

Ways Not to Configure Your Network

So what is a broadcasthost, a broadcast address, and localhost entry, anyway?

Engineers in NeXT Technical Support refer to three network configuration topics as job security issues. Without exception, the following scenarios come up every month or so, requiring a fair bit of over-the-phone diagnostics and, more importantly, down time at a customer site. These items are:

- Changing the address of broadcasthost
- Misconfiguring the broadcast address or netmask
- Changing the address of localhost

This article should clear up some of the fog surrounding these issues and improve the reliability of your systems. If you are interested in more technical information on these issues, and networking in general, please see the reading list at the end of the article.

Changing the Address of broadcasthost

Don't change it. The most common (incorrect) reason for changing this value is that the user wanted to change the broadcast address for his or her machine. Although the broadcast address of a computer and the broadcasthost address value are related, they are not the same.

The broadcasthost is a special entry in the local NetInfo™ domain of every NeXT computer. It can be set only through NetInfoManager or **niutil**, and under essentially all configurations it should not be changed from 255.255.255.255. To check the value of this entry, you can issue the following in a terminal window:

```
host> nidump hosts .  
127.0.0.1      localhost  
255.255.255.255    broadcasthost
```

The broadcasthost address value is used in sending various NetInfo broadcast packets, such as ^awho is my parent NetInfo server.^o If you change this value, at the least your system will not boot, and you might need to reload the NetInfo database from backups. (You do have current backups, don't you?)

Misconfiguring the broadcast Address or netmask

Before your machine can communicate with other machines on your network, three parameters must be set. These are the network address of the computer, the netmask, and the broadcast address. Information on how to set these values is found in the *Network and System Administration* manual. The correct values to use are site-specific and are typically assigned by the network administrator. If there is no central administrator, you will need to coordinate with other network users to avoid address conflicts.

You can check current values while the system is up by issuing the `ifconfig` command in a terminal window:

```
host> /usr/etc/ifconfig en0
en0: flags=8023<UP,BROADCAST,NOTRAILERS>
    inet 192.42.172.1 netmask ffffffff broadcast 192.42.172.255
```

Please note again that the broadcast host entry and the broadcast address of the Ethernet interface *are related, but they are not the same*.

Changing the Address of localhost

Don't do it. Most people who change this value think they are changing the network address of their machine. This special address, which is also called the loopback address, is used for inter-process communication within your machine. This address is not a network address, which is why every machine on your network can use 127.0.0.1 without conflict.

A NeXT computer expects the loopback address to be set to 127.0.0.1. You can check the status of your loopback interface with the following:

```
host> /usr/etc/ifconfig lo0
```

```
lo0: flags=9<UP,LOOPBACK>  
inet 127.0.0.1 netmask ff000000
```

Note also that you should not use other addresses that begin with 127 unless you know *exactly* what you're doing and why. The network 127.x.x.x is reserved for loopback and testing functions only. If you try to use addresses in the 127 network as network addresses, they will not work.

Reading List

Internetworking with TCP/IP,
Comer, Douglas E., 1991, Prentice-Hall

Network and System Administration,
1990 NeXT Computer, Inc.

UNIX® manual pages for ifconfig(8C),
nidump(1), and niutil(1).
RFC1166