

Networks Tools Worksheet 1

or

How not to trash your network in one easy lesson

N.J.Gunton 11/98

Grouping	Individual/ Teams
Prerequisites	Basic unix knowledge
Courses	Computer Networks
Requirements	Access to a Unix system
Summary	An introduction to the basic network tools and their use

Objectives	To learn how to use these tools to set up, administer and maintain networks.
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1. ping localhost

Your machine always has the name localhost and it should be possible to ping it. Read the manual page for ping to get an idea of how it works. If you get the response `network unreachable` then you've got problems. Discuss what might be the problem. You can stop the serial ping with `^c` (control c).

2. /etc/hosts

View the file `/etc/hosts`. you can do this in a number of different ways. With the command `cat` or the command `more`. You could also load it into a text editor such as `vi` or `emacs`. What is in the file and how did it get there?

3. ifconfig

Execute the command `ifconfig`. What information do you get?. The tool is an interface configuration tool and can be used to start, stop and modify the state of the interface, its ip address, the masks etc. How many interfaces are active on your machine? How were they activated? Do you have an active ethernet card?

4. ping other 127.n.n.n

What is the result of pinging other addresses that start 127.n.n.n?

5. ping your ip address

Has your machine got an ip address other than 127.0.0.1? How was it obtained? If your machine has an address then you should get a response from pinging that address. If not, how would you go about tracking down the problem. (*Hint: ifconfig*).

6. ping a.n.other ip address

Obtain the ip address of another machine on the same network as your machine and try pinging it. Try several machines on the same network†. What results do you get? Remember that you can try some of these exercises on the Solaris network as well. If you get no response from the other

machine, how would you go about resolving the problem?

7. arp

Execute the command `arp -a`. This prints out the table of hardware addresses to ip addresses that your machine has mapped. If you have succeeded in pinging one or machines other than your own then there will be an entry for each machine. The entries are only kept for a short period before being deleted on some machines. They can also be fixed permanently. Why would anyone wish to do this? What might it mean if your pings failed but you have entries in the arp table?

8. ping a.machine.name

Obtain the domain name of a machine on your network and try pinging it. For example on the Solaris networks you could try `ping -s milly`. What happens? On the network in 3p11 you should get a message saying something like "unknown host". How can you tell your machine about the relationship between ip addresses and machine names?

9. /etc/hosts again

Yes, the simple answer is to add them to the hosts table. You do this by adding them to the file `/etc/hosts`. Later on we will look at how to get names and addresses from a name server. For a small network we can keep all the entries in the hosts file.

† Remember that a machine must be up and running in order to be able to ping it.