

# QuantStudio™ 6 Pro Real-Time PCR System and QuantStudio™ 7 Pro Real-Time PCR System Connectivity

Pub. No. MAN0018431 Rev. E.0

This quick reference provides instructions on how to modify your connectivity settings on the QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems after installation by a field service engineer (FSE). Contact support to schedule installation by an FSE. To prepare your site for instrument installation, see the *QuantStudio™ 6 Pro Real-Time PCR System and QuantStudio™ 7 Pro Real-Time PCR System Site Preparation Guide* (Pub. No. MAN0017992).

## Network and password security requirements

### Network configuration and security

The network configuration and security settings of your laboratory or facility (such as firewalls, anti-virus software, network passwords) are the sole responsibility of your facility administrator, IT, and security personnel. This product does not provide any network or security configuration files, utilities, or instructions.

If external or network drives are connected to the software, it is the responsibility of your IT personnel to ensure that such drives are configured and secured correctly to prevent data corruption or loss. It is the responsibility of your facility administrator, IT, and security personnel to prevent the use of any unsecured ports (such as USB, Ethernet) and ensure that the system security is maintained.

### Password security

Thermo Fisher Scientific strongly recommends that you maintain unique passwords for all accounts in use on this product. All passwords should be reset upon first sign in to the product. Change passwords according to your organization's password policy.

It is the sole responsibility of your IT personnel to develop and enforce secure use of passwords.

### Recommendations for passwords

Thermo Fisher Scientific recommends enabling a password policy for SAE user accounts with the following minimum number of characters:

- Administrative users: 12 characters
- Non-administrative users: 8 characters

The use of a password manager is recommended in order to help to create secure passwords.

## Connectivity

Before reviewing the connectivity options available on the Applied Biosystems™ QuantStudio™ 6 Pro Real-Time PCR System and QuantStudio™ 7 Pro Real-Time PCR System, have your network specialist or IT specialist complete the *QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems IT Checklist* (Pub. No. MAN0018160). This checklist must be completed before installation and training by Thermo Fisher Scientific can be scheduled. To determine the configuration for your instrument and the necessary network information, see "Networking" on page 8.

## Connect the computer to the instrument directly or to a LAN

This section describes direct wired connection of the computer provided by Thermo Fisher Scientific to the instrument or to a local area network (LAN).

Do not connect a customer-provided computer to the instrument.

1. Connect an Ethernet cable from the instrument or a LAN to the computer.
2. Power on the computer, then log in using a Windows™ Administrator account.
3. Open the **Control Panel**, then open the **Network and Sharing Center**.
4. In the left pane of the **Network and Sharing Center** window, click **Change Adapter Settings**.
5. Right-click **Broadband Connection**, then select **Properties**.
6. In the **Networking** tab, select **Internet Protocol Version 4 (TCP/IPv4)**.
7. Click **Properties**.
8. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, select one of the following options.
  - **Obtain an IP address automatically**
  - **Use the following IP address**
9. If **Use the following IP address** was selected, enter the *IP address*.
10. Close all dialog boxes by clicking **OK**, then re-start the computer.

## Connect the instrument to a wired network

1. In the home screen, tap ⚙️ (**Settings**) ▶ **Instrument settings** ▶ **Network configuration**.

The **Network Configuration** screen is displayed.

2. Tap **Edit**.

The fields are now editable.

3. Tap one of the active fields under the **Wired** option.

The **Network Connection** screen is displayed.

4. Select a wired network connection.

Wired network connection	Action
DHCP	No further action is required.
Static IP	<ol style="list-style-type: none"> <li>a. In the <b>IP Address</b> field, enter the static IP address.</li> <li>b. If necessary, enter a subnet mask.</li> <li>c. If necessary, enter a static gateway address in the <b>Default Gateway</b> field.</li> </ol>

5. Tap **Done**.

The **Network Configuration** screen is displayed. The *Status* and *IP Address* fields under the **Wired** option have the information from the selected wired network.

6. Tap **Done**.

This instrument is now connected to the selected wired network.

## Connect the instrument to a wireless network

Depending on the configuration of the network, the password for the network needs to be entered.

1. In the home screen, tap ⚙️ (**Settings**) ▶ **Instrument settings** ▶ **Network configuration**.

The **Network Configuration** screen is displayed.

2. Tap **Edit**.

The fields are now editable.

3. Tap one of the active fields under the **Wireless** option.
4. Select a wireless network to connect to the instrument.
5. (Optional) Tap **Refresh** to prompt the instrument to search for available wireless networks.
6. Tap **Done**.

The **Network Configuration** screen is displayed.

The **Status** field, the **Network** field, and the **IP Address** field under the **Wireless** option are populated with the information from the selected wireless network.

7. Tap **Done**.

This instrument is now connected to the selected wireless network.

## Connect a proxy server

A proxy server sits between the instrument and the main server. The proxy server intercepts requests to the main server and evaluates if it can complete the request. If it cannot fulfill the request, it will forward the request to the main server.

Consult your Network or IT specialist before linking the instrument to a proxy server.

1. In the home screen, tap  (**Settings**) ▶ **Instrument settings** ▶ **Proxy server**.

The **Network Configuration** screen is displayed.

2. Tap each field to enter the required information.

- **Proxy server**
- **Proxy port**
- **User name**
- **Password**

3. Tap **Done**.

The instrument is connected to the specified proxy server.

## Connect to a network drive

When importing or exporting files from and to a network drive, you are prompted to specify the network drive location and information.

If the instrument is already connected to a network drive, the folder structure of the network drive is displayed.

The network drive can be identified by the IP address of the computer. It can be identified by the domain name system (DNS) name for v1.5.0 or later.

Set up the network drive as a shared folder (see “Create a shared network folder” on page 4).

If the network drive is identified by the IP address of the computer, determine the IP address of the computer (see “Determine the IP address of the computer” on page 4).

If the network drive is identified by the DNS name, determine the DNS name (see “Determine the DNS name” on page 4).

1. In the **Network Destination** screen, tap **Network drive**.

2. Select the drive location.

The drive location is required.

For IP address, the drive location is <IP address>/<folder name>.

For DNS name, the drive location is <DNS>/<folder name>.

3. Enter the following information, then tap **Connect**.

- **Domain name**
- **Username**

- **Password**

The domain name, username, and password can be required, depending on the network requirements.

The username and password are for the network. They are not the username and password for the instrument.

4. Click a folder to import a file from or to export a file to.

If there are folders nested within the top-level folder, continue to click the folders until the correct folder is displayed for import or export of a file.

5. Tap the appropriate button to import the file from the network drive or export the file to the network drive.

## Create a shared network folder

Files can be transferred from the instrument to a folder on the network.

The folder on the network must be set up as a shared folder.

1. To designate a folder as shared, right-click on the folder, then click **Properties**.
2. In the **Properties** dialog box, click the **Sharing** tab.
3. Click **Advanced Sharing**.
4. In the **Advanced Sharing** dialog box, select the **Share this folder** checkbox, then click **Permissions**.
5. Ensure that **Everyone** is selected in the **Group or user name** field.
6. Ensure that the checkboxes for **Allow** are selected for the permissions.  
The permissions are **Full Control**, **Change**, and **Read**.
7. In the **Permissions** dialog box, click **OK**.
8. In the **Advanced Sharing** dialog box, click **Apply** ▶ **OK**.
9. In the **Properties** dialog box, click **Close**.

## Determine the IP address of the computer

1. In Windows™ search bar, enter *cmd* to open the **Command Prompt**.
2. In the **Command Prompt**, enter *ipconfig/all*, then press **Enter**.
3. Locate the **IPv4 Address**.

The IP address is listed on the **IPv4 Address** line.

## Determine the DNS name

1. In the Windows™ search bar, enter *cmd* to open the **Command Prompt**.
2. In the **Command Prompt**, enter *ipconfig/all*, then press **Enter**.
3. Locate the DNS names.

The text indicating the DNS names might be different, depending on the configuration. The text **DNS** is displayed and there might be more than one field for the DNS names. Contact your IT administrator for assistance to determine the correct DNS name.

## Connect the instrument to the Thermo Fisher™ Connect Platform

**IMPORTANT!** If you sign in with a local profile, without linking to the cloud, sign out, then link using **Get Started ▶ Connect**, you can potentially have two local instrument profiles with different names. Plate and data files that are created when signed in with one local instrument profile are not accessible when signed in with another local instrument profile. For more information about local and Thermo Fisher™ Connect Platform profiles, see the *QuantStudio™ 6 Pro Real-Time PCR System and QuantStudio™ 7 Pro Real-Time PCR System User Guide* (Pub. No. MAN0018045).

### Thermo Fisher™ Connect Platform definitions

The terms Connect, Cloud, Thermo Fisher Connect, Thermo Fisher Cloud, and Thermo Fisher Connect Platform are used interchangeably on the instrument touchscreen. The terms Thermo Fisher™ Connect Platform and Connect are used in this document.

The following icons are used interchangeably on the instrument touchscreen:

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The  icon is used in this document.

### View the privacy policy for the Thermo Fisher™ Connect Platform

1. In the home screen, tap  **(Settings) ▶ Maintenance and service ▶ Connect services**.  
The **Connect Services** screen is displayed.
2. Tap **Privacy**.  
The privacy policy is displayed.
3. Tap **Close**.

### Test the connection to the Thermo Fisher™ Connect Platform

1. In the home screen, tap  **(Settings) ▶ Maintenance and service ▶ Connect services**.  
The **Connect Services** screen is displayed.
2. Tap **Test connection**.  
If the connection can be established, **You are able to connect to the Connect platform** is displayed.  
If the connection cannot be established, **Unable to connect** is displayed.
3. Tap **Close**.

### Link the instrument to your Thermo Fisher™ Connect Platform account

This section describes using your Thermo Fisher™ Connect Platform account when you use the instrument for the first time.

The first time you use your Thermo Fisher™ Connect Platform account on an instrument, you will be prompted to create a four-digit numerical PIN. This PIN is to use when signing in to the instrument with your Thermo Fisher™ Connect Platform account. It will apply to all other instruments when you use your Thermo Fisher™ Connect Platform account. This does not change the password when signing in to your Thermo Fisher™ Connect Platform account on a browser.

After the PIN is set up on the instrument, it must be changed with your Thermo Fisher™ Connect Platform account on a browser.

The first time the instrument is used with a Thermo Fisher™ Connect Platform account, a region must be selected.

1. In the **Sign In** screen, tap **Get started ▶ Connect**.
2. (Optional) Select the appropriate region.

Option	Description
China	For users in China
U.S.	For users in any country other than China

3. Tap a connection option.

Option	Action
 <b>Mobile devices</b>	<p><b>Note:</b> Before selecting this option, install and sign in to the InstrumentConnect application on your mobile device.</p> <p>On the instrument:</p> <ol style="list-style-type: none"> <li>Tap  <b>Mobile devices</b>.</li> <li>Hold the camera on your mobile device over the QR code that is displayed on the touchscreen.</li> <li>Tap <b>Close</b>.</li> </ol>
 <b>PC</b>	<p>A link code is displayed on the instrument.</p> <p>On a computer:</p> <ol style="list-style-type: none"> <li>Access the Thermo Fisher™ Connect Platform.</li> <li>Click <b>Add instrument</b>.</li> <li>Select <b>QuantStudio</b>.</li> <li>Enter the link code.</li> </ol>

- (Optional) In the **Enter PIN** screen, tap the **PIN (4 digits required)** field, enter a four-digit numerical PIN, then tap **Enter**. Tap the **Show PIN** checkbox to show or hide the PIN.
- (Optional) Tap the **Confirm PIN** field, enter the four-digit numerical PIN again, then tap **Enter**.
- Tap **Done**.

### Link a local profile to a Thermo Fisher™ Connect Platform account

This section describes linking a local instrument profile to a Thermo Fisher™ Connect Platform account, if a local instrument profile was created first.

The first time you use your Thermo Fisher™ Connect Platform account on an instrument, you will be prompted to create a four-digit numerical PIN. This PIN is to use when signing in to the instrument with your Thermo Fisher™ Connect Platform account. It will apply to all other instruments when you use your Connect account. This does not change the password when signing in to your Thermo Fisher™ Connect Platform account on a browser.

After the PIN is set up on the instrument, it must be changed with your Thermo Fisher™ Connect Platform account on a browser.

The first time the instrument is used with a Thermo Fisher™ Connect Platform account, a region must be selected.

(Optional) Test the connection (see “Test the connection to the Thermo Fisher™ Connect Platform” on page 5).

- In the home screen, tap  (**Profile**).  
The **My Profile** screen is displayed.
- Tap **Edit ▶ Link**.  
The **Connect to Connect Platform** screen is displayed.
- (Optional) Select the appropriate region.

Option	Description
China	For users in China
U.S.	For users in any country other than China

4. Tap a connection option.

Option	Action
 <b>Mobile devices</b>	<b>Note:</b> Before selecting this option, install and sign in to the InstrumentConnect application on your mobile device. On the instrument: a. Tap  <b>Mobile devices</b> . b. Hold the camera on your mobile device over the QR code that is displayed on the touchscreen. c. Tap <b>Close</b> .
 <b>PC</b>	A link code is displayed on the instrument. On a computer: a. Access the Thermo Fisher™ Connect Platform. b. Click <b>Add instrument</b> . c. Select <b>QuantStudio</b> . d. Enter the link code.

5. (Optional) In the **Enter PIN** screen, tap the **PIN (4 digits required)** field, enter a four-digit numerical PIN, then tap **Enter**. Tap the **Show PIN** checkbox to show or hide the PIN.
6. (Optional) Tap the **Confirm PIN** field, enter the four-digit numerical PIN again, then tap **Enter**.
7. Tap **Done**.

## Download and install the desktop software

### Computer requirements for the desktop software

QuantStudio™ Design and Analysis Software v2 can be installed on a customer-provided computer. The following list contains the minimum software requirements for a customer-provided computer.

- Operating system—Windows™ 10 (64-bit) or Macintosh™ OS 10.01
- Processor—Intel™ Core™ or compatible
- Memory—4 GB RAM
- Hard drive—10 GB
- Monitor—1280 × 1024 resolution

### Download the desktop software

1. Go to [thermofisher.com/qpcrsoftware](https://thermofisher.com/qpcrsoftware).
2. Select the link for the QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems.
3. Download QuantStudio™ Design and Analysis Software v2.  
The example files are included in the software.

### Install the desktop software

If you ordered a computer supplied by Thermo Fisher Scientific, the field service engineer will configure the computer and install QuantStudio™ Design and Analysis Software v2 during system installation.

1. Use an administrator account to log in to the computer on which you are installing the desktop software.
2. Unzip the downloaded software.  
The example files are included in the software.
3. Double-click **setup.exe**.
4. Follow the **InstallShield Wizard** prompts to install the software.
5. Accept the license agreement.

6. Select **Typical** as the setup preference, then click **Next**.

7. Click **Finish**.

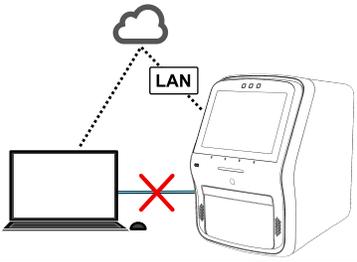
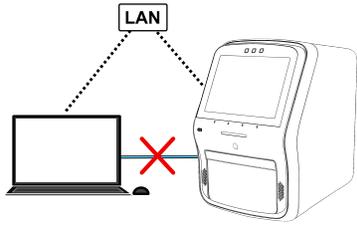
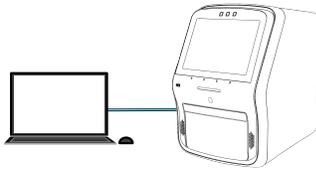
## Networking

**IMPORTANT!** This section provides general networking information. It *does not* provide adequate detail to integrate the instrument into all possible network architectures. Because a network may contain advanced features (such as a firewall or network domains), we recommend that you consult a network administrator before connecting the instrument to your laboratory network.

### Supported options for instrument and computer connections

We support the following direct, networked (LAN–local area network), or Thermo Fisher™ Connect Platform configurations. Configurations other than those listed are not recommended. Select a configuration that meets the needs of your laboratory's instrument, software, and workflow requirements.

**Note:** For detailed information about networking your instrument, see the *QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems IT Checklist* (Pub. No. MAN0018160).

Thermo Fisher™ Connect Platform connection	
<ul style="list-style-type: none"><li>• Internet access and a computer with the Chrome™ web browser to access the Connect platform.</li><li>• Computer-to-Thermo Fisher™ Connect Platform connection (<i>select an option</i>):<ul style="list-style-type: none"><li>– Wired connection to the internet using an Ethernet cable –or–</li><li>– Wireless connection to the internet</li></ul></li><li>• Instrument-to-Thermo Fisher™ Connect Platform connection (<i>select an option</i>):<ul style="list-style-type: none"><li>– Wired connection to the network using an Ethernet cable –or–</li><li>– Wireless connection to the network using the instrument Wi-Fi module</li></ul></li></ul>	
Local area network (LAN) connection	
<ul style="list-style-type: none"><li>• A computer provided by Thermo Fisher Scientific with QuantStudio™ Design and Analysis Software v2.</li><li>• The computer and instrument must be on the same subnet mask.</li><li>• Computer-to-LAN connection (<i>select an option</i>):<ul style="list-style-type: none"><li>– Wired connection to the network using an Ethernet cable –or–</li><li>– Wireless connection to the network</li></ul></li><li>• Instrument-to-LAN connection (<i>select an option</i>):<ul style="list-style-type: none"><li>– Wired connection to the network using an Ethernet cable –or–</li><li>– Wireless connection to the network using the instrument Wi-Fi module</li></ul></li></ul>	
Direct connection	
<ul style="list-style-type: none"><li>• A computer provided by Thermo Fisher Scientific with QuantStudio™ Design and Analysis Software v2.</li><li>• Computer-to-instrument connection: Direct, wired connection between the computer and the instrument using an Ethernet cable.</li></ul> <p><b>IMPORTANT!</b> A direct instrument-to-computer connection <i>cannot</i> be combined with LAN or Thermo Fisher™ Connect Platform configurations.</p>	

## Additional information about connection options

**Thermo Fisher™ Connect Platform connection (recommended):** Allows access to features available on the Thermo Fisher™ Connect Platform and enables instrument features such as Smart Help, voice commands, and remote run monitoring on a smart phone. This configuration includes support for Macintosh™ and Windows™ operating systems and does not require a computer provided by Thermo Fisher Scientific. Multiple customer-provided computers can be connected to the instrument via the Thermo Fisher™ Connect Platform.

**Local area network (LAN) connection:** Enables data sharing and run monitoring within the network. Instrument features such as Smart Help, voice commands, and remote run monitoring on a smart phone are not enabled with this setup. This configuration includes support for Macintosh™ and Windows™ operating systems and does not require a computer provided by Thermo Fisher Scientific. Multiple customer-provided computers can be connected to the instrument via the network.

**Direct connection:** A conventional system setup that requires a dedicated computer provided by Thermo Fisher Scientific. No networking capability required. Instrument features such as Smart Help, voice commands, and remote run monitoring on a smart phone are not enabled with this setup.

## Network requirements

The instrument is factory-configured for IPv4 TCP/IP communication and uses an Ethernet adapter (100/1,000 Mbps) with an RJ45-type connector for local area network (LAN) connection.

If the instrument will be installed by a service representative:

- (LAN connection only) An active, tested network jack must be in place before the scheduled installation date.
- The assigned IT or network specialist from your organization must be available during the installation to help connect the instrument to your network.

## Monitor instruments

- The status of the instrument can be viewed in QuantStudio™ Design and Analysis Software v2. If the instrument is running, the time remaining in the run is displayed.
- The calibration status and calibration details of the instrument can be viewed in QuantStudio™ Design and Analysis Software v2.
- A template file can be sent from the QuantStudio™ Design and Analysis Software v2 to the instrument run queue.

The functions are also available in QuantStudio™ Design and Analysis v2 (Thermo Fisher™ Connect Platform).

## Networking guidelines and best practices

- Consult a network administrator before connecting the instrument to a network.
- To enable the full functionality of the software, the computer requires a network connection.
- Open the firewall port for the instruments to be discovered. See “Firewall ports that must be open” on page 9.
- Observe the restrictions to mDNS and Autodiscovery.  
The instrument supports mDNS but only when the instrument and computer share a direct network connection and are within the same subnet. Network computers that are separated from the instrument by a router, hub, or another network device may not be able to access the instrument by its host name.
- Confirm the uniqueness of the instrument name.
  - The instrument name must be unique within the subnet. The desktop software can automatically discover instruments on the link-local network.
  - The instrument does not test the uniqueness of the instrument name within the subnet when it is set.

## Firewall ports that must be open

Ports	Condition
80/443	Standard ports for instrument-to-Thermo Fisher™ Connect Platform and computer-to-Thermo Fisher™ Connect Platform connections
mDNS, 7443	Instrument-to-computer connection
mDNS, 5353	Instrument discovery

## Ethernet port overview

The Ethernet port of the instrument supports:

- Static IP network service with subnet mask, primary and secondary data network service (DNS), and default gateway settings, or dynamic host configuration protocol (DHCP) network service.
- mDNS/DNS for local domains.

**Note:** Because mDNS is limited to direct network connections, an instrument configured for mDNS may not be visible to other nodes that are separated by a router, hub, or another network device.

- IPv4 link-local (IPv4LL) in the RFC (also known as Automatic Private IP Addressing [APIPA] or Internet Protocol Automatic Configuration [IPAC]).

**Note:** When an instrument is set for DHCP, APIPA is automatically enabled, and the instrument provides an IP address when no address is supplied by the DHCP server.

### Third-party software

Before installing third-party software on the computer running QuantStudio™ Design and Analysis Software v2, confirm that the third-party software will not do the following:

- Restrict Ethernet communication.
- Interfere with instrument or computer operation.

### Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at [www.thermofisher.com/us/en/home/global/terms-and-conditions.html](http://www.thermofisher.com/us/en/home/global/terms-and-conditions.html). If you have any questions, please contact Life Technologies at [www.thermofisher.com/support](http://www.thermofisher.com/support).



**Revision history:** Pub. No. MAN0018431 E.0

Revision	Date	Description
E.0	13 December 2023	<ul style="list-style-type: none"> <li>The reference to the safety and biohazard guidelines in the <i>QuantStudio™ 6 Pro Real-Time PCR System and QuantStudio™ 7 Pro Real-Time PCR System User Guide</i> (Pub. No. MAN0018045) was removed. This connectivity quick reference does not cover instrument use. It covers only networking and connectivity.</li> <li>The licensing information was updated.</li> <li>Recommendations for passwords were added.</li> <li>The instructions to connect the computer to the instrument directly or through a LAN were updated.</li> <li>The following instructions were added:               <ul style="list-style-type: none"> <li>Connect to a network drive</li> <li>Create a shared network folder</li> <li>Determine the IP address of the computer</li> <li>Determine the DNS name</li> </ul> </li> <li>The information about monitoring instruments was updated ("Monitor instruments" on page 9).</li> <li>The instructions to link an instrument to the Thermo Fisher™ Connect Platform were updated. The connection option from the instrument is not available.</li> <li>The computer requirements were updated.</li> </ul>
D.0	7 January 2020	v1.2.1 <ul style="list-style-type: none"> <li>Changed port 7000 to 7443 for instrument-to-computer connection.</li> <li>Added instructions to test the connection to the Thermo Fisher™ Connect Platform and to view the privacy policy for the Thermo Fisher™ Connect Platform.</li> </ul>
C.0	15 October 2019	v1.2.0 <ul style="list-style-type: none"> <li>Added instructions to create a four-digit PIN when using a Thermo Fisher™ Connect Platform profile.</li> <li>Added instructions to select a region when linking the instrument to the Thermo Fisher™ Connect Platform.</li> <li>Added instructions to connect to a proxy server.</li> <li>Added network and password security requirements.</li> </ul>
B.0	8 May 2019	Removed instructions to connect to a proxy server (v1.0.1).
A.0	29 April 2019	New document (v1.0.1).

The information in this guide is subject to change without notice.

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