

Networking Guidelines

Chromatography Technical Note June 2023 TN28

Overview

This technical note provides the guidelines to be followed when connecting a Teledyne ISCO system to a Local Area Network (LAN). These suggestions assume that the system has the most recent version of software. To determine the most recent version, please refer to the software download web site at www.teledyneisco.com/chromatography/chromatography-software-firmware.

Before beginning the process of connecting a system to the network, contact your local IT (Information Technology) department for assistance. The IT representative should review these guidelines before starting and be present through this process to ensure all steps are interpreted correctly. These guidelines, along with their knowledge of the network constraints, will determine if the system can be successfully connected to the network.

Connecting the system to a Network

Before you begin, you may find it helpful to note the required settings on the “*Networking Checklist*” form on [page 5](#).

The instrument can use either a static IP address or a dynamic address assigned from a DHCP server. When accessing the instrument remotely, the instrument is accessed by IP address, not name, so using a static IP or a DHCP connection with a static or infinite reservation is preferred. If DHCP is used without a static or infinite reservation, the IP address may change, causing the instrument to be unavailable. If this happens, the new IP address can be determined by selecting **HELP** at the top of the system **MAIN** screen and selecting **ABOUT PEAKTRAK**.

To use a Static IP:

1. Obtain a static IP address along with the associated netmask and gateway address for the system.
 - This must be supplied by the IT department. This is the easiest and most reliable method to connect the system to a network.
 - Verify that the address assigned is accessible from any PC that will require access to the system remotely. Due to network design, it could be possible that the instrument and the PC are on different sub networks that may lack visibility to the other network of interest.

2. On the system screen, select **TOOLS > CONFIGURATION**, then click on the **NETWORK** tab.
3. At the top of this page, ensure the Network type is set to **STATIC IP**.
4. Enter the IP address, GATEWAY, and SUBNET MASK addresses.
 - The DNS field is not required to control the system over the network and may be left blank. However, the DNS server information may be required on some networks to enable network printing or saving data files to the network. If the DNS is needed, it must be supplied by the IT department.
5. Select **OK** at the bottom of the window. If prompted to do so, turn off the system, wait 1 minute, then turn the system back on.
 - To verify a successful connection to the network, follow the steps below for “Connection with a PC.”

To use the DHCP:

If your site prohibits fixed IP addresses, you may use DHCP for connection. If the DHCP server supports static or infinite reservations the IP address assigned to the system will remain constant. For a static reservation, the IT department will need to know the MAC address of the system. This can be found by selecting **HELP** at the top of the system main screen, selecting **ABOUT PEAKTRAK** and then locating the MAC address field.

Note

DHCP does not allow access to the system by name, but only by IP address.

To configure DHCP:

1. Select **TOOLS > CONFIGURATION**, then click on the **NETWORK** tab.
2. At the top of this screen select **DHCP** for network type.
3. Select **OK** at the bottom of the window. If prompted to do so, turn off the system; wait 1 minute, then turn the system back on.
4. At the top of the system screen, select the **HELP** button and the **ABOUT PEAKTRAK** selection. The IP address will be listed. Write this down since this address is used to identify the system on the network. It can also be entered into a web browser to control the system remotely.

To Connect with a PC

1. Go to a PC which should have access to the system (see instructions above for details).
2. Open a compatible web browser such as Microsoft Edge, Firefox, or Google Chrome. Not every version has been tested for each browser, but the latest versions of all the listed browsers have operated correctly at the time of testing.
3. Enter the IP address into the browser address field and press ENTER. This will display the PeakTrak user interface.

Saving Files to the Network

When this option is configured, the instrument will automatically save a run report to a share on a network server when the run has finished. This file will be in addition to the data normally saved on the instrument.

You may find it helpful to note the required settings on the *"Networking Checklist"* form on **page 5**.

1. Connect the system to the network as described above.
2. Make sure that these network requirements are met:
 - A network share on a Microsoft Windows server that is part of a domain.
 - Windows Server 2008 R2 and newer require the system to have Operating System 2 or newer installed. This may be verified on the HELP option in the ABOUT PEAKTRAK menu.
 - Novell networks are not compatible.
3. Make sure the time zone, date, and time are properly set to the local time on the system. Failure to perform this step will prevent connection to the network. The system clock must be within five minutes of server time to save files to the network.
 - The date and time are set on the system by selecting TOOLS from the top level menu, then by selecting CONFIGURATION.
 - Select the INSTRUMENT CONFIGURATION tab. On this tab, select the time zone and set the proper date and time.
 - The system may automatically synchronize the time with the server. When this is happening, the time and date may be grayed out and unavailable. In this case, be sure that the proper time zone is set.
 - Select OK at the bottom of the window. If prompted to do so, turn off the system, wait 1 minute, then turn the system back on.
4. Obtain login credentials from your IT department. These will be the credentials that the system will need to log into the network. The

credentials will typically be a username and password.

5. Your IT department will need to set up a shared drive on the server for the files.
6. Verify that the shared drive is accessible from the network connection that the system will use. This can be done by connecting a PC to the connection and verifying that the drive can be viewed.
7. When the PC is connected, determine or verify the domain name by right clicking on the computer icon on Windows and select PROPERTIES. The domain name should be listed and written down.
8. The Domain Controller setting may not be needed in all applications. For the initial setup, leave this field blank. The system will attempt to automatically determine the proper settings for the network. If all subsequent steps are followed and the system is unable to save the file, return to this step and attempt to determine the server name. To determine these Domain Controller, on the PC use the RUN or COMMAND PROMPT command which is typically located in the start menu, or under PROGRAMS > ACCESSORIES > COMMAND PROMPT. Type "echo%logonserver%" and press ENTER. The name of the server(s) should be returned. This information should be written down to be entered into the system. Some versions of the software have inputs for KDC and Admin servers instead of the Domain Controller. On those instruments enter the Domain Controller address for both the KDC Server and Admin Server fields.
9. Enter the information determined in the last step into the TOOLS > CONFIGURATION > NETWORKING screens on the system.
 - If using a static IP address, you must enter the IP address of the DNS server. If using DHCP, this step is not needed.
 - Chose a file type for the file to be saved. If "Disabled" is selected, no file will be saved.
 - Some versions of the PeakTrak software support saving files into user folders within the network share. If this box is available and checked, the file will be saved into a folder within the share corresponding to the user currently logged into the instrument. These folders must be manually created and must exactly match the names of the user on the instrument. Do not include the name of the user in the Network Share field.
 - Enter the domain determined with a PC in the previous step. This is usually in a form such as "networkname.company.com"

- Enter the Domain Controller. If entering a name, use the fully qualified name including the domain name, for example, dc.example.com.
 - If applicable, enter the name of an NTP time server in the Time Server field to automatically synchronize the instrument time with the server time.
 - Enter the name of the network share drive, such as “//servername/sharename/foldername”. The server name can be a name or an IP address. If using a name, enter a fully qualified name including the domain name such as server.example.com. The folder name is optional. Even though Windows systems use backslashes in the network share, the instrument software expects forward slashes and will convert them internally when needed to allow the share to work.
 - Enter the username, such as “Mysystem”.
 - Enter the password associated with the user name such as “Iluvmy system8”
10. Press the OK button to save the settings and close the configuration window. Some versions will test the connection automatically and display a success or failure message. If no message is displayed, a short run will need to be performed so that a file is generated and saved to the share.

Connecting a Network Printer

You may find it helpful to note the required settings on the “*Networking Checklist*” form on [page 5](#).

The system supports network printing only if a LPR or JetDirect printer is used.

Note

- Windows shared printers are not supported.
- The system supports network printing only if a LPR or JetDirect printer is used.

Contact the IT department to verify the type of printer used and its URL

1. Set up the system connection on the network as described above.
2. Enter the proper connection URL into the field on the CONFIGURATION>NETWORK screen.
 - For an LPR printer, enter the URL using the format “lpd://ip_address/queue_name”.
 - For a JetDirect printer, enter the URL using the format “socket://ip_address:port”.

The available printer models and features change rapidly, so we do not make recommendations regarding which models to purchase. PeakTrak does not support

loading drivers for specific printers; rather, we use a driver which is more generic and works with many types of printers.

There are a few requirements for using printers with the equipment.

1. It must be connected via an Ethernet network. This may be a direct connection cable or through an office network.
2. It must support JetDirect or LPR networking.
3. It must support PostScript or PCL (PCL5e) formatting.

Care must be taken to ensure that the selected printer meets the requirements above. Many desktop type printers may support networking, but not PostScript or PCL formatting.

Errors and Error Messages

Each potential error or error message is listed with an explanation of causes and solutions below.

Files automatically saved to the network are empty.

- This may be due to an incompatibility between the Windows server software and the operating system. Some versions of the equipment line are available with a different operating system that may correct this issue. These units with the different operating system are designated as “Operating System version: 2” on the HELP > ABOUT PEAKTRAK screen.

The file was unable to be saved to the network share because the share name is incorrect in the configuration window or the share is no longer available.

- This message is displayed when the instrument can’t find the share on the server when trying to save a file.
- This message only occurs if the system is able to establish communication with the server.
- Verify the Network Share field in the configuration window.
- Check with the network administrator to make sure this share exists and is correct.

The file was unable to be saved to the network share because the folder name within the share is incorrect in the configuration window or the share is no longer available.

- This message is displayed when the instrument can’t find the folder in the share on the server when attempting to save a file.
- This message only occurs if the system is able to establish communication with the server.
- Check the Network Share field in the configuration window.

- Verify with the network administrator that the share is correct and exists. This message may appear in conjunction with the network share error message.

The file was unable to be saved to the network share because the user name or password is incorrect.

- This message is displayed when the server does not recognize the username or password.
- Verify that the username and password are correct.
- If entered correctly, check with the network administrator to make sure that the user name and password are correct.

The file was unable to be saved to the network share because of the following error: [x].

- This occurs if the network error is unrecognized by the system.

The file was saved to the network share, but appears to have been corrupted in the process. Please check the file on the network share.

- The system performs an error check on the saved file. The message indicates that the saved file was corrupted.

The file was unable to be saved to the network share because the instrument clock is not synchronized with the server clock. Please restart the instrument to synchronize the clocks.

- This occurs if the system and network times differ by 5+ minutes.
- Verify that the system is set to the proper time zone.
- Follow the steps listed in the procedure to set the system to the correct local time zone, date and time. The system will need to be rebooted for the time changes to be effective.

The file was unable to be saved to the network share because the instrument cannot contact the domain controller. Please check the domain and DNS settings in the configuration window.

- Verify the network cable is connected.
- Verify that the Domain or DNS entries in the configuration screen are correct.
- The network servers may be having problems.

The file was unable to be saved to the network share because the instrument cannot contact the server. Please check the server name in the Share Name entry and the DNS settings in the configuration window.

- Verify the network cable is connected.
- Verify that the Domain or DNS entries in the configuration screen are correct.
- The network servers may be having problems.

The file was unable to be saved to the network share because the given user does not have permission to access the share or folder within the share.

- Check with the network administrator to make sure that the permissions are correct.

Networking Checklist

Click on TOOLS > CONFIGURATION >
NETWORK CONFIGURATION

Figure 1: Network Configuration screen

Network Settings:

1. Network type: Static or DHCP (circle one) For Static you need the following four settings
 - a. IP Address _____
 - b. NetMask _____
 - c. Gateway _____
 - d. DNS Server _____

Network Printer Settings:

1. Printer type: PostScript or PCL (circle one)
Note: PCL = PCL5e
2. Connection URL _____

Network File Save Settings:

1. File Type:
 - a. Disabled (will not save to network)
 - b. Text (XML Data)
 - c. PDF
 - d. PDF and Text (only available on some versions)
 - e. Run Monitor (Text file indicating a run was performed)
2. Domain: _____
Name of the domain
3. Domain Controller: _____
IP address or fully qualified name of domain controller
4. Network Share: _____
Name of file storage location
5. Username: _____
Network share access username
6. Password: _____
Network share access password
7. Time Server: _____
Address of an NTP time server

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