|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Machine A | Machine B | | UNIX |
| IPv4 Address | 193.60.73.100 | 193.60.73.113 | | 193.60.76.235 |
| Subnet Mask | 255.255.255.0 | 255.255.255.0 | | 255.255.255.0 |
| Default Gateway | 193.60.73.1 | 193.60.73.1 | | - |
| Machine's IP Class | Class C | Class C | | Class C |
| Machine's Network Address | 193.60.73.0 | 193.60.73.0 | | 193.60.76.0 |
| Machine's Host Address | 0.0.0.100 | 0.0.0.113 | | 0.0.0.235 |
|  | Machine A | | Machine B | |
|  |  | |  | |
| Host Name | KW116-069 | | KW116-060 | |
| Physical Address | 00-1C-C0-C2-AC-96 | | 00-1C-C0-C2-AC-BF | |
| NIC Manufacturer | Intel Corporate | | Intel Corporate | |
| IPv4 Address | 193.60.73.100 | | 193.60.73.113 | |
| Subnet Mask | 255.255.255.0 | | 255.255.255.0 | |
| Lease Obtained | 13 November 2012 10.58:09 | | 13 November 2012 11:02:52 | |
| Lease Expires | 20 December 2148 10.15:03 | | 20 December 2148 18:01:54 | |
| Default Gateway Address | 193.60.73.1 | | 193.60.73.1 | |
| DHCP Server Address | 193.60.48.8 | | 193.60.48.8 | |
| DNS Servers Addresses | 193.60.73.244 | | 193.60.73.244 | |
| Primary WINS Server Address | 193.60.52.230 | | 193.60.52.230 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Machine A | | | Machine B | | |
|  | Network Class | Network Address | Host Address | Network Class | Network Address | Host Address |
| IPv4 Address | C | 193.60.73.0 | 0.0.0.100 | C | 193.60.73.0 | 0.0.0.113 |
| Default Gateway Address | C | 193.60.73.0 | 0.0.0.1 | C | 193.60.73.0 | 0.0.0.1 |
| DHCP Server Address | C | 193.60.48.0 | 0.0.0.8 | C | 193.60.48.0 | 0.0.0.8 |
| DNS Servers Addresses | C | 193.60.73.0 | 0.0.0.244 | C | 193.60.73.0 | 0.0.0.244 |
| Primary WINS Server Address | C | 193.60.52.0 | 0.0.0.230 | C | 193.60.52.0 | 0.0.0.230 |

|  |  |  |
| --- | --- | --- |
| UNIX Command |  | Addresses |
| netstat -rn | Default Gateway Address | 193.60.73.1 |
| cat /etc/resolv.conf | DNS Servers Addresses | 193.60.49.84 |

## Task 3:

Computer 1 and Computer 2 are located on the same network and are able to communicate easily; Computer 3 will not be able to communicate as it is on a different network.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Computer 1 | Computer 2 | Computer 3 |
| IP Address | 192.168.12.113 | 192.168.12.205 | 192.168.112.97 |
| Subnet Mask | 255.255.255.0 | 255.255.255.0 | 255.255.255.0 |
| Default Gateway | 192.168.12.1 | 192.168.12.1 | 192.168.12.1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 193.60.73.100/KW116-069 | 193.60.76.235/ Student | Ping from Windows Succesful? | Ping from UNIX  Succesful? |
| ping the IP address of a Windows computer | 193.60.73.113 | 193.60.73.113 | Yes | Yes |
| ping the IP address of a UNIX machine | 193.60.76.235 | 193.60.76.235 | Yes | Yes |
| ping the IP address of the default gateway | 193.60.73.1 | 193.60.76.1 | Yes | Yes |
| ping the IP addresses of  a DNS server | 193.60.73.244 | 193.60.49.84 | Yes | Yes |
| ping the Loopback IP address (If the ping is successful, then TCP/IP is properly installed and functioning on the computer.) | 127.0.0.1 | 127.0.0.1 | Yes | Yes |
| ping the hostname of another computer  (the UNIX hostname can be found with the hostname command) | student | KW116-069 | Yes | Yes |
| ping [www.cisco.com](http://www.cisco.com/) |  |  | Yes | Yes |
| ping [www.microsoft.com](http://www.microsoft.com/)  Notice that the DNS server was able to resolve the name to an IP address, but there is no response.  Some Microsoft routers are configured to ignore ping requests. This is a frequently implemented security measure |  |  | No | No |

From both Windows and UNIX environments. - send 5 datagrams at one per second, each of 128 bytes to the host [www.cisco.com](http://www.cico.com/)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Environment | | Command | | | Average Delay | |
| Windows | | ping -n 5 -l 128 www.cisco.com | | | 2ms | |
| UNIX | | ping -s www.cisco.com 128 5 | | | 2.25ms | |
| Domain Name | IP addresses | Host Name | Network Address | Number of Hops -Windows | | Number of Hops - UNIX |
| www.cms.gre.ac.uk | 193.60.77.235 | cms-webserver.cms.gre.ac.uk | 193.60.77.0 | 2 | | 2 |
| staffweb.cms.gre.ac.uk | 193.60.76.168 | staffweb | 193.60.76.0 | 2 | | 2 |
| www.gre.ac.uk | 193.60.68.103 | ah-ils-web-squid1.gre.ac.uk | 193.60.68.103 | 4 | | 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Windows Command | UNIX Command | Windows | UNIX |
| Show all active connections | netstat | netstat -l |  | - |
| Show all active TCP connections in numerical form | netstat –n –p tcp | netstat –n -P tcp | - | - |
| Show all active TCP connections with Fully Qualified Domain Names for foreign addresses | netstat –p tcp | netstat -P tcp | - | - |
| What are the number of IP packets received and sent since boot-up? How many were in error? | netstat -e | netstat -i | Received: 658873893 Sent: 51043012 Errors: 0 | Received : 3902913267 sent : 3786581884 Errors: 0 |
| What are the numbers of IP packets sent and received in a typical 10 second interval? | netstat –s 10 | ping -i 10 IP | Received: 154 Sent: 7 Errors: 0 |  |
| What are the numbers of TCP segments transmitted and received in a typical 20 second interval? How many retransmissions were there? |  |  |  |  |
| UDP datagrams - what are the numbers transmitted and received in a typical 20 second interval? | netstat –s –P UDP 20 |  |  |  |
| How many ICMP messages were sent and received in a typical 20 second interval? | netstat –s –P ICMP 20 |  |  |  |
| List the routing table entries | netstat -r |  |  |  |