

Windows/UNIX host emulator

Introduction (IPCONFIG)

The IPConfig command on Windows-based systems is used to determine many of the network settings that are used in a host. Its format is:

USAGE:

```
ipconfig [/? | /all | /renew [adapter] | /release [adapter] |
          /flushdns | /displaydns | /registerdns |
          /showclassid adapter |
          /setclassid adapter [classid] ]
```

where

```
adapter      Connection name
              (wildcard characters * and ? allowed, see examples)
```

Options:

```
/?           Display this help message
/all         Display full configuration information.
/release     Release the IP address for the specified adapter.
/renew      Renew the IP address for the specified adapter.
/flushdns   Purges the DNS Resolver cache.
/registerdns Refreshes all DHCP leases and re-registers DNS names
/displaydns Display the contents of the DNS Resolver Cache.
/showclassid Displays all the dhcp class IDs allowed for adapter.
/setclassid Modifies the dhcp class id.
```

The default is to display only the IP address, subnet mask and default gateway for each adapter bound to TCP/IP.

For Release and Renew, if no adapter name is specified, then the IP address leases for all adapters bound to TCP/IP will be released or renewed.

For Setclassid, if no ClassId is specified, then the ClassId is removed.

Examples:

```
> ipconfig          ... Show information.
> ipconfig /all     ... Show detailed information
> ipconfig /renew   ... renew all adapters
> ipconfig /renew EL* ... renew any connection that has its
                    name starting with EL
> ipconfig /release *Con* ... release all matching connections,
                    eg. "Local Area Connection 1" or
                    "Local Area Connection 2"
```

The IPConfig command on its own gives basic networking information, such as:

```
Ethernet adapter Wireless Network Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.0.19
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . : scotuni.ac.uk
IP Address. . . . . : 138.150.10.24
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 138.150.10.254
```

And IPConfig /all gives more information:

```
Windows IP Configuration
Host Name . . . . . : COMP-108732
Primary Dns Suffix . . . . . : computing-dept.scotuni.ac.uk
```

```

Node Type . . . . . : Peer-Peer
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : computing-dept.scotuni.ac.uk
                                   scotuni.ac.uk
                                   ac.uk

Ethernet adapter Wireless Network Connection:
Connection-specific DNS Suffix . :
Description . . . . . : Wireless LAN Adapter
Physical Address. . . . . : 00-09-7C-85-87-F1
Dhcp Enabled. . . . . : No
IP Address. . . . . : 192.168.0.19
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :

Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . : scotuni.ac.uk
Description . . . . . : 3Com EtherLink XL 10/100 PCI
Physical Address. . . . . : 00-04-76-25-FB-BF
Dhcp Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IP Address. . . . . : 138.150.10.24
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 138.150.10.254
DHCP Server . . . . . : 138.150.2.205
DNS Servers . . . . . : 138.150.1.5
                                   138.150.2.5
Primary WINS Server . . . . . : 138.150.2.204
Secondary WINS Server . . . . . : 138.150.2.205
Lease Obtained. . . . . : 08 May 2003 08:49:13
Lease Expires . . . . . : 11 May 2003 08:49:13

```

Using the IPConfig emulator, conduct the following:

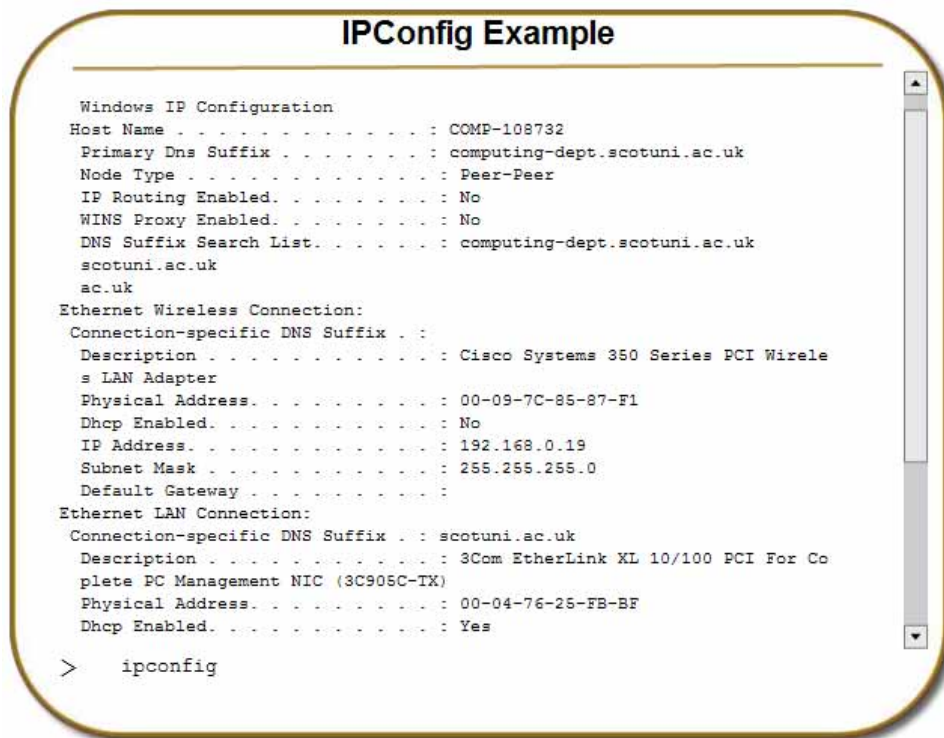
1. The IP addresses of the new adapters, and their associated gateway address and subnet mask.
2. The local domain name.
3. The DNS server addresses.
4. The MAC addresses of the network cards.
5. Release the 192.168.0.2 adapter.
6. Renew it.

Next, using the host emulator (host.html), set the following parameters:

```

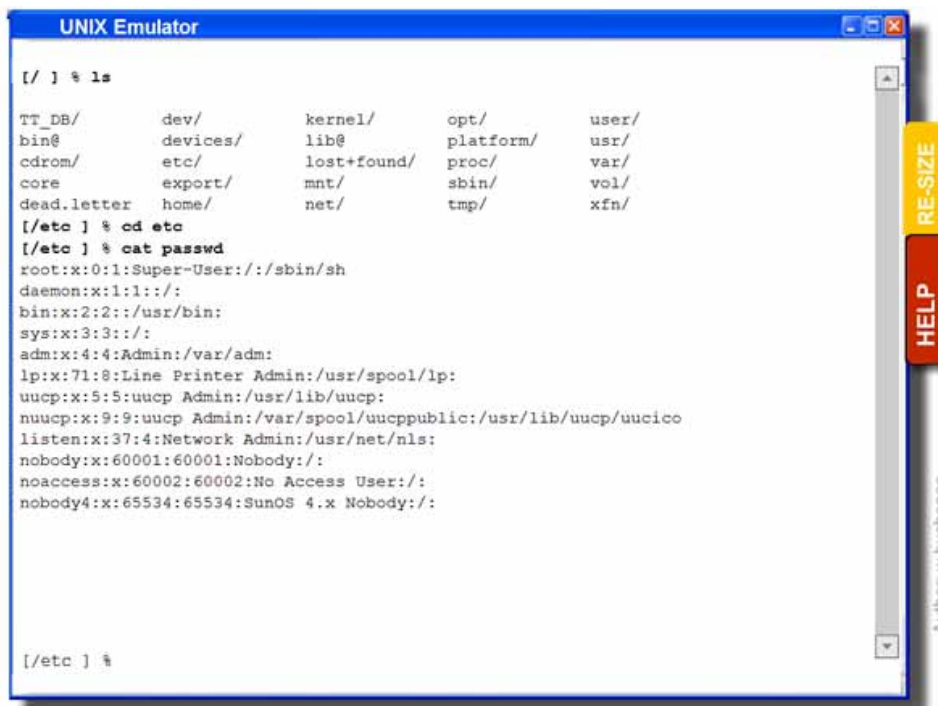
IP address:      192.168.0.2
Subnet mask:    255.255.255.0
Gateway:       192.168.0.1

```



UNIX networking

The following session relates to the UNIX emulator given next:



The ifconfig command is used in UNIX and is used to view the network settings on the interface card.

- 1 Enter the ifconfig command, and view the help page.

- 2 Enter the `ifconfig -a` command, and determine the network configuration
List the network settings.
- 3 Enter the `ping 110.11.2.3` command, and determine if the network is responding.
- 4 Enter the `ifconfig release eth0` command, and to release the IP address from the interface.
- 5 Enter the `ping 110.11.2.3` command, and determine if the network is responding.
- 6 Enter the `ifconfig start eth0` command, and to re-gain the IP address for the interface.
- 7 Enter the `ping 110.11.2.3` command, and determine if the network is responding.

The ARP table contains the mapping of IP addresses to MAC addresses, on the local network.

- 1 Enter the `arp` command, and determine the options used with `arp`.
- 2 Enter the `arp -a` command, to show the current arp table
List some of the MAC addresses and IP mappings.