

Chapter 1 : Network Troubleshooting | Ethernet Troubleshooting | NETSCOUT

The Network troubleshooter can help diagnose and fix common connection problems. Using this troubleshooter, then running some networking commands afterwards if needed, can help get you connected.

Back to Help Home Troubleshooting Network Connection Issues One of the most common causes of streaming issues is weak or intermittent internet connectivity. Frequent rebuffering or loading, problems starting the Netflix app, error messages stating "Cannot connect to the internet," or trouble playing a TV show or movie on your device generally indicate a slow or interrupted internet connection. These streaming problems are sometimes accompanied by error codes, which have their own troubleshooting steps. If you are experiencing an error code, please search for it on our Help Center. If you do not see an error code, follow the troubleshooting steps for your device below. If you complete the steps below and are still having issues connecting to the Netflix service, we highly suggest you reach out to your internet service provider. They will be able to help you determine if your router is properly set up to communicate with the other devices on your home network.

Blu-ray Player If your network meets our [Minimum Streaming Requirements](#) , completing the steps below will resolve most connection issues. **Restart your home network** For this step, make sure to leave your Blu-ray player and all of your home network equipment unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off or unplug your Blu-ray player. Plug in your modem and wait until no new indicator lights are blinking on. If your router is separate from your modem, plug it in and wait until no new indicator lights are blinking on. Turn your Blu-ray player back on and try Netflix again. Turn off your Blu-ray player. Plug your Blu-ray player directly into your modem using an Ethernet cable. Unplug your modem from power for at least 30 seconds, then plug it back in and wait until no new indicator lights are blinking on. Turn on your Blu-ray player and try Netflix again. If this step gets you streaming again: We strongly recommend attempting to connect your Blu-ray player directly to your modem if you can -- it will allow you to absolutely rule out your wireless router as the cause of any network connection issues. If you are connecting with a Virtual Private Network, disable it and connect directly with your home internet. If you have changed your streaming device to a custom DNS setting, try resetting the device to acquire DNS automatically. If you are unsure how to complete any of these steps, reach out to your streaming device manufacturer for more assistance. Move your router to a new location to improve signal strength. Move wireless devices such as cordless phones or microwave ovens away from your router. Wireless interference from these devices can create issues when you try to connect over Wi-Fi. Elevate your router off the floor. A router on top of a bookshelf or desk will give you better reception than a router placed behind or under furniture. What should I do next? They can help you resolve network connectivity issues by determining if your router is properly set up to communicate with the other devices on your home network.

Computer If your network meets our [Minimum Streaming Requirements](#) , completing the steps below will resolve most connection issues. **Restart your home network** For this step, make sure to leave your computer powered off and all of your home network equipment unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off your computer. Plug in your modem and wait until the indicator lights are back to its normal state. If your router is separate from your modem, plug it in and wait until the indicator lights are back to its normal state. Turn your computer back on and try Netflix again. Plug your computer directly into your modem using an Ethernet cable. Turn on your computer and try Netflix again. Contact whoever set up your home network for help resetting or re-configuring your router settings. We strongly recommend attempting to connect your computer directly to your modem if you can -- it will allow you to absolutely rule out your wireless router as the cause of any network connection issues.

Game Console If your network meets our [Minimum Streaming Requirements](#) , completing the steps below will resolve most connection issues. **Restart your home network** For this step, make sure to leave your video game console and all of your home network equipment unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off or unplug your video game console. Turn your game console back on and try Netflix again. Turn off your game console. Plug your game console directly into your modem using an Ethernet cable. Turn on your

game console and try Netflix again. We strongly recommend attempting to connect your game console directly to your modem if you can -- it will allow you to absolutely rule out your wireless router as the cause of any network connection issues.

Mobile Phone or Tablet If your network meets our Minimum Streaming Requirements , completing the steps below will resolve most connection issues. Restart your home network For this step, make sure to leave your device and all of your home network equipment powered off and unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off your mobile device. Turn your device back on and try Netflix again. Try a different internet connection If possible, connect your mobile device to a different internet access point to rule out any potential home network configuration problems. Attempt to connect to a different Wi-Fi network in range of your device. If you have the ability to access a cellular data network on your device, try using it to connect to Netflix.

Set-top Box If your network meets our Minimum Streaming Requirements , completing the steps below will resolve most connection issues. Restart your device Unplug your set-top box from power for at least 2 minutes. Plug your set-top box back in. **Smart TV** If your network meets our Minimum Streaming Requirements , completing the steps below will resolve most connection issues. Restart your home network For this step, make sure to leave your smart TV and all of your home network equipment unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off or unplug your smart TV. Turn your smart TV back on and try Netflix again. Plug your smart TV directly into your modem using an Ethernet cable. Turn on your smart TV and try Netflix again. We strongly recommend attempting to connect your smart TV directly to your modem if you can -- it will allow you to absolutely rule out your wireless router as the cause of any network connection issues.

Streaming Media Player If your network meets our Minimum Streaming Requirements , completing the steps below will resolve most connection issues. Restart your home network For this step, make sure to leave your streaming media player and all of your home network equipment unplugged as a group for 30 seconds before plugging each device back in one by one. Turn off or unplug your streaming media player. Turn your streaming media player back on and try Netflix again. Turn off your streaming media player. Plug your streaming media player directly into your modem using an Ethernet cable. Turn on your streaming media player and try Netflix again. We strongly recommend attempting to connect your streaming media player directly to your modem if you can -- it will allow you to absolutely rule out your wireless router as the cause of any network connection issues. Want to contact us?

Basic network troubleshooting Updated: 01/24/ by Computer Hope Because of the variety of network hardware, network configurations, operating systems, and setups, not all of the below information may apply to your network or operating system.

Not connected to 3G, 4G, or LTE Actions If your device has signal bars but does not show a data connection next to the signal bars, it may not be connecting automatically. Follow steps below to troubleshoot if your device does not automatically connect to data 3G, 4G, or LTE service when in a covered area. If you need help with steps on your device, visit the [Devices](#) page, select your device, and look under [Help Topics](#) for the steps. Building construction can affect the signal strength and connectivity you receive. Move outdoors or to a window to check for improvements. Your location in a building may change your connection. Device has signal, but no data connection Check the signal indicators at the top of the screen: It must show at least 2 signal bars. If fewer, your signal is too low for reliable data speeds. Check out [Signal issues](#). Restart your device regularly to reconnect to the network, especially after travelling. Check the device settings: Data and packet data settings are turned on. Data roaming is turned on. Wi-Fi Calling preference is set to "Cellular preferred". Visit the [Devices](#) page for help with these steps. Reset the device APNs to default. Wipe the cache partition. Update your carrier settings on your iPhone or iPad - [Apple Support](#) Update the device software to the latest version. Visit the [Devices](#) page for current versions and steps. Remove the battery, and re-insert it. Turn on the device. If the problem continues, please contact us to reset your connection and look at the local network in more detail for you.

Chapter 3 : Basic network troubleshooting

To troubleshoot network adapter problems, follow these steps: Use the Ping or PathPing command-line tools to test basic connectivity. Use Ping to isolate network hardware problems and incompatible configurations.

Rather than mashing F5 and desperately trying to reload your favorite website when you experience a problem, here are some ways you can troubleshoot the problem and identify the cause. Ensure you check the physical connections before getting too involved with troubleshooting. Open a Command Prompt window from your Start menu and run a command like ping google. This command sends several packets to the address you specify. The web server responds to each packet it receives. If the web server sometimes takes a much longer amount of time to respond to some of your other packets, this can also indicate a network problem. This problem can be with the website itself unlikely if the same problem occurs on multiple websites, with your Internet service provider, or on your network for example, a problem with your router. Note that some websites never respond to pings. For example, ping microsoft. If this tool says the website is down for just you, that could indicate a number of things. You can use the traceroute command for example, tracert google. The modem is the device that communicates with your Internet service provider, while the router shares the connection among all the computers and other networked devices in your household. In some cases, the modem and router may be the same device. Take a look at the router. If you see a steady, blinking orange light, that generally indicates the problem. The same applies for the modem – a blinking orange light usually indicates a problem. If the lights indicate that either devices are experiencing a problem, try unplugging them and plugging them back in. This is just like restarting your computer. Bear in mind that it may take your modem a few minutes to reconnect to your Internet service provider. If you still experience problems, you may need to perform a factory reset on your router or upgrade its firmware. The problem could be caused by a virus or some sort of malware or an issue with a specific browser. Do an antivirus scan on the computer and try installing a different browser and accessing that website in the other browser. There are lots of other software problems that could be the cause, including a misconfigured firewall. The default DNS servers your network uses are provided by your Internet service provider, and they may sometimes experience problems. However, restarting a flaky router can solve lots of problems.

Network troubleshooting tools are a necessity for every network administrator. When getting started in the networking field, it is important to amass a number of tools that can be used to troubleshoot a variety of different network conditions. While it is true that the use of specific tools can.

Set up wireless network, Advanced settings, and Go offline This column features options for setting up a new connection or modifying the existing connection for your home networking devices. You can select from three buttons in column one. Selecting this button deletes any current wireless settings and prompts you to set up a new wireless device. This saves you from accidental manual entries that could cause issues on a new network. When you get to your new location, select Set up wireless network, select the appropriate router from the list of devices, enter the password, and connect to the network. Select Set up wireless network, select your router from the device list, and enter your password. Advanced settings The Advanced settings screen is generally used only by technical users or support. Go offline The Go offline option is for the offline gamer.. If you are connected to the wired network, only have to disconnect the LAN cable from the back of the console to go offline. However, if you use a wireless connection, the only way to disconnect is to go to the Network screen and select Go offline. Current network status This column displays the current status of your network connection. If you are wireless, it will display a signal-strength indicator to show the approximate strength of your signal. Your NAT allows you two different IP addresses, one for internal traffic and one for external traffic. The third indicator tells you whether all of the Xbox Live services are up and running. If any services are down, this indicator will also detail which ones are down. Service status indicates if any part of the Xbox Live service is down. It also helps you determine if you have to troubleshoot an issue on your network, or if it is our services on Xbox that are the issue. If you see that any service is down, visit the Xbox Service Status page for details on the outage. Troubleshooting Column three offers options for troubleshooting your network performance. This column of buttons is specifically used to troubleshoot any issues related to your network connection. If you see any error message after you run this test, see the Xbox One Network Connection Error Solution for troubleshooting help. Test multiplayer connection If you experience lag, random disconnects, or other game-related network issues, this test helps you identify the issue and works to resolve it. Test multiplayer connection tests anything that might affect your experience while multiplayer gaming on Xbox Live, including IP address, download and upload speeds, packet loss, latency, and MTU see the Detailed network statistics section below for definitions. For more help, see the following pages: Download speed, which is critical for streaming content and playing multiplayer games on Xbox Live. Upload speed, which only affects your ability to play multiplayer games on Xbox Live. Note Upload and download speeds are the result of a speed test and will show you how fast your network can download or upload a file from the Internet to your Xbox One. Download packet loss, which is critical for streaming content and playing multiplayer games on Xbox Live. Upload packet loss, which only affects your ability to play multiplayer games on Xbox Live. This tests your ability to receive the proper number of packets sent. The causes of packet loss include inadequate signal strength at the destination, natural or human-made interference, excessive system noise, hardware failure, software corruption, or overburdened network nodes. Often, more than one of these factors is involved. Checking and adjusting your router settings could quickly resolve many gaming issues if this setting is too low. Latency, which is a networking term for delay of packet delivery. This can affect streaming, but only by an app timing out. In other words, if you have high latency, your game character could be killed before you ever see your opponent on the screen. Wireless strength, which measures the strength of your Internet signal. The closer your signal is to percent, the better your Xbox One connection results will be. Wireless interference that causes low-signal strength is the leading reason for latency and packet loss. This test is designed to test a point in time, so if you remove causes of wireless interference between your router and your Xbox One, you should retest to see what kind of improvement your adjustment made. Status code, which displays any error codes that resulted from the test. Status codes are mostly used by Xbox Support. Bandwidth usage On this screen, the left column shows the current bandwidth usage for the console. In the Time period

section, it also shows the bandwidth for a set date range. You can change the end date for this date range by selecting Reset period on this day. The middle column shows the estimated bandwidth usage for the past 12 hours, and the right column shows the estimated bandwidth for recent months.

Formulate a network troubleshooting plan for solving the problem: Research and/or consider the possible solutions to the problem. Consider the possibility that some solutions to the problem at hand may introduce other problems.

At the command prompt, run the following commands in the listed order, and then check to see if that fixes your connection problem: Type `netsh winsock reset` and press Enter. Type `netsh int ip reset` and press Enter. Roll back the network adapter driver If you were connected before and recently installed a new network adapter driver or installed an update to Windows that might have included an updated driver, rolling back your driver to a previous version might help. In the search box on the taskbar, type Device Manager, and then select Device Manager from the list of results. Press and hold or right-click the network adapter, and then select Properties. Update the network adapter driver An outdated or incompatible network adapter driver can cause connection problems. It can also happen if you recently updated Windows. In either case, check to see if an updated driver is available. Follow the steps, then select Close. If you downloaded an executable. That should be all you need to do. Temporarily turn off firewalls Sometimes firewall software might prevent you from getting connected. You can see if the connection issue is caused by a firewall by turning it off temporarily and then trying to visit a website you trust. Check the documentation for your firewall software to learn how to turn it off. Make sure you turn it back on as soon as you can. Not having a firewall turned on makes your PC more vulnerable to hackers, worms, or viruses. Again, make sure you turn your firewall back on as soon as you can. At the command prompt, type `netsh advfirewall set allprofiles state off`, and then press Enter. Open your web browser and visit a website you trust and see if you can connect to it. To turn on all firewalls you might have installed, at the command prompt, type `netsh advfirewall set allprofiles state on`, and then press Enter. If you find the firewall software is causing the connection issues, contact the software manufacturer or visit their website to check and see if updated software is available. Temporarily turn off any antivirus or malware-prevention software Sometimes antivirus or malware-prevention software might prevent you from getting connected. You can see if the connection issue is caused by antivirus and malware-prevention software by turning it off temporarily and then trying to visit a website you trust. If you find it is causing the connection issues, contact the software manufacturer or visit their website to see if updated software is available. Check the documentation for your software to learn how to turn it off. Make sure you turn it back on as soon as possible. Not having antivirus or malware-prevention software turned on makes your PC more vulnerable to hackers, worms, or viruses. Select the down arrow next to Security. For malware-prevention software, look under Spyware and unwanted software protection. If the antivirus or malware-prevention software is on, check the documentation for that software to learn how to turn it off. Make sure you turn your antivirus or malware-prevention software back on as soon as you can to make sure your PC is better protected. Consider this approach if your network connection stopped working properly after a recent update. Before uninstalling, make sure you have drivers available as a backup. After your PC restarts, Windows will automatically look for and install the network adapter driver. Check to see if that fixes your connection problem. It removes any network adapters you have installed and the settings for them. After your PC restarts, any network adapters are reinstalled, and the settings for them are set to the defaults. Wait for your PC to restart and see if that fixes the problem. Network reset might set each one of your known network connections to a public network profile. In a public network profile, your PC is not discoverable to other PCs and devices on the network, which can help make your PC more secure. Please provide detailed info, such as a description of the problem, screenshots, log files, and any other info that might be helpful. In the Feedback Hub, select the appropriate category and subcategory, for example, Networks and Connecting to a Wi-Fi network.

page 7 WHITEPAPER: NETWORK TROUBLESHOOTING AND PROBLEM IDENTIFICATION the admin identify the network needs and uses of servers and their hosted applications, as well as how the network needs of one IT service impacts another.

The redirector detected a security signature mismatch. The connection has been disconnected. The system detected that network adapter Compaq NC Gigabit NIC was connected to the network, and has initiated normal operation over the network adapter. A single TCPIP event is typical after you restart the computer or after you disable or enable the network adapter. Troubleshooting To troubleshoot network adapter problems, follow these steps: Use the Ping or PathPing command-line tools to test basic connectivity. Use Ping to isolate network hardware problems and incompatible configurations. Use PathPing to detect packet loss over multiple-hop trips. To watch Ping statistics, use the ping -t command. If you detect lost packets in the statistics output, it indicates networking problems up to Open Systems Interconnection OSI layer 3 IP-level connectivity. If the remote system that you ping is across a high-delay link, such as a satellite link, responses may take longer. Use the -w wait switch to specify a longer time-out. Check the event logs for network-card-related entries or connectivity-related entries. For more information, click the following article number to view the article in the Microsoft Knowledge Base: Check other computers that use the same default gateway that are plugged into the same hub or switch. If these computers do not experience network connectivity problems, the problem may be a faulty network adapter on one computer. If this is the case, update the network adapter driver to the latest version. Contact the vendor of each motherboard and update the BIOS of the boards. Some network adapters and motherboards or BIOS versions are incompatible. Check the network adapter and uplink hardware hub or switch for common settings. Make sure that all complementing network resources network adapter, hub, and switch are set to the same speed and duplex level. If the media type is set to autosense, autosensing, or autodetect, or "Auto Select," make sure that all components are autosensing correctly. On some switches, a duplex setting of Auto may cause it to use half-duplex. You may have to force it to use full-duplex. Reset the switch, restart the client, and test the connectivity. Put the client and the server on a passive hub. If communication resumes, the problem may be caused by an incorrect network switch configuration. For more information about how to configure the devices, contact your hardware vendor. Manually set the network adapter of the computer that has connectivity problems to half-duplex and a lower speed. Connect the system to a switch that is configured to half-duplex and Mbps, or use a Mbps hub, to see whether connection can be established at a lower transmission speed. To increase performance, increase the speed settings manually to Mbps, and then restart the computers. Test for network connectivity loss, increase the setting to full-duplex, and then restart the computers. If network loss occurs, reduce the duplex setting and the speed to the previous settings. Swap the network cable between the failing system and the hub or switch. Replace the network adapter with a network adapter that has been tested and proven reliable. To do this, follow these steps: Remove the network adapter diagnostics program. Remove the network adapter in Network properties. Install the new network adapter. Run Network Monitor at the same time on both ends of the network connection. After you filter the traces on the addresses of the two systems, compare both traces to see whether you can see the same traffic. Click Add to Runlist. If frames are missing in one of the traces, check all intermediate cabling, hubs, switches, and routers for hardware or configuration errors. In Network Monitor, view the Capture Statistics summary frame. This frame is the last frame of the trace. If it contains a value other than 0 in the following statistic counters, the connectivity problem may be caused by a hardware or configuration problem: Both must be set to full-duplex or half-duplex. They cannot be mismatched. The computers on a local area network LAN typically share a common full-duplex network medium. This configuration permits two computers to transmit data at the same time. Connectivity problems may occur if either of the following conditions is true: The computer was moved to a new Ethernet switch port that automatically senses network speed. However, the Ethernet switch or the network adapter may not be able to communicate at that rate or may not be able to use full-duplex transmissions. You can improve network

performance in an Ethernet LAN environment by using full-duplex hardware. This configuration permits two-way communication between networked devices. Without full-duplex hardware, information is sent one way and then sent the other way. Packets frequently collide on the network in a half-duplex hardware configuration, and every time a collision occurs, the packets that collided must be resent. This creates even more traffic that can decrease network performance. With full-duplex, transmit and receive paths are separate. Therefore, you can transmit and receive at the same time, and collisions are prevented. Because of the increased throughput and lack of collisions, full-duplex is more susceptible to bad cable terminations or to cable attenuation that exceeds recommended limits. This can generate data retransmissions that become sufficient to degrade performance.

Chapter 7 : Network Settings on Xbox One

To run the troubleshooter for network problems, right-click the network icon in your System Tray and choose Troubleshoot Problems. Once the troubleshooter runs, it could fix issues, find issues but fail to fix them, or find no issues.

First, try restarting your computer, printer and wireless router. Is your printer connected to your network? Read more To check if your printer is connected to your network: Print a Wireless Network Test report from the printer control panel. On many printers pressing the Wireless button allows direct access to printing this report. Consult your manual for instructions. On the Wireless Network Test report check the following: If not, your printer is not connected to any network at this time. Ensure your wireless router is turned on and functioning properly. You may need to connect your printer to your network again. Follow these instructions Check any messages at the top of the report that can help you correct the problem, and follow the instructions shown. If your printer is not connected to your network, you will need to reconnect the printer to your network. Follow these instructions Is your computer connected to your network? Is your network checked? Was anything changed on your computer recently? Read more If you have installed or updated security software, this may block communication. Follow these troubleshooting practices If you have installed new software or updated your operating system recently, consider restoring your system back to a complete system backup or a recently created restore point when the printer worked. Was anything changed or updated on your wireless router recently? Read more If you have replaced your router, you may need to reconfigure your printer to work with the new router settings. To reconfigure your printer, follow these instructions. If your new router was provided to you by your Internet Service Provider ISP , you may need to take special steps to connect your printer. If you have changed the following wireless settings, you may need to reconfigure your printer to work with the new router settings. If you have changed the security type or password, follow these instructions. If you have changed the network name SSID , or hid the name from being broadcast, follow these instructions. If you have enabled MAC address filtering, follow these instructions. If you have enabled Wireless or AP Isolation, this setting will keep wireless devices from communicating with each other over the network. Disable this setting and try again. Read more A VPN is used to make a secure connection to a remote network for example, if you access your work network from home. You will probably not be able to print to your wireless printer while actively connected to a VPN. Temporarily disable your VPN connection and try to print again. Has the IP address on your printer changed? Launch the Printer Software from the Start screen icon for the printer model name or from the tile named for your printer. If they do not match: Click Search to ensure the printer can be found, and then click Save to update your software. In this case, it is recommended that you set a static IP Address on your printer. If you do set a static IP address on the printer, you will have to run the Update IP Address utility again to update the software with the new address. Repeat the process for Fix Scanning. Mac â€” Remove and re-add your printer: Is the printer connected to your network? Read more Print a Wireless Network Test report from the printer control panel to confirm. On many printers pressing the wireless button allows direct access to this report. On the report check the following: Check any messages at the top of the report that can help you correct the problem, and follow the instructions indicated. If your printer is not connected or not connected to your network, you will need to reconnect the printer to your network. Have you installed the printer software yet? If not, follow these instructions. What router settings are you using? Read more Check your router settings. Some advanced router settings may be incompatible with your printer. Many times the default username is admin and the password is password. Check the following settings for your router: These settings might be listed under a section called "Wireless" or "Security"; however every router is different so consult your router documentation or manufacturer for specific details. Other modes may be present, but ensure that If you have a dual band router you must provide a 2. Channel â€” By default most routers have the channel selection set to Auto which allows the router to select the channel. The last page will show networks detected in your area and which channels they are using. Channels 1, 6 and 11 are usually good choices. Manually set the channel on your router to the best channel. Wireless Isolation â€” If enabled, this

setting will keep wireless devices from communicating with each other over the network. Enable the DHCP setting and try again. Guest mode – if your wireless router provides a Guest connection, make sure that neither the printer nor the computer is connected as a Guest. Devices connected to the Guest connection are isolated from other devices. You may also want to check for any firmware updates to your router. Consult your router documentation or manufacturer for details on how to do this. Are you running a firewall or other software security application on your computer? Read more Some security programs will block communication between your printer and your computer. Follow these firewall troubleshooting practices.

Chapter 8 : 7 Simple Steps to Diagnose a Network Problem

Network troubleshooting is the collective measures and processes used to identify, diagnose and resolve problems and issues within a computer network. It is a systematic process that aims to resolve problems and restore normal network operations within the network.

Verify connections Wired Network If this is a wired network, verify that the network cable is properly connected and make sure the LEDs next to the network jack are properly illuminated. For example, a network card with a solid green LED or light usually indicates that the card is either connected or receiving a signal. If the green light is flashing, this is an indication of data being sent or received. With this port, one LED will light up if connected properly and the other will flash when transmitting data. If there are no lights or the lights are orange or red, the card may be bad, not connected properly, or may not be receiving a signal from the network. If you are on a small or local network and have the capability of checking a hub , switch , or router , verify that the cables are properly connected and that it has power. If after checking the connections, the LED indicators appear bad, the network adapter, port, or cable may be defective. Many laptops have a Wi-Fi button that allows the wireless network to be turned on and off. The Wi-Fi button is often located just above the keyboard or on the front edge of the laptop, but it also may be integrated with a F key as well. The pictures to the right are examples of a Wi-Fi button and Wi-Fi indicator on a F key that are enabled. Usually, the network with the strongest connection the most bars will be your wireless router. Finally, when connecting to most wireless networks, you need to enter the proper SSID password to connect to the network. If the incorrect password has been entered, you will not be able to access the network. Adapter functionality Verify that the network card is capable of pinging itself by using the ping command. Windows users can ping the computer from a Windows command line. Unix and Linux users can ping from the shell. To ping the card or the localhost, type either of the following commands: If you receive an error, or the transmission fails, the network card is not physically installed into the computer correctly, has the incorrect or outdated drivers installed, or is defective. Make sure the network card is physically installed in the computer correctly by removing it and re-inserting it again. If the network card is defective, it needs to be replaced. Connect to the router If all of the above steps have been checked, and your network has a router , make sure the computer can connect to the router by performing the below commands. Below are the steps for Microsoft Windows users. Linux users can substitute ipconfig for ifconfig. At the command prompt, type ipconfig and press Enter. You should see output similar to the example below. Ethernet adapter Local Area Connection: Most home routers have a gateway address that starts with Assuming your gateway address is If you do not receive any replies back from the router, either the router is not set up properly, or your connection between the router and the computer is not correct. Reset your router to make sure it is not a problem with your router by following the steps below. Turn off the power to the computer and leave it off. Unplug the power to your router and cable modem or DSL modem. Leave the power cables disconnected for seconds and then plug in your modem and then your router again. Finally, turn on your computer again and repeat this step to see if you can ping your router. If you have a wireless network and followed the above steps, but cannot ping the router, turn the computer off again and connect the computer to the router using a network cable instead of wirelessly. If a wire also does not work, contact the manufacturer of the router for additional support or replacement. Firewall If your computer network utilizes a firewall , make sure all required ports are open, especially port 80, which is the HTTP port. If possible, disable the firewall software or disconnect the computer from the firewall to make sure it is not causing the network problems. Some ISPs, such as Comcast , require special software to be installed. Make sure any software included with your Modem or other hardware has been installed on at least one computer if you are setting up a new Internet connection. If your Internet has been working but recently stopped working, give it a few minutes to make sure it is not a temporary outage. If after waiting a few minutes, you still have problems, and you have not already disconnected the power to your router and modem, follow the steps below. Unplug the power cable to your router and cable modem or DSL modem. Leave the power cables disconnected for seconds, plug in your modem again, and then plug in your router again. Finally,

turn on your computer and see if you can ping your router. If after following the above steps, the Internet is still not working, open the Windows command line and run the below command. If you get a reply, this is an indication that the Internet is working, but you may be encountering a problem with the Internet browser you are using to browse the Internet. Try an alternative browser, such as Firefox or Chrome. Finally, if trying the above steps has not helped, contact your ISP to make sure there is no problem on their end and to assist you further with any special configurations. Additional troubleshooting Another method of determining network issues is to use the `tracert` command if you are a Windows user or the `traceroute` command if you are a Linux or Unix variant user. This command gives you an overview of each of the devices routers a packet travels hops over a network. It can also give you an idea of where a problem exists in your network or outside of your network. To use this command, you must be at the command line and type one of the below commands, depending on your operating system. When the connection fails, determine what device is causing the issue by reviewing the traceroute listing.

14 Essential Network Troubleshooting Tools Tracking down the cause of problems on the network is a form of art, requiring a combination of well-honed skills and indispensable tools. After much practice, network engineers bring a skilled eye to the troubleshooting process, aware of common pitfalls and remediation methods.

Twitter Advertisement Of all the types of problems you can have with your computer, network issues might be one of the worst. After each step, attempt to connect to a web site to verify your connection is working. You can use IsUp. Not just for PCs, but a wide range of devices. Go ahead and reboot your PC, as well as your modem and router. To clear the modem and router caches, wait 60 seconds before you turn them back on again. After a little "power cycle" issue our internet and phone connections are working again. Read More to see if your usual one is damaged. Check Physical Connections Does your problem persist after rebooting? If your laptop has a physical wireless switch check specific tips for fixing wireless connections How to Fix Your Wireless Internet Connection in Windows How to Fix Your Wireless Internet Connection in Windows Are you struggling to get a strong and stable wireless Internet connection? It could be the hardware or Windows itself causing the problem. Here are some troubleshooting tips. If no lights come on after the reboot, the device could be dead. If you get red lights, or a power light but no connection light, your ISP is likely down. Read More that can automatically find and fix issues. To run the troubleshooter for network problems, right-click the network icon in your System Tray and choose Troubleshoot Problems. Once the troubleshooter runs, it could fix issues, find issues but fail to fix them, or find no issues. If the troubleshooter finds a problem that it fixes, try to connect again. So has the Windows network troubleshooter ever actually worked for anyone? On the right side, where you see Connections, click the name of your Wi-Fi or wired network. Choose Properties and double-click internet Protocol Version 4. Repeat this process for internet Protocol Version 6 to ensure that everything is automatic there, as well. Open up a command prompt by typing cmd into the Start Menu. Type ipconfig and look for the text under Ethernet adapter for wired connections or Wireless LAN Adapter for wireless connections. If IPv4 Address starts with Typing the following two commands may resolve this: Try plugging your PC directly into the modem with an Ethernet cable and see if you can get online. If so, your router is the problem. Try a Ping and Trace Its Route If your IP address starts with anything other than when you run ipconfig, you have a valid IP address from your router and the problem is occurring between your router and the internet. Watch it, and if it fails, check to see where the problem occurs. If an error pops up early in the route, the issue is likely with your local network. If this is the case, your next best option is to find out if your ISP is having issues. Using your smartphone will prove useful here, as you can look up an outage map like DownDetector. With all of the different accounts and followers and feeds flying around, it Read More if others in your area are experiencing issues as well. Perhaps line issues are affecting a small area; they will be able to run tests to check. The attack was responsible for taking down or interrupting traffic to a host of popular websites. Read More , none of the above steps helped users get back online. Get Connected These steps are a general template for diagnosing network issues, as your exact setup may differ. In general, respond by restarting everything, seeing if multiple devices are having trouble getting online, and checking to make sure your settings are correct, per the above. Fixed your network problem, but still have a slow wireless connection? These four issues can slow down your network. Let us know if these tips helped you by leaving a comment! Originally written by Karl L. Gechlik on January 16,