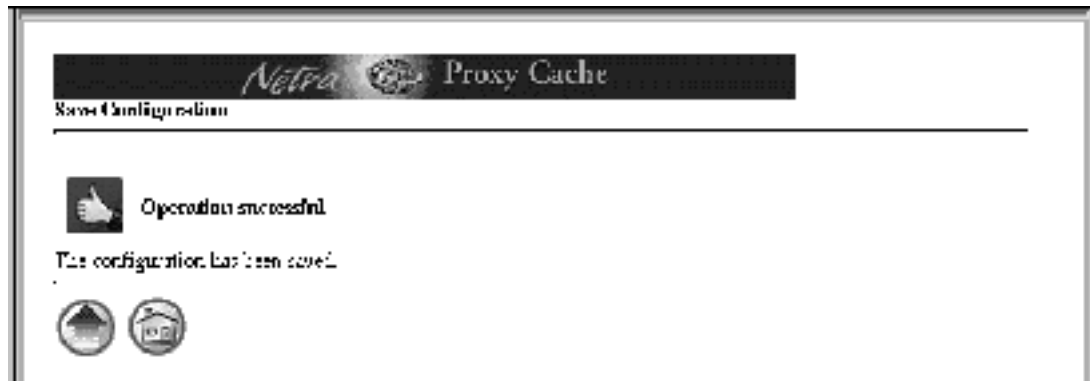


Figure 3-20 Successful Save Operation

8. Click the up-arrow icon to return to the **Save and Restore Configuration** page.
9. Click the **Eject diskette** link.
You are asked to verify the operation. Click OK. A success page is displayed.
10. In the success page, click the **home icon** to return to the **Main Administration** page.
It is recommended that you label the diskette, switch the read-write tab to the read-only position, and store the diskette in a safe place.

See Appendix A of the *Netra Proxy Cache Array User's Manual* for instructions on restoring each machine in a Netra Proxy Cache Array from diskette.

Updating the DNS

After you finish installing your configuration to all hosts in your Netra Proxy Cache Array, you must update the DNS to make it aware of the existence of the subdomain formed by the array.

As you perform Netra Proxy Cache configuration, the configuration software collects data on your DNS configuration and creates a file in the `/var/opt/SUNWscalr/dns` directory called `README.how_to_point_dns`. The following is an example of such a file:

```
; Please delegate the cache zone in your main dns to
; the dns server on the proxy cache appliance array.
; To do this add the following to the appropriate db file
cache 3600      IN NS dns.cache.acme.com.
dns.cache.acme.com. 3600      IN A a.b.c.50
```

▼ To Update Your DNS

1. **From a machine not in the Netra Proxy Cache Array, use `telnet` to connect to the administrative host.**
2. **Use `ftp` to copy `README.how_to_point_dns` to the `/tmp` directory of the DNS server that points to the Netra Proxy Cache Array.**
3. **On the DNS server, copy the uncommented portion of the file `README.how_to_point_dns` to the database file.**
4. **As root, enter a command such as the following:**

```
{dns_server}# kill -HUP `cat /etc/named.pid`
```

Following this, clients can use the proxy cache service provided by the Netra Proxy Cache Array.

A Note on DNS Round Robin

For optimal operation of the array, the DNS server that resolves the name of the Netra Proxy Cache Array should support round robin. The default time-to-live (TTL) used by the DNS server in the array assumes round-robin support. With round robin, the array can respond to changes (including overloads and host failures) far more quickly than it can without round robin.

If your DNS server does not support round robin, you can reduce the TTL to a low value, such as 30 seconds. If your DNS server does not support a TTL as low as 30 seconds (for example, older DNS servers do not support TTL values of less than five minutes), it is recommended that you upgrade to a DNS server that supports round robin.

For support of round robin, the correct version of `bind` is 4.9.3 (or later). This version is shipped with Solaris 2.5.1 SHWP (the Solaris version shipped with the Netra Proxy Cache product) and is available in the following patches:

- For Solaris 2.4, patch #102479-07
- For Solaris 2.5, patch #103667-07
- For Solaris 2.5.1 (pre-SHWP), patch #103663-08

If your DNS server is a non-Solaris machine, you should upgrade that server to a 4.9.3 version of `bind` that has round-robin capability.

See Section 5.4 of the *Netra Proxy Cache Array User's Manual* for instructions on changing the DNS's TTL for the array.

Using a Serial Terminal to Configure a Netra Proxy Cache Array

- “Invoking the Command-line Program” on page 74
- “Array Network Configuration” on page 75
- “Proxy Cache Service Configuration” on page 76
- “Add Hosts in Array” on page 78
- “Install Configuration on Hosts in Array” on page 79

This chapter describes the command-line program you can use to configure a Netra Proxy Cache Array. This program is alternative to the configuration web pages described in Chapter 3.”

It is strongly recommended that you read Chapter 1,” and fill out the tables in that chapter before starting the procedures described here.

Following initial host configuration, described in Chapter 2,” a Netra Proxy Cache Server is fully functional as a proxy cache machine with the following settings:

- An email alias for proxy cache trouble reports of `root`
- An HTTP port number of 8080, for listening to HTTP requests
- An Inter Cache Protocol (ICP) port number of 3031, for listening to ICP requests
- Configuration for being outside of a firewall; that is, no parent or sibling proxies

If these settings meet your needs, you can skip this chapter and consult the *Netra Proxy Cache Array User's Manual*, to read about the advanced configuration properties available for fine-tuning your proxy cache service.

You invoke the command-line configuration program on the machine you specified in “Choosing an Administrative Host” on page 11. You make all configuration changes for the proxy cache service, for the array software, and for the array members on a single machine, referred to as the *administrative host*. You then install those changes on all hosts in the array.

For invoking the command-line configuration program, it is assumed that you have connected a terminal, workstation, or PC to your Netra Proxy Cache Server. See Appendix A,” for instructions.

Invoking the Command-line Program

▼ To Invoke the Command-line Program

1. As root, invoke the command-line program as follows:

```
# cd /opt/SUNWoam/bin
# ./quickconfig
```

For configuration of the Netra Proxy Cache Array, it is required that the proxy cache administration server be started. (You can start this server in the Proxy Cache Administration page, as described in “Starting the Proxy Cache Administration Server” on page 48.) If the server is not started, the `quickconfig` program starts it:

```
Starting OamServer... Done.
```

After `quickconfig` starts the proxy cache administration server, the main menu is displayed:

```
-----
Main Menu
-----
```

```
Please select one of the following options:
```

- 1. Configure Array Network
- 2. Configure Proxy Cache Service
- 3. Configure SNMP
- 4. Install Configuration
- 5. Display Proxy Cache Service Configuration
- 6. Display SNMP configuration
- 0. Quit

```
Select a number (from 0 to 6):
```

Array Network Configuration

▼ To Perform Array Network Configuration

To enter values for the array configuration properties, use the data you gathered in Table 1-6.

1. In the `quickconfig` main menu, enter 1 to select **Configure Array Network**.
2. Enter the subnet address of your control network.
For example, 192.168.89.0.
3. Enter the netmask for your control network or accept the default of 255.255.255.0.
4. Enter the subnet address of your service network.
For example, 129.144.91.0.
5. Enter the netmask for your service network or accept the default of 255.255.255.0.
6. Enter the domain name of the proxy cache service provided by your Netra Proxy Cache Array.
For example, if you are in the domain `acme.com`, you might use `cache.acme.com`.
7. Enter the host name of the host in the array that will act as DNS server for the array.
It is recommended you use your administrative host.
8. Enter the service address for the DNS on the host you specified in Step 7 on page 75.
For example, 129.144.91.1.
After you enter a DNS service address, `quickconfig` displays your array network entries.
9. Enter `y` to confirm your array network entries or press **Return** to change one or more entries.

After you confirm your Array Network configuration, your entries are saved to a configuration database and you return the `quickconfig` main menu.

When you return to the main menu following first-time configuration of the array network, additional options are displayed for the first time:

```
-----
Main Menu
-----

Please select one of the following options:

1. Configure Array Network
2. Configure Proxy Cache Service
3. Add, Delete, Modify Hosts in Array (new)
4. Configure SNMP
5. Install Configuration on Hosts in Array (changed)
6. Display Array Network (new)
7. Display Proxy Cache Service Configuration
8. Display list of Hosts in Array (new)
9. Display SNMP configuration
0. Quit

Select a number (from 0 to 9):
```

Unless you unconfigure your proxy cache service, from this point on, the main menu is displayed as shown above.

Proxy Cache Service Configuration

The order of the basic proxy cache configuration and basic array configuration sequences is not significant. However, for these instructions, it is assumed you have completed the basic array configuration, as described in the preceding section.

▼ To Configure the Proxy Cache Service

For the following procedure, use the data you gathered in Table 1-4 and Table 1-5.

1. In the main menu, enter 2 (Configure Proxy Cache Service).
2. In the Configuring Proxy Cache Service Menu, enter 1 (Configure Proxy Cache Service [via Genie]).

3. Enter an email address that will receive reports of abnormal conditions on the Netra Proxy Cache Server or accept the default of `root`.
4. Enter a port number for receiving HTTP requests or accept the default of 8080.
5. Specify (y or n) whether the Proxy Cache Server is inside a firewall.
If it the server is not inside a firewall, skip to Step 10 on page 77. If the server is inside a firewall, proceed to the next step.
6. In the Add/Delete Domains Firewall Menu, enter 0 to create a domain.
7. Enter the name of a domain inside the firewall.
For URLs containing domains *not* in this list, the Netra Proxy Cache Server always tries to fetch the object from a parent or sibling cache, if it does not have the object in its local cache. Domains added to this list are also added to the Local Domains property, described in Chapter 4 of the *Netra Proxy Cache Array User's Manual*.
8. Repeat Step 6 on page 77 and Step 7 on page 77 for each domain you want to add. When you are finished adding domains, enter the number for the option to return to the Proxy Cache Service Menu.
9. In the Proxy Cache Service Menu, enter 2 to create a new parent proxy.
10. In the Add/Delete/Edit Parent Proxy Menu, enter 0 to create a new parent proxy or 1 to return to the Proxy Cache Service Menu.
If you do not have a parent proxy, skip to Step 15 on page 78. Otherwise, proceed to the next step.
11. Enter 0 to create a new parent proxy.
12. For a given parent proxy, enter:
 - host name
 - HTTP port number
 - ICP port number
 - whether the proxy supports tunneling of the Secure Sockets Layer (SSL) protocol
 - whether the proxy supports persistent connections (keep alive feature)
13. Repeat Step 11 on page 77 and Step 12 on page 77 for each parent you want to add.
14. When you are finished adding parents, in the Add/Delete/Edit Parent Proxy Menu, enter the number for the option to return to the Proxy Cache Service Menu.

15. In the Configuration Proxy Cache Service Menu, enter 6 to return to the main menu.

Your proxy cache configuration is displayed.

16. Enter y to confirm your proxy cache configuration or press Return to change one or more entries.

After you confirm your proxy cache configuration, your entries are saved to a configuration database and you return the `quickconfig` main menu.

Add Hosts in Array

You must have completed array network and proxy cache configuration before starting the procedure described here. You must perform this procedure for each host in your Netra Proxy Cache Array, including the administrative host.

▼ To Add Hosts to Your Array

To fill in values for array host configuration, you need the data you gathered in Table 1-7.

- 1. In the main menu, enter 3 (Add, Delete, Modify Hosts in Array).**
- 2. In the Add, Delete, Modify Hosts in Array Menu, enter 0 (Add a new host member to the array).**
- 3. For a given array host enter:**
 - host name
 - host address (the fixed IP address of the host; for example, 129.144.91.100).
 - control address (for example, 192.168.89.1)
 - proxy cache service address (for example, 129.144.91.18.1).

After you enter a proxy cache service address, the Add, Delete, Modify Hosts in Array Menu is redisplayed.
- 4. Enter 0 to add an additional host to the array. Repeat Step 2 on page 78 and Step 3 on page 78 for each host you want to add to the array.**

5. When you are finished adding hosts, enter the number for the option to return to the main menu.
6. Enter `y` to confirm your host configuration or press Return to change one or more entries.

After you confirm your array host configuration, your entries are saved to a configuration database and you return the `quickconfig` main menu.

Install Configuration on Hosts in Array

Perform this procedure after you have completed the procedures described in the preceding sections.

▼ To Install Configuration on Hosts in Array

At this point, your array network, proxy cache, and host selections are recorded in a configuration database. You need to install the configuration on all of the hosts in the array (including the administrative host) for your choices to take effect.

1. In the main menu, enter 5 (Install Configuration on Hosts in Array).
2. In the Install Configuration on Hosts Menu, enter 0 to select all hosts.
3. Enter `y` to confirm installation on all hosts in the array.
Upon successful installation, you are returned to the main menu.
4. In the main menu, enter 0 to exit `quickconfig`.

Upon exiting, the proxy cache administration server is terminated:

```
Stopping OamServer... Done.
```

At this point, the only task remaining to make your Netra Proxy Cache Array fully operational is to configure the DNS to delegate the domain of the Netra Proxy Cache Array to the array DNS server (by that server's DNS service address). This task is described in "Updating the DNS" on page 69.

Establishing a `tip` Connection

The Netra Proxy Cache Server is shipped without a video display. To perform the TTY method of network interface configuration, you must follow the procedure described in this appendix to connect a serial terminal, another Sun machine, or a PC to the server, over a serial connection. When you connect a second Sun machine to a server, a window in your window system acts as your serial terminal.

When connecting a serial terminal or second workstation to a Netra Proxy Cache Server, it is critical that a keyboard *not* be connected to the Netra Proxy Cache machine itself.

If you are using a Solaris machine as your terminal, you should use the `tip` program to connect to the Netra Proxy Cache Server, because `tip` enables you to use Solaris windowing and operating system features to help you interact with the server.

Note - To use a PC to connect to a Netra Proxy Cache Server, you must have a terminal emulation program that emulates a VT100 terminal and a null modem cable that connects, on the server end, to the 25-pin connector and, on the PC end, to an 8-or 25-pin connector, as appropriate for the PC. On the PC, set the line settings to 9600 baud, 8 data bits, no parity, and 1 stop bit.

Establishing a `tip` Connection

▼ To Establish a `tip` ConnectionTo Establish a `tip` Connection

Use the following procedure to establish a `tip` connection from a workstation or serial terminal to a Netra Proxy Cache Server:

1. Obtain or build a three-wire null modem cable with DB-25 connectors.

Wires 3-2, 2-3, and 7-7 should be connected, as shown in Figure A-1.

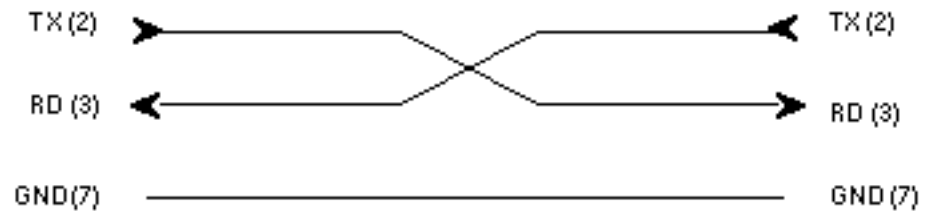


Figure A-1 Null Modem Cable

2. Connect serial port B on the second Sun machine to serial port A on the Netra Proxy Cache Server.

The location of the serial ports is illustrated in Figure A-2.

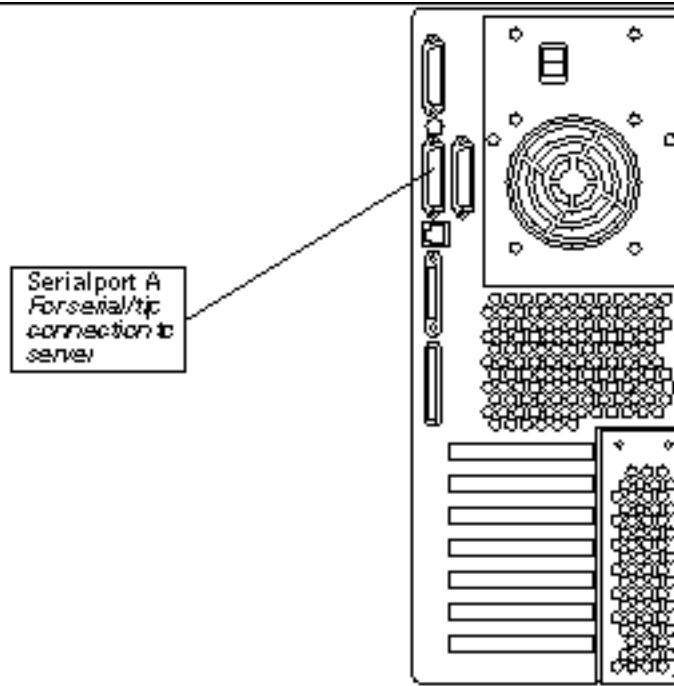


Figure A-2 Location of Serial Port A

At this point you have the option of explicitly identifying a destination port in a `tip` command line or editing the `/etc/remote` file and entering a `tip` hardware command.

To explicitly identify a destination port on the server, enter a command such as:

```
hostname% tip -9600 /dev/ttya
connected
```

To enable the use of `tip` hardware, perform the steps below:

- a. At the second Sun machine, find the line shown below in the file `/etc/remote`.

```
hardware:\
:dv=/dev/term/a:br#9600:el=^C^S^Q^U^D:ie=%$:oe=^D:
```

If the line does not exist, you must, as root, add it.

In the line above, note that the string `/dev/term/a` specifies serial port A. If you want to specify serial port B on the second machine, specify the string `/dev/term/b`.

- b. In a shell tool window on the second Sun machine, enter:

```
hostname% tip hardware  
connected
```

Whether you explicitly identify a port or use the `hardware` argument, the `tip` program responds with the message `connected` when a successful connection is established.

Following the `connected` message, the shell window on the second machine is now a `tip` window directed to the serial port specified in `/etc/remote` or on the `tip` command line. You can now enter commands to and receive console output from the Netra Proxy Cache Server in this window.

If you want to disconnect the `tip` window, enter a Return, then `~.` (tilde period) at a shell prompt, or enter a command such as the following:

```
hostname% kill -9 <PID of tip process>
```

Tip - If you cannot use the `tip` program to connect to a Netra Proxy Cache Server, (for example, your connection attempt is refused) it might be because the machine from which you are invoking `tip` recognizes that it is already connected to the server. This occurs when, for example, a shell tool window is killed before a `tip` session concludes. In such a circumstance, kill any `tip` process still running on the machine that has a video display or delete the lock file associated with the `tip` process in `/var/spool/locks`. See `tip (1)` for further details.
