



PARTS ON DEMAND LIMITED

NETWORK CARD NOT WORKING?

BE SURE THE NETWORK RECOGNIZES THE PRINTER.

Imagine this scenario; you go to your customer's printer to replace the network card because it failed. You install the new card, plug it in to the network and the lights on the network card appear to be functioning properly. But the card will not print. Surprisingly, this happens to a lot of technicians and creates a lot of unnecessary warranty returns.

So you may be asking why the printer doesn't print from the network card? There could be many reasons as to why this happens. The majority of them are due to the card being set up incorrectly.

Setting up the network card is fairly easy to do once you have the addresses needed. Unfortunately since networks are dependant on how the IT person sets them up, we cannot go into detail on what IP addresses, Subnet Mask, and gateways to use. I will only cover the TCP/IP portion of networking since it is the most common.

What do all the numbers and abbreviations mean? Think of a network address as a house address. The IP address is the house number, the Subnet Mask is the street, and the gateway is the city. You can have multiple houses on a street and many streets in the city but you cannot have duplicate house addresses on the same street. This causes problems, similar to a network.



If you have duplicate IP addresses on the same Subnet Mask and gateway, it will cause mass confusion from the host server or the router. You can have two IP addresses that are the same, only if they are on a different Subnet Mask or gateway.

You can have multiple Subnet Masks on the same gateway. This allows you to connect more computers to a network by sub networking. Think of it as adding another street to the city. The Subnet Mask allows you to add more computers to the same gateway. You can also have different gateways. The gateway is the connection that the Subnet Mask and IP addresses use to connect to the outside world. The gateway is the bridge from the LAN (Local Area Network) to the WAN (Wide Area Network). The gateway can be a computer, a router or a modem. The device used acts as a traffic coordinator to help the packets of data get from point A to point B in the most efficient way possible. Networks communicate with each other in the form of packets. Packets are kind of like mail. They have a destination address, a return address, and the information inside it. Once the data leaves one address, it travels across the network to its destination address and delivers the information to the correct address.

How do I know what IP address to use for the printer?

Well, with the old network card still in the machine you can print a configuration page (on HP printers) (Figure 1) or a Network status page (on Lexmark printers). If the card is still functioning properly and plugged into the network, the printer will print all this information on these pages. If the network card is not functioning properly or doesn't print the information, then you will have to go through the computer to get it. To do this, go to the printer driver and right click the properties icon. Once there, click on the ports and it will tell you what the IP address of that printer is. The hard part of this is that you still need to know the gateway and Subnet Mask. In many cases you can assume that the gateway and Subnet Mask are the same between the computer with the correct printer driver and the printer.

If the printer does not function after you set up the IP address, Subnet Mask, and gateway, you should get the addresses from the IT professional at the worksite to make sure the numbers you entered were correct.

You can try to ping the printer from a DOS prompt. If you do not know how to do this, go to the DOS prompt and type in "ping xxx.xxx.xxx.xxx" (Figure 2) where the x's are the IP address numbers. If it comes back with "request timed out", the printer is not being seen on the network.

The easiest thing you can do is print out a configuration page or a network status page. This will tell you if the printer is connected to the network. In some cases, a bad network cable can cause problems. Also, make sure that the network cable is fully plugged into the jack. You should hear a click. A bad network cable can cause many problems, from loss of connectivity, intermittent connectivity, or no connectivity.

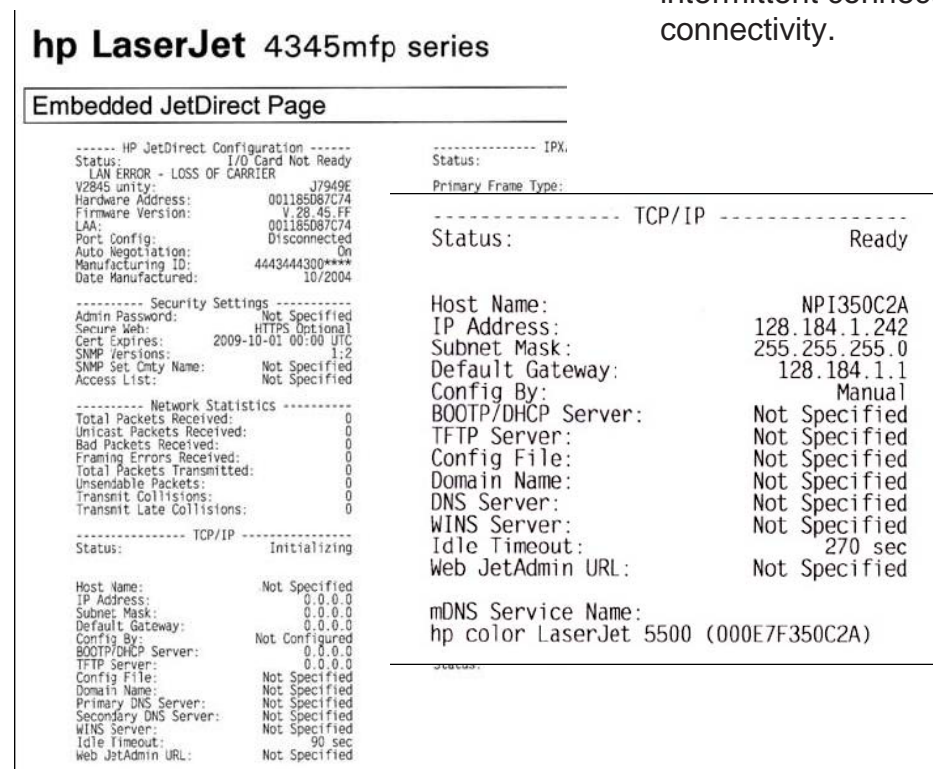
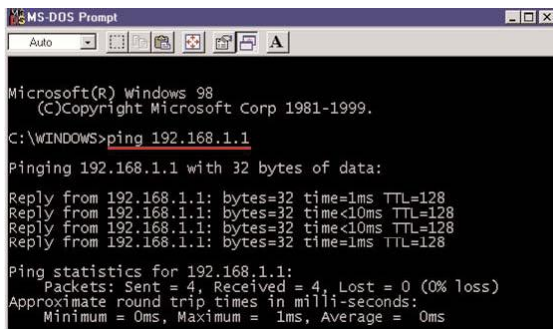


Figure 1



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MS-DOS Prompt
Auto
Microsoft(R) Windows 98
(C) Copyright Microsoft Corp 1981-1999.
C:\WINDOWS>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<10ms TTL=128
Reply from 192.168.1.1: bytes=32 time<10ms TTL=128
Reply from 192.168.1.1: bytes=32 time=1ms TTL=128
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Figure 2

You may be asking what BOOTP (Bootstrap Protocol), DHCP (Dynamic Host Configuration Protocol), and RARP (Reverse Address Resolution Protocol) on the network information page have to do with my network. BOOTP is an earlier version of DHCP. BOOTP automatically assigns an IP address from a list of IP addresses on the server.

DHCP is an advanced version of BOOTP. DHCP assigns an address from a central location, and this address can be configured to expire after a certain period of time. This allows the server to free up the users IP address when they disconnect from the network.

RARP requires a server to be manually configured with a list of IP addresses and MAC (Media Access Control) addresses.

The MAC address is the hardware serial number for the card, similar to the license plate on a car. These numbers are written into each card at the manufacturer, and are unique. RARP looks at the MAC address of the device and compares it to what the server has on file to get an IP address. If the MAC address is not manually configured to an address on the central server, it will not function on the network. RARP is now obsolete due to more user-friendly DHCP.

So going back to the question of why the printer won't print, ask yourself

these questions to help identify the problem:

- Have you checked the IP address, Subnet Mask and the gateway to ensure they are properly set up?
- Are the link and activity lights on the network card on? Remember that some cards do not have lights.
- Does the printer say it is connected to the network on the network status or configuration page?
- Do you have the right network card in the machine?
- Do you have DHCP enabled when the printer should have a manually set IP address?

With this in mind, you should be able to configure the printer to the network. Some of the newer network cards have more advanced options, like remote management from a web browser with the use of software and Web Accessory DIMMs. There are some software packages that allow you to operate the control panel from your desktop. With more advanced and user-friendly printers coming out as technology progresses, service technicians are going to be getting more calls due to printer connectivity issues. Wireless networking is also making its breakthrough in printing. Network printers are very popular, quick, and affordable to run.





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