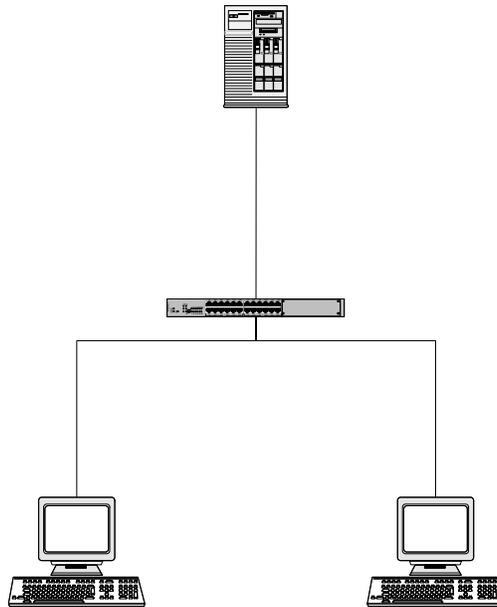


Troubleshooting Network Connectivity Issues Version 1.0

Most network environments can be summarized as workstations connected to a server via a hub or switch. This is illustrated in the following diagram :

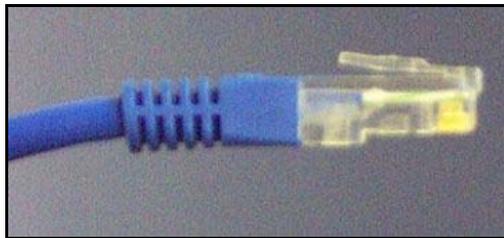


Each machine that connects to the network must have a network card installed in it. Once the network card is installed a standard network cable is connected from the PC to a hub or switch.



Network Cable

To connect a network cable into a network card or hub simply clip it into place. The plug can only be inserted one way. To remove the cable you simply need to unclip it from the device and remove it.



Clip connector on network cable

From the above picture you can see that each end of the network cable has a clip connector, much like a standard phone connector. To remove the connector simply depress the clip and remove the connector.

If you are unable to connect to the file server for any reason you need to determine the following :

1. Which workstations are affected ?
2. Has anything been changed that may affect the server or cabling ?

If all workstations on your network are unable to contact the server then you should start your troubleshooting procedure at the server. If it is just a single workstation that is failing to connect then you should start troubleshooting at that device.

Troubleshooting Network issues from the Server

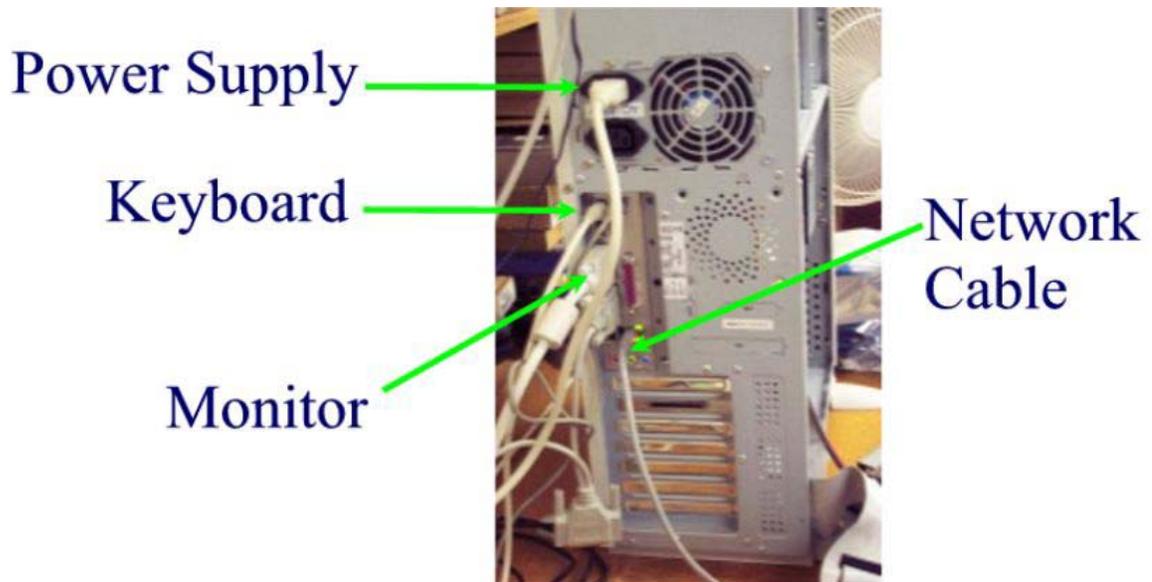
When all workstations cannot connect to the server machine you should follow the steps below to determine exactly what the cause of your problem is :

1. Check that your Server is powered on and not hung. You should be able to type at the keyboard and move the mouse on the screen. If the screen is locked and you don't have permissions to log on simply toggle the CAPS LOCK key to see whether the keyboard is responding. If the server is hung and failing to respond it should be rebooted and network connectivity checked again.
2. If the server appears to be functioning correctly, next check whether there is an active connection between your server and the hub or switch. Start at the server, look at the rear of the Server machine which should appear something like :

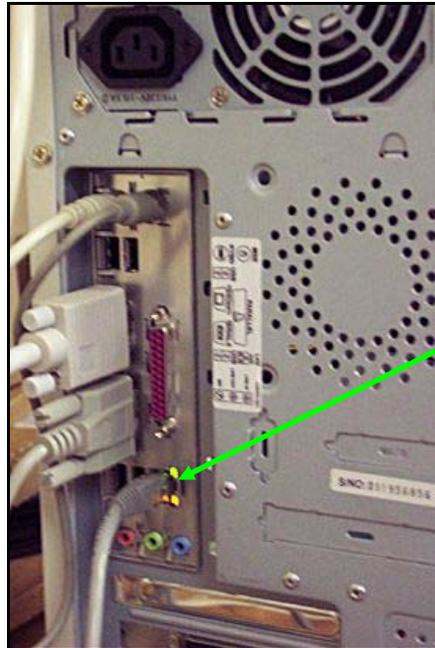


Rear of a typical Server

In the rear you will see a number of cords connecting the machine to things such as the power point, the keyboard, monitor and the network. In our example machine these would be :



If we know that the server is operational then the fan next to the power supply should be working. You check this from the noise of the fan or air flow through the fan. If this is all OK, you will need to locate the position of the network card in the rear of the server. This can be found at the end of a network cable and in our example machine appears like :



Network card

At the end of the network cable to the server you should find the network card as shown above. Network cards should have at least one light to show whether they are in fact connected to something. The above image shows that the network card has two lights and we can therefore determine that it is fact connected to the network. If there are no lights here then it is a good chance that your server is not connected the network.

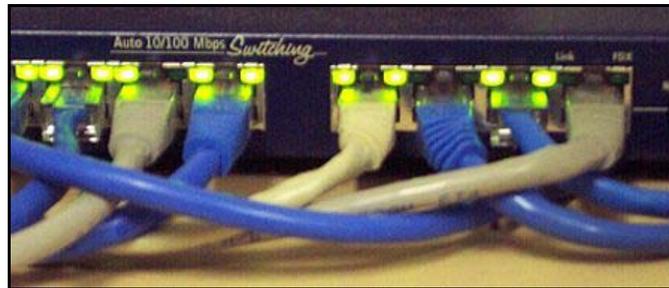
3. If there no connectivity to your server the next place you have examine is the hub or switch that the server is connected to. If you follow the other end of the network cable from the server you should end up at a hub or switch that should appear something like :



Typical switch or hub

Hub and switches allow networked computer to connect together and share information. There is at least one switch or hub on every networked system.

Following the network cable from the server machine should lead you to one of the ports on your hub or switch. Once again connectivity is denoted by the fact of lights being displayed on that port like so :



From the above picture we can see that the connection on the right hand side is current not active. Since there are no lights this indicates that either the device that it connects to is off or that there is a connectivity problem. Compare this port with the one to its left (2nd one from the right). Here we see that the ports lights here are on indicating an active connection.

If the light to your server connection is current off try the following :

- a. Unplug and replug the server into its existing connection.
- b. swap the server connection to an empty port.
- c. swap the server connection with an existing active port.

If this fails to make the switch port light active then the most likely problem is a failure of the server network card.

Troubleshooting Network issues from the Workstation

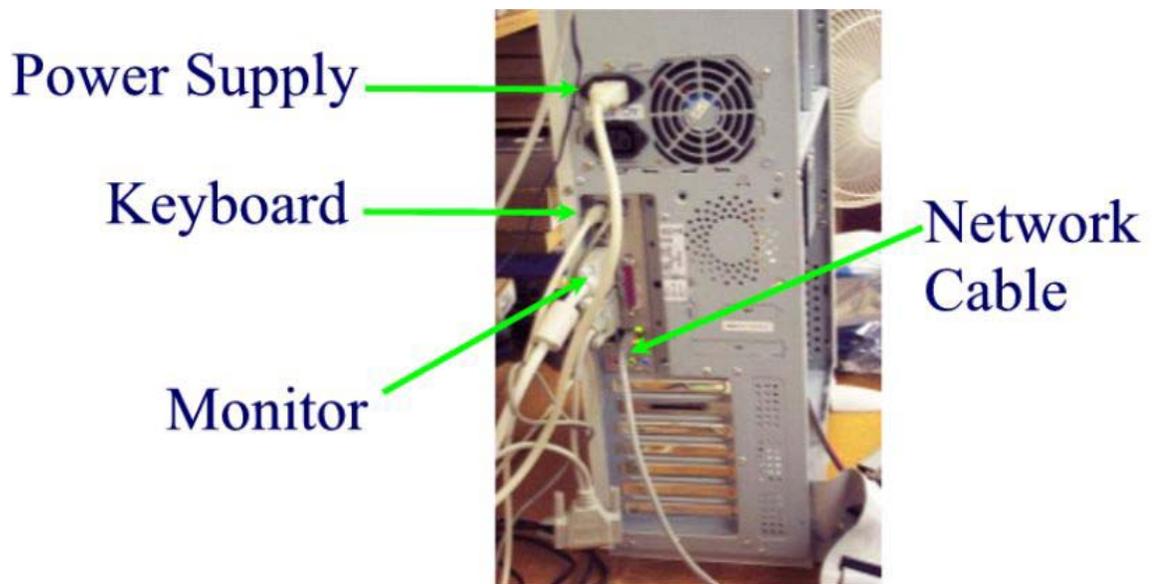
In the case where a single workstation cannot connect to the server troubleshooting should commence at that PC.

1. Check that your workstation is powered on and not hung. You should be able to type at the keyboard and move the mouse on the screen. If the screen is locked and you don't have permissions to log on simply toggle the CAPS LOCK key to see whether the keyboard is responding.
2. Try rebooting your workstation to see if some kind of software issues has caused a loss of connectivity.
3. Next check whether there is an active connection between your workstation and the hub or switch. Start at the workstation, look at the rear of the machine which should appear something like :

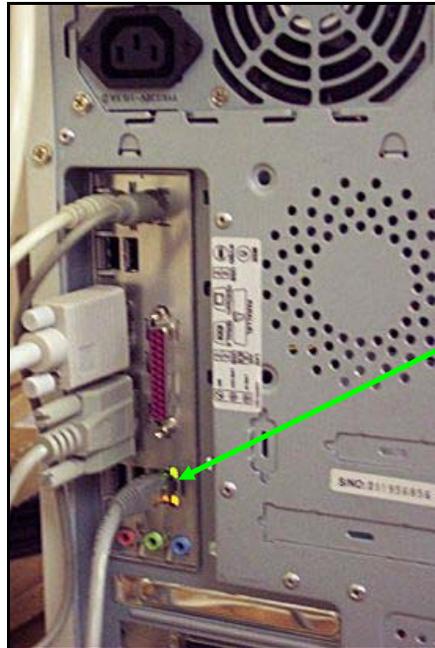


Rear of a typical workstation

In the rear you will see a number of cords connecting the machine to things such as power, the keyboard, monitor and the network. In our example machine these would be :



If we know that the workstation is operational then the fan next to the power supply should be operational. You should be able to determine this from the noise of the fan in operation or air flow through the fan. If this is all OK, you will need to locate the position of the network card in the rear of the server. This can be found at the end of a network cable and in our example machine appears like :



Network card

At the end of the network cable to the server you should find the network card as shown above. Network cards should have at least one light to show whether they are in fact connected to something. The above image shows that the network card has two lights and we can therefore determine that it is fact connected to the network. If there are no lights here then it is a good chance that your server is not connected the network.

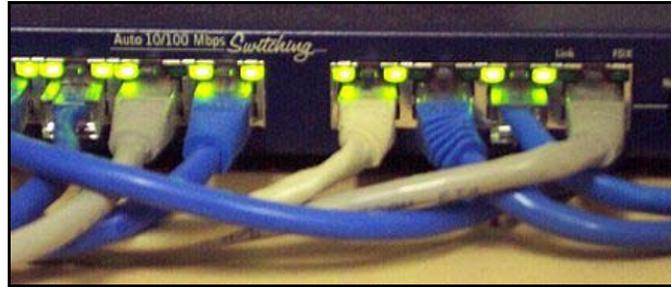
4. If there is no connectivity to your workstation the next place you have examine is the hub or switch that the workstation is connected to. If you follow the other end of the network cable from the server you should end up at a hub or switch that should appear something like :



Typical switch or hub

Hub and switches allow networked computer to connect together and share information. There is at least one switch or hub on every networked system.

Following the network cable from the workstation machine should lead you to one of the ports on your hub or switch. Once again connectivity is denoted by the fact of lights being displayed on that port like so :



From the above picture we can see that the connection on the right hand side is current not active. Since there are no lights this indicates that either the device that it connects to is off or that there is a connectivity problem. Compare this port with the one to its left (2nd one from the right). Here we see that the ports lights here are on indicating an active connection.

If the light to your workstation connection is current off try the following :

- a. Unplug and replug the workstation into its existing connection.
- b. swap the workstation connection to an empty port.
- c. swap the workstation connection with an existing active port.

If this fails to make the switch port light active then the most likely problem is a failure of the workstation network card.