4.4.4 Link Status Troubleshooting Facts

If a single device is unable to communicate on the network, begin troubleshooting by verifying the physical network connection. Most network cards include link and status lights that can help you verify physical connectivity. The following troubleshooting table describes various light combinations and their meanings:

Light			Meaning
Link	Activity	Collision	
Unlit	Unlit	Unlit	The network card does not have a connection to the network. The link light only activates when the computer detects a connection to another device. If the link light is off, possible causes include the following: • Bad NIC • Faulty cable • Missing device on the other end (unplugged cable) • Switch or hub port turned off or bad
Red/Amber	Unlit	Unlit	If the link light comes on and is not green, then the NIC has detected a signal, but the signal is not what was expected. Possible causes include: • Faulty transceiver on the NIC or remote device • Incorrectly configured network cabling • Incompatible networking standards On some switches, an amber link light indicates a slower connection (such as a 100 Mbps connection instead of a a 1000 Mbps connection, which might show a green light).
Solid Green	Unlit	Unlit	A solid green link light indicates a valid network connection. However, an Activity light that never lights up means that no data is being received. To resolve this issue, check all components and connections.
Solid Green	Flashing	Unlit	This is a normal condition that indicates a valid active connection. The Activity light flashes periodically even if you are not currently sending data over the link (this is known as a *heartbeat* or *keepalive* signal that lets the NIC know it has an active connection).
Solid Green	Flashing	Flashing/Lit Occasionally	This is a normal condition that indicates collisions. A small number of collisions are to be expected on an Ethernet network that uses a hub. If your network uses full-duplex switches, there should be no collisions on the network.
Solid Green	Flashing Constantly	Flashing/Lit Occasionally	An Activity light that is continuously flashing indicates that there is constant traffic being sent or received on the link. This could be caused by a device that is very busy (such as a server). In most cases, there should be at least some periods of little or no activity. A constantly flashing activity light could be caused by a faulty NIC on the link that is constantly sending out data. This condition is known as *chattering* or *jabbering*.
Solid Green	Flashing	Flashing/Lit Constantly	If the collision light is constantly flashing, then there are too many collisions on the network. Possible causes include the following: • Too many devices on the segment. As the number of devices increases, so does the number of collisions. Reducing the number of devices or using switches, bridges, or routers to divide the network into multiple collision domains reduces or even eliminates the number of collisions. • Faulty cabling or cable runs that are too long. • A faulty NIC that does not properly sense the medium before transmitting.

Because collisions are associated with hub-based Ethernet networks, modern switches do not typically include a collision light.