

Router Troubleshooting Guide

6/17/01

The following document will explain the procedure for trouble shooting a router/routing problem with TCP/IP Utilities. This document will make reference to a few commands/utilities that may be new to the reader.

Traceroute - this command does what it is called. Traceroute is used to literally trace out the route to a specific destination. The command you enter is as follows.

```
# traceroute 192.168.3.1          (enter)
```

The previous command will trace out the route that a single packet takes to the destination 192.168.3.1. Typically you would choose a device at the other side of the WAN as your target. This command is helpful in that it will verify that the packet is going out the correct gateway and is taking the correct path to its destination. If the route is down or a device within that route is down, an "*" will appear in the place of the address. This is a good indication that the route is down somewhere. The following is an example of a successful traceroute to "edipc" from my workstation.

```
#traceroute edipc              (enter)
```

```
1 gw1 (192.168.1.1) 1.281 ms 0.901 ms 0.860 ms
2 edipc (192.168.3.132) 0.608 ms 0.585 ms 0.546 ms
```

The packet went out gw1 and landed on target (edipc). The following is an example of an unsuccessful traceroute.

```
#traceroute 63.71.113.21      (enter)
1 gw1 (192.168.1.1) 1.204 ms 0.864 ms 0.840 ms
2 * * *
3 * *
```

The packet went out of the gw1 and then was lost. The "*" indicates that the packet "died". In Sco the delete key stops the traceroute. In Linux and windows ctrl-c stops the traceroute.

Ping - This command sends a single packet to the destination specified to verify that the device is on or properly connected/configured. The command is as follows.

```
# ping (name or ip)          (enter)
```

In Sco, the delete key stops the ping. In Linux and windows ctrl-c stops the ping. The following is an example of a successful ping.

```
# ping hardwar1              (enter)
```

```
PING hardwar1 (192.168.1.120) from 192.168.1.112 : 56(84) bytes of data.
64 bytes from hardwar1 (192.168.1.120): icmp_seq=0 ttl=128 time=2.590 msec
64 bytes from hardwar1 (192.168.1.120): icmp_seq=1 ttl=128 time=872 usec
64 bytes from hardwar1 (192.168.1.120): icmp_seq=2 ttl=128 time=774 usec
```

```
--- hardwar1 ping statistics ---
3packets transmitted, 3packets received, 0% packet loss
round-trip min/avg/max/mdev = 0.747/0.997/2.590/0.565 ms
```

The following is an example of an unsuccessful ping.

```
# ping hardwar4              (enter)
```

```
PING hardwar4 (192.168.1.121) from 192.168.1.112 : 56(84) bytes of data.
```

From hardwar12 (192.168.1.112): Destination Host Unreachable
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Messages other than Destination Host Unreachable are common. They include but are not limited to . Host is Down...No Route To Host and so on. Another utility to use is "**netstat**". The output from that command prints the routing table according to the machine that the command is issued on. The correct command is as follows.

```
#netstat -nr          (enter)
```

An example of the output of this command is as follows.

```
Kernel IP routing table
Destination    Gateway         Genmask        Flags   MSS      Window  irtt Iface
192.168.1.0    0.0.0.0        255.255.255.0 U        0 0       0 eth0
127.0.0.0      0.0.0.0        255.0.0.0     U        0 0       0 lo
0.0.0.0        192.168.1.1    0.0.0.0       UG       0 0       0 eth0
```

The above example shows all packets from the 192.168.1.0 network going out the 192.168.1.1 interface. This is an example of a default gateway.

This concludes the utilities section of this guide. For more information on these commands, see the manual pages for the operating system you are using.

Troubleshooting

This section of the document will explain how to find and correct the problem in the event you should have to troubleshoot a down remote using TCP/IP. This section will involve commands to be given as root from the # sign.

The first step in any remote situation is the same. Turn the routers off and then back on again. This solves 90% of remote store troubles. The next few things you will need to know are, but are not limited to, router IP addresses and the routing table. Log into the customers machine and try to locate the IP address for the router that controls the remote store that is down. The most obvious place to look for the IP address of the router is on top of the router itself (usually on a little white sticker). Another good place to look for router addresses is in the /etc/hosts file. Using the "**netstat -nr**" command illustrated above, decide if this is the only router or if there are many routers. The presence of a default gateway usually indicates a single remote store or that one router is the gateway for all of the stores. Using the "netstat -nr" command, decide which address is that of the router. After deciding which router you should be concerned with, "ping" that address and watch for a response. Lack of response will indicate a cabling, switch, or connection problem. Correct this problem and try your ping again. If you can ping the host router use the traceroute command to see if the packets are making it to the remote site. If they are not making it to the remote site, verify a down phone line by telneting into the router and go to (from the main menu) **status and test**.

Osicom Technologies Inc.
Router Plus T1 CSU

Main Menu

Status and Test

Event Log
Configuration
TFTP
Unit
Management
Save to Flash
Logoff

From there go to **port status**.

```
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```

```
Status and Test Menu
```

```
Router Summary  
T1 CSU Status and Test  
Interface Status
```

```
Port Status
```

```
TCP/IP Status and Test  
IPX Status  
Bridging Status  
IP Routing Table  
IPX Routing Table  
IPX Services Table  
Bridging Table
```

This screen will give you the status of the LAN port and the WAN port.

```
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```

```
Port Status Summary - Page 1
```

Port	Port Name	Interface	Protocol
S	Port 0	LAN	Ethernet
1	Port 1	WAN 1	FR-102 Down

In this example, the port 1 status is down. On a fastcomm etherfrad you should go to (S) for statistics, (1) for logical ports, and (N) for network. At the top of the screen you should see "responding to poll", next to the "annex D" entry.

After you have determined that the line is down or the devices are at fault, you can decide what to do about it. In most cases the problem can be solved without back to back testing or replacing the routers. It is usually a phone line problem but on certain rare occasions the routing table does get altered in a debilitating way.