# COMMONWEALTH OF PENNSYLVANIA

# HEALTH & HUMAN SERVICES DELIVERY CENTER

# INFORMATION TECHNOLOGY GUIDELINE

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| Name of Guideline:  **Solving First-** | Number: |
| **time Network Connection Problems** | **GDL-ENSS002** |
| Domain: | Category: |
| **Network** | **Wide, Metropolitan and Local Area Network** |
| Date Issued: | Issued by: |
| **05/09/2001** | Dean Schutte, TSO Compute Service Delivery Chief, Health & Human Services Delivery Center |
| Date Revised: |
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**Abstract:**

The Health and Human Services Delivery Center (HHS DC) supports the Departments of Health (DOH), Human Services (DHS), Aging (PDA), Drug and Alcohol Programs (DDAP) and Military and Veterans Affairs (DMVA).

While trying to connect to the Health & Human Services Delivery Center (HHS DC) network from his or her PC for the first time, a user may experience connection problems.

**General:**

The purpose of this document is to provide instructions to you (the PC user) or the PC Technician for troubleshooting PC-to-network connection problems.

If you feel uncomfortable attempting the following actions, you might want to find someone who feels more comfortable working with computers to attempt this for you, or you can contact the helpdesk and ask for assistance from the desktop group.

**Guideline:**

**Troubleshooting First-Time Connection Problems**

Following is a checklist of necessary network connection items. Checking each of these items in the PC may help you troubleshoot the connection problem.

PC Connections

Ethernet Card

Make sure that there is an Ethernet card installed in your PC. Sometimes users mistake a modem for an ethernet card, also known as a Network Interface Card (NIC). A modem uses a phone connection, but an Ethernet card connects to a Local Area Network (LAN). If the place where you plug your cable into your PC has two plugs on the same slot, then it is probably a modem card. Most NIC cards have only one port for connectivity. An ethernet port on the PC may also be “hard wired” into the motherboard of the workstation. When properly connected to the data jack, the NIC will have a flashing green activity LED.

Category 5 Networking Cable

Ensure that you are using a Category 5 networking cable. If the cable plugs into a normal (RJ11) phone jack, it is not a networking cable. The head of a Category 5 networking cable (RJ45) is larger than a phone cable head. If you do have a Category 5 networking cable, is it plugged into the data port of the wall jack? The data side of the jack should have a “D” marked on it and be orange in color. The “V” side of the jack for voice (phone) is beige at most HHS DC offices.

Common Problems from Moving a PC from One Room to Another

Connecting in the Same Network Segment

If the PC was previously connected to another jack in an office on the same network segment, the Internet settings should remain unchanged when moving from one desk’s local jack to another. If the PC is moved to a location where the jacks connect to a different LAN segment, the PC will need to have its IP address changed to be recognized by the new segment’s network switch.

A Building with Multiple Segments

If there are multiple segments in the building, ensure that the network patch panel cable in the data room is moved from the old jack number to the new jack number position. There may be multiple network switches in the data room or closet. Each network switch may represent a different LAN segment or could be grouped together in the same segment. Ensure that the jack position on the data closet patch panel connects to the correct network switch. The IPaddress remains with the PC if that PC is intended to remain on the same segment.

Old and New Wiring in the Building

If there is a combination of older and new wiring in the building, ensure that you are using the correct cables and that you are using the same type cable at the PC as in the data room. HHS DC uses Category 5 network cables from the PC to office wall jack and in the data closet from the data jack patch panels to the network switches. The cabling inside the building from the wall jacks to the data closet patch panels should use CAT5 cabling also. Older wiring installations used Category 3 cabling, which can’t support high bandwidth communications. Inspecting the outer jackets of the cabling mains in the data closets will show CAT5 or CAT3 printed on the insulation.

Have Only One Ethernet Adapter

There should be only one Ethernet adapter listed under Networking Components on the PC. If there are others listed, such as a Dialup Adapter, highlight and remove them in Control Panel. Multiple instances of Ethernet adapters listed in Control Panel in a PC with only one installed Ethernet card could also cause problems with connectivity. There should be only one Ethernet adapter listed in a typical HHS DC desktop PC. Network servers, however, may contain multiple Ethernet adapters because they may employ more than one physical Ethernet card (NIC).

IP Conflict Error Messages

If you get an **IP Conflict** error message, then someone else on the network is using the same IP address that your PC is setup to use.

1. Check under the TCP/IP settings in the network window and make sure you are using the same IP address listed for your PC. If it is not the same, change your IP address to the one as listed.
   1. If you are using the correct IP address, then turn off your PC, wait a few minutes, and turn it back on. If you do not get the error message again, the person who was using your IP address may have realized it and changed it.
   2. If you still get the message, call the Hotline.

Quick Network Test

1. On the PC taskbar, click **Start**, **Programs**, and **MS-DOS prompt**.

The MS-DOS text window will open with a **C:\WINDOWS** box.

1. In the **C:\WINDOWS** box, enter **PING 164.156.57.1**
2. Press Enter.
   1. If you receive a response similar to the following, the PC is properly connected to the network:

**Reply from 164.156.57.1:  bytes =32 time=2ms TTL =254**

* 1. If you receive the message:

**Request timed out**

This means that you are not getting through to the network, but your hardware is probably OK. Either your network setup is incorrect or your connection to the network is broken somewhere.

* + 1. Your Network Settings may be incorrect.
       1. Go through your network setup information again.

One common error is: the default gateway was not properly added (the **Add** button was not clicked after the numbers were entered).

Another common error is:  if there is more than one gateway in the **Installed gateway** list, the connection will not work.

* + 1. You might have the wrong type of cable. Make sure you are using a Category 5 networking cable and not a phone cable. A phone cable will not work with an Ethernet connection. A phone cable is often flat, silver in color and has a four-conductor head (RJ11). A network cable has an eight-conductor head (RJ45), may be a variety of colors (often blue) and is rounded rather than flat.
    2. Your Networking Cable might be defective. Sometimes Category 5 cables are damaged or have manufacturing defects. You might want to try a friend’s cable that you know is working to make sure your cable is working properly.
    3. You might have other network drivers installed that are interfering with the Ethernet card drivers. Check under your network setting and see if you have other adapters listed (such as dialup adapters, AOL adapters, and so forth). If you do, they may be interfering with the Ethernet card drivers, and you must do the following:
       1. Remove the other drivers.
       2. Reboot the system.

Usually when you get any message other than a reply or a time out, your card is either defective or not physically installed correctly, or the wrong software drivers are installed.

The following repairs can get complicated. If you feel uncomfortable attempting these types of actions, you might want to find someone who feels more comfortable working with computers to attempt this for you.

* + 1. To see if the network card is setup properly:
       1. From the PC taskbar, click **Start**, **Settings**,and then **Control Panel**.

The Control Panel screen appears.

* + - 1. Double-click **System**.

The System Properties screen appears.

* + - 1. Click the **Device Manager** tab.

If your card is in the list and has an exclamation point over it, then the card is not installed properly.  If this is the case:

* + - * 1. Select the card and click **Remove**.
        2. Check and see if you have any *unknown devices* listed. If so, select and remove them, as one of them might be your Ethernet card.
        3. Reset your PC using the driver disks Windows asks for. You will need to re-install and setup your Ethernet Connection information after the card is re-installed.
    1. Contact the helpdesk for assistance from the desktop group to correct an improperly installed NIC.
  1. If you receive a reply to the PING command that looks like the reply in 3.a., but Internet Explorer isn't working, there are two things that could be wrong:
     1. The Internet setting under Windows may be trying to use a dial-up connection instead of the network connection.
        1. On the PC taskbar, click **Start**, **Settings**, and then **Control Panel**.

The Control Panel screen appears.

* + - 1. In the Control Panel screen, double-click the **Internet Options** icon.

The Internet Properties screen appears.

* + - 1. Click the **Connections** tab.
      2. Confirm that the **Connect to the Internet using local area network connection** checkbox is selected.

If it is not selected, select it.

* + - 1. Clear the **Proxy Server** checkbox.
      2. Click **OK**.

The Internet Properties screen closes.

* + - 1. Close the Control Panel screen.
    1. The Domain Name Server name may be entered incorrectly.
       1. On the PC taskbar, click **Start**, **Settings**, and then **Control Panel**.

The Control Panel screen appears.

* + - 1. In the Control Panel screen, double-click the **Network** icon.

The Network screen appears.

* + - 1. Highlight the **TCP/IP networking** component and click **Properties**.

**Refresh Schedule:**

All guidelines and referenced documentation identified in this standard will be subject to review and possible revision annually or upon request by the HHS Delivery Center Domain Leads.

**Guideline Revision Log:**

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| --- | --- | --- | --- |
| **Change Date** | **Version** | **Change Description** | **Author and Organization** |
| 05/09/2001 | 1.0 | Initial Creation | DPW |
| 04/04/2002 | 1.1 | Edited for style | Beverly Shultz |
| 08/02/2004 | 1.1 | Reviewed for content – No changes needed | Tom Zarb |
| 07/13/2005 | 1.1 | Reviewed for content – No changes needed | Tom Zarb |
| 01/08/2008 | 1.2 | Doc renamed and placed into new template | Doug Rutter |
| 09/24/2010 | 1.2 | Reviewed content – No changes | Doug Rutter |
| 02/24/2011 | 1.2 | Reviewed content – No changes | Doug Rutter |
| 12/06/2013 | 1.2 | Reviewed content – No changes | Matthew Messinger |
| 04/10/2015 | 1.3 | Updated content. Changed DPW to DHS | Bob Gordon, BIS-DTE |
| 03/07/2016 | 1.3 | Reviewed content – Updated where needed | Bob Gordon, BIS-DTE |
| 07/20/2020 | 1.4 | Reviewed content, Organization Name Change | Bob Gordon, HHS Network |
| 07/28/2020 | 1.4 | Signature removed | M Koerber, HHS TSO |