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NOTE

See [Setting-Up New Systems](#) on page 3-1 for instructions to setup networking on a 3070 system that uses a UNIX controller.

For Help

HP-UX Reference

HP-UX reference information is available on the Internet at:

<http://docs.hp.com/index.html>

System Administrator Manager (SAM)

To start SAM, enter: `/usr/sbin/sam` at a shell window prompt.

For help inside of SAM:

- From the dialog, click **Help**.
- Press F1 for context-sensitive help on a specific field.

3070 Reference

3070 User and Service manuals are located on 3070 system controllers and on factory-supplied updates.

More Help

See [In Case of Difficulty](#) on page 10-1.

Introduction

A network is a collection of computers that communicate with each other using a set of agreed upon protocols.

3070 Networking Facilities

3070s contain networking software for:

- LANs (local area networks).
- Internet services.
- NFSes (network file systems).

Additional facilities include software to enable:

- remote logins.
- a remote windowing system.
- file transfers.
- remote execution.
- network printer servers.
- a full range of Internet services.

To Configure Networking

The first time a 3070 is booted, system configuration information will need to be entered. This includes networking information. See Chapter 3, [Setting-Up New Systems](#) for the procedure.

Series 700 Systems

NOTE

HP-UX clusters are not supported in the 3070 environment.

Testhead IP Address Changes

This section contains:

- [Purpose, 7-3](#)
- [What Does This Mean for Existing UNIX Systems Not at B.03.80?, 7-4](#)
- [Implications for Custom Applications, 7-4](#)
- [B.03.80 UNIX Update and Ignite Notes, 7-4](#)

All 3070 MS Windows controllers are configured with Agilent IP addresses in the 10.3.112.XX series. No change to IP addresses for 3070 MS Windows controllers should be necessary.

However, network conflicts including the inability to boot a testhead may be experienced if all 3070 systems on the same network do not share the same IP address series.

Read this before installing a new system, update or ignite of an existing system.

Purpose

The purpose of this section is to provide information regarding changes to IP addresses starting with UNIX systems with the B.03.80 software release, and to explain the implications of those changes. This is not a set of step-by-step instructions.

Because of the Hewlett-Packard / Agilent Technologies split, 3070 Board Test systems are no longer shipped with LAN IP addresses in the 15.3.112.XX series.

Beginning with all MS Windows systems, UNIX systems shipped with B.03.80 software, and UNIX systems updated or ignited with B.03.80 software, IP addresses will be in the 10.3.112.XX series.

This should not cause any networking problems because the systems are configured to use local hosts for testhead IP address resolution. This is accomplished by creating a new `/etc/nsswitch.conf` file or modifying address resolution.

NOTE

Cycle power on the testhead after performing an update or ignite to B.03.80.

NOTE

Those who use NIS or DNS for testhead IP address resolution should be aware that this method forces the system to look at local hosts first. If these users encounter problems, they should ensure that the `nsswitch.conf` file is configured correctly to support their NIS or DNS networking implementation.

What Does This Mean for Existing UNIX Systems Not at B.03.80?

Using Local Hosts for Existing Systems

If you have not changed your method of name resolution, and you are using local hosts, you are not affected by this change. You can run systems that have the new 10.3.112.XX IP address in the same network as systems with the old 15.3.112.XX address without any conflicts.

Using a Nameserver for Existing Systems

If you are using a nameserver for name resolution, we recommend, but do not require, that all IP addresses match. This means they should all use the 10.3.112.XX IP address convention.

How to Make IP Addresses Match

Change all existing UNIX systems to the 10.3.112.XX format. This involves two steps:

- 1 Change the IP addresses of each system using the 15.3.112.XX format to the new 10.3.112.XX format.

Modify the `/etc/bootptab`, `/etc/rc.config.d/netconf`, and `/etc/hosts` files (see [B.03.80 UNIX Update and Ignite Notes](#) below for examples).

- 2 Update the IP addresses on the nameserver itself.

NOTE

Only 3070 IP addresses in the 10.3.112.XX format are supported by Agilent.

Implications for Custom Applications

If there are any custom applications that are hard-coded to look for a 15.3.112.XX address, they must be modified to look for a 10.3.112.XX address.

B.03.80 UNIX Update and Ignite Notes

Because B.03.80 software configures the system with IP addresses in the 10.3.112.XX series, use caution if using the practice of saving critical files and then restoring the files after completing a software update or ignite.

If you use this practice, verify all IP addresses in the `/etc/bootptab`, `/etc/rc.config.d/netconf`, and `/etc/hosts` files are modified to map to the 10.3.112.XX addresses.

Here are some UNIX file examples:

Example from `/etc/hosts`:

```
10.3.112.4 module0
```

Example from `/etc/bootptab`:

```
module0:\  
  ht=ether:\  
  vm=rfc1048:\  
  ha=0060B0B215A5:\  
  sm=255.255.248.0:\  
  ip=10.3.112.4
```

Example from `/etc/rc.config.d/netconf`:

```
RARPD=0  
IP_ADDRESS[1]=10.3.112.1  
SUBNET_MASK[1]=255.255.248.0  
INTERFACE_NAME[1]=lan1  
BROADCAST_ADDRESS[1]=10.3.119.255  
LANCONFIG_ARGS[1]="ether"  
DHCP_ENABLE[1]=0
```

An `/etc/nsswitch.conf` file will be added to ensure that the `/etc/hosts` file is used first for name resolution. If the `/etc/nsswitch.conf` file already exists, it will be modified so that the `/etc/hosts` file is used first. An example follows:

Example from `/etc/nsswitch.conf`:

```
hosts: files [NOTFOUND=continue] dns
```

NOTE

If you have existing devices on your public LAN using addresses in the 10.3.112.XX range or if you experience conflicts, contact your Agilent support representative.

Find your Agilent support representative on the Internet at <http://www.agilent.com>

- a Click **Contact Us** at the top of the page.
- b Click **Test & Measurement**
- c Select your country and click **go**
- d Scroll down to **Technical & Professional Services**

The Private LAN

This section contains:

- [Introduction](#), 7-6
- [Series II versus Series 3](#), 7-6
- [Verify the Private LAN](#), 7-6

Introduction

lan1 is the private LAN used to communicate directly from the controller to the testhead. There should not be other devices attached to this LAN other than shown in [Figure 7-1](#) on page 7-7.

The private LAN IP addresses are standard for every test system (see [Testhead IP Address Changes](#) on page 7-3):

- The IP address of any testhead system card is always 10.3.112.2
- The IP address of lan1 is always set to 10.3.112.1
- The IP addresses of the modules (if you have the ControlXT card) are:
 - Module 0: 10.3.112.4
 - Module 1: 10.3.112.5
 - Module 2: 10.3.112.6
 - Module 3: 10.3.112.7

Series II versus Series 3

The hardware configuration for the private LAN differs slightly depending on whether you upgraded from a Series II or if you purchased a new Series 3 system. However, the basic networking principals and IP addresses are the same.

Verify the Private LAN

To verify that the private LAN is working correctly, at a shell window prompt, enter:

```
nslookup testhead1
```

This should return the testhead's IP address. If not, check that the hardware address shown in SAM is the same as the hardware address on the testhead's system card. To get to the correct SAM dialog:

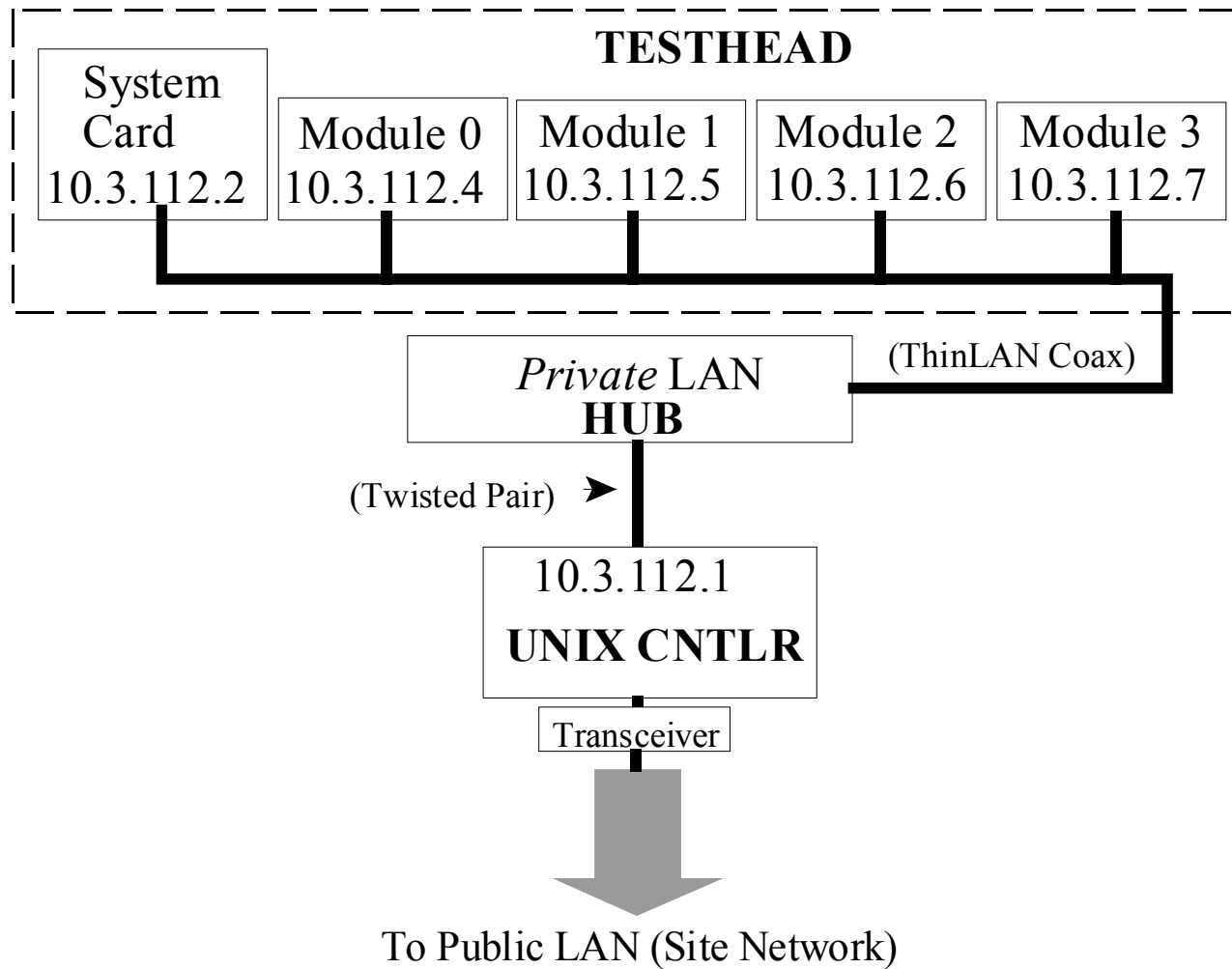
-
- 1 **From SAM, click Networking and Communications > Bootable Devices > Fixed-Address Devices Booting from this Server.**

 - 2 **Click the line, testhead1.**

 - 3 **Click Actions > Modify.**

Verify the hardware address in the **Station Address** field.

Figure 7-1 3070 UNIX Testhead IP addresses



The Public LAN

This section contains:

- [Introduction](#), 7-8
- [A User-Access Example](#), 7-8

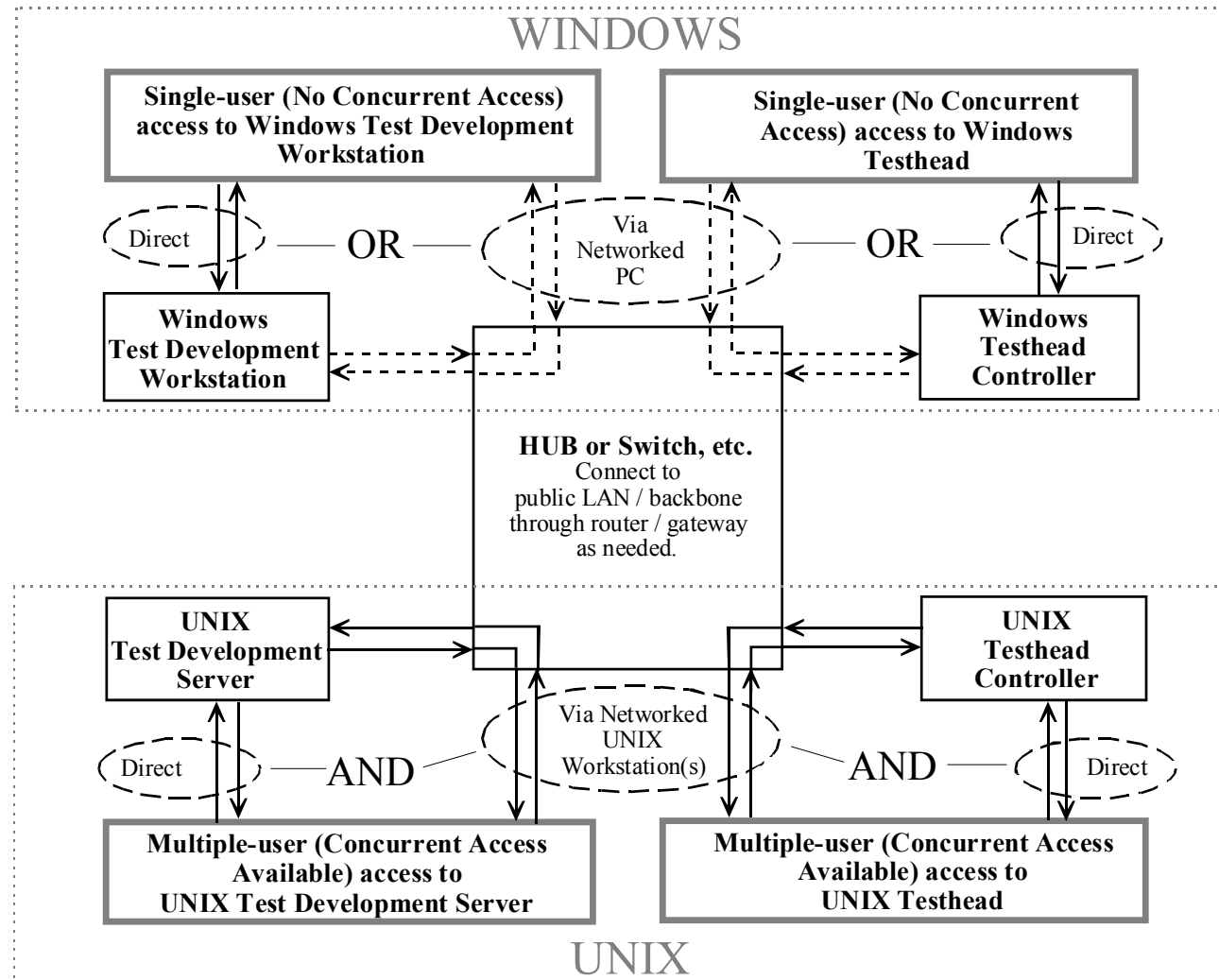
Introduction

lan0 is the public LAN interface used to communicate with other systems on the customer site. This LAN interface can be configured to use either ThinLAN or 10Base-T. The 3070 can be assigned any valid IP address, and that address is used by lan0. The connector for lan0 is the LAN AUI connector along the bottom of the controller.

A User-Access Example

3070 systems are now available with either a MS Windows or a UNIX controller. [Figure 7-2](#) on page 7-9 shows an example of a user-access scheme when both MS Windows and UNIX systems exist.

Figure 7-2 User-access example for both UNIX and Windows test development systems and testheads



Bridges, Routers, and Gateways

Bridges, routers, and gateways are used to connect multiple segments of a network into a unified, larger network.

Typically, you will not have to worry about these devices. If installing systems onto an existing network, you may have to configure the 3070 to take advantage of the facilities that your network provides.

Clients and Servers

Each node on the network can be a client, server, or both. In most cases, each node functions as both a client and a server.

The terms **client** and **server** can be somewhat confusing at times, because they relate to communication from the computer's (not the user's) point of view. An example of this is the use of a personal computer (PC) as an X-Terminal to communicate with an 3070 controller.

From the user's point of view, the 3070 is the server and the PC is the client. But from a networking point of view, the PC is the server because it is running a program called X-Server. The 3070 requests services from the PC, such as displaying a window or drawing board graphics. The PC does not request anything from the 3070.

Domain Names

A fully qualified domain name is a unique combination of a hostname and a network domain name. A hostname is a name assigned to node that is unique within the network domain to which the node is connected. It is not valid to have two nodes with the same name in the same domain.

TCP/IP protocols provide a number of mechanisms for mapping domain names to IP addresses. These are setup when the system is first powered up at the customer site:

- host file (HP-UX uses the `/etc/hosts` file method if you chose not to set up DNS or NIS during system configuration).
- BIND (if DNS is setup).
- NIS (if DNS is not setup).

Network Services

The 3070 comes bundled with a variety of both basic and advanced network services.

To apply services that are not central to board test functions, you will have to do additional configuration.

The primary network services available on the 3070 are described in [Table 7-1](#).

Table 7-1 Network services

Network Service	Description
ftp	Copies files among hosts on the network that support Internet services.
telnet	Allows logging onto a remote node that supports Internet services
sendmail	Works with network mailers (for example, <code>elm</code> or <code>mailx</code>) for routing Internet mail among network nodes.
BIND	Implements DNS (Domain Name System) to resolve host names and to enable Internet mail.
rcp	Allows file transfer between UNIX network hosts.
rlogin	Allows logging onto a remote UNIX host.
remsh	Allows command execution on a remote UNIX host.

The NFS Automounter

This section contains:

- [Introduction](#), 7-14
- [Make Files and Directories Available to Other 3070 Systems](#), 7-14
- [Automounters and HP-UX Revisions](#), 7-14

Introduction

The network file system (NFS) allows 3070 systems to share files over the network.

Remote directories could be specified to be mounted at bootup, but problems could occur if the remote system is not booted.

An alternative method to mount remote directories is to use the NFS automounter (automounter).

With the automounter, remote directories are mounted on demand. This method eliminates the problems with mounting remote directories during bootup.

NOTE

If no read or write is made to the auto-mounted directory or file for five minutes, it is automatically unmounted.

Make Files and Directories Available to Other 3070 Systems

- 1 Start SAM.
 - 2 Click **Networked File Systems > Exported Local File Systems**.
 - 3 **Specify which files and directories to be available to other systems.**
-

Automounters and HP-UX Revisions

By default, directories will mount onto `/net` when needed.

However, some 3070 software assumes directories are mounted onto `/sys`. To accommodate the 3070 software, the system has the following setup:

- If you upgraded from 9.x to 10.x, your system was probably set up to hard-mount remote file systems at bootup, onto specific directories under `/sys`. During the upgrade, this structure was kept intact.
- If you purchased a new 3070, `/sys` is an absolute symbolic link to `/net`, and the automounter is enabled. This means that remote file systems are automatically mounted, as needed, onto `/net`. When 3070 software looks in `/sys` for remote

systems, the symbolic link makes it look as though the systems mounted in `/net` are actually in `/sys`.