

QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems Connectivity

Pub. No. MAN0018431 Rev. D.0

Note: For safety and biohazard guidelines, see the “Safety” appendix in the *QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems User Guide* (Pub. No. MAN0018045). Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

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 and 7 Pro Real-Time PCR Systems 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.

Connectivity

Before reviewing the connectivity options available on the Applied Biosystems™ QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems, have your Network 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 7.

Connect the instrument to a wired network

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

The **Network Connections** screen is displayed.

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

- Select a wired network connection:

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

- Tap **Done**.

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

- Tap **Done**.

This instrument is now connected to the selected wired network.

Connect the instrument to a wireless network

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

The **Network Connections** screen is displayed.

- Tap **Edit**.

- Tap one of the active fields found under the **Wireless** option.

- Select a wireless network to connect to the instrument.

- (Optional)* Tap **Refresh** to prompt the instrument to search for available wireless networks.

- Tap **Done**.

The **Network Connections** screen is displayed. The **Status**, **Network**, and **IP Address** fields under the **Wireless** option are filled with the information from the selected wireless network.

- 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.

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

The **Network Configuration** screen is displayed.

- Tap each field to enter the required information.

- Proxy server
- Proxy port
- User name
- Password

- Tap **Done**.

The instrument is connected to the specified proxy server.

Connect the instrument to the Connect cloud-based 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 Connect profiles, see the *QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems User Guide* (Pub. No. MAN0018045).

Connect and Cloud definitions


The terms Connect, Cloud, Thermo Fisher Connect, and Thermo Fisher Cloud are used interchangeably on the instrument touchscreen. The term Connect is 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 Connect cloud-based 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 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** will be displayed.
If the connection cannot be established, **Unable to connect** will be displayed.
3. Tap **Close**.

Link the instrument to your Connect account

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

The first time you use your Connect 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 Connect 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 Connect account on a browser.





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

The first time the instrument is used with a Connect 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
 Mobile devices	<p>Note: Before selecting this option, install and sign in to the Connect application on your mobile device.</p> <p>On the instrument:</p> <ol style="list-style-type: none"> 1. Tap  Mobile devices. 2. Hold the camera on your mobile device over the QR code that is displayed on the touchscreen. 3. Tap Close.
 PC	<p>A link code is displayed on the instrument.</p> <p>On a computer:</p> <ol style="list-style-type: none"> 1. Access the Connect platform. 2. Click Add instrument. 3. Select QuantStudio. 4. Enter the link code.
 Instrument	Enter your Connect account information, then tap Link account .

4. (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.
5. (Optional) Tap the **Confirm PIN** field, enter the four-digit numerical PIN again, then tap **Enter**.
6. Tap **Done**.

Link a local profile to a Connect profile


This section describes linking a local instrument profile to a Connect profile, if a local instrument profile was created first.

The first time you use your Connect 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 Connect 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 Connect account on a browser.

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





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

(Optional) Test the connection (see “Test the connection to the Connect platform” on page 3).

1. In the home screen, tap  (**Profile**).
The **My Profile** screen is displayed.
2. Tap **Edit ▶ Link**.
The **Connect to Connect Platform** screen is displayed.
3. (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
 Mobile devices	<p>Note: Before selecting this option, install and sign in to the Connect application on your mobile device.</p> <p>On the instrument:</p> <ol style="list-style-type: none"> 1. Tap  Mobile devices. 2. Hold the camera on your mobile device over the QR code that is displayed on the touchscreen. 3. Tap Close.
 PC	<p>A link code is displayed on the instrument.</p> <p>On a computer:</p> <ol style="list-style-type: none"> 1. Access the Connect platform. 2. Click Add instrument. 3. Select QuantStudio. 4. Enter the link code.
 Instrument	<p>Enter your Connect account information, then tap Link account.</p>

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**.

Connect the computer

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 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. In the Windows™ desktop, right-click **My Network Places ▶ Properties**.
4. Right-click **Local Area Connection**, then select **Properties**.
5. Select **Internet Protocol (TCP/IP) ▶ Properties**.
6. Set the Internet Protocol (TCP/IP) Properties for either DHCP or Static IP communication:

Network configuration	Action
DHCP	<ol style="list-style-type: none"> 1. Select Obtain an IP address automatically. 2. Set the DNS address. If the computer obtains DNS addresses: <ul style="list-style-type: none"> • Automatically – Select Obtain DNS server address automatically. • Statically – Select Use the following DNS address, then enter the address of the preferred and alternate DNS servers (if available).
Static IP	<ol style="list-style-type: none"> 1. Select Use the following IP address. 2. In the IP Address field, enter the static IP address. 3. If necessary, enter a subnet mask. 4. If necessary, enter a static gateway address in the Default Gateway field.

7. If your network requires advanced TCP/IP setup (such as WINS), define the settings:

- a. Click **Advanced** in the Internet Protocol (TCP/IP) Properties dialog box.

- b. Define the IP Settings, DNS, and WINS tabs as instructed by your systems administrator, then click **OK**.
8. Close all dialog boxes by clicking **OK**, then re-start the computer.
The computer is now visible to other computers on the network.

Download and install the desktop software

Computer requirements for the desktop software

The desktop software 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—Pentium® 4 processor or comparable
- Memory—4 GB RAM
- Hard drive—10 GB
- Monitor—1280 × 1024 resolution

Download the desktop software

1. Go to thermofisher.com/qpcrsoftware.
2. Select the link for the QuantStudio™ 6 Pro and 7 Pro Real-Time PCR Systems.
3. Download the software.

The example files are embedded 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 the desktop software 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 embedded 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**.

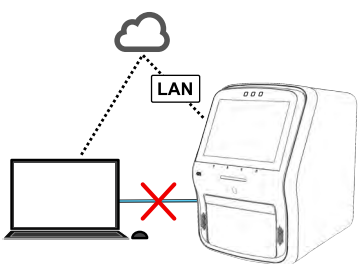
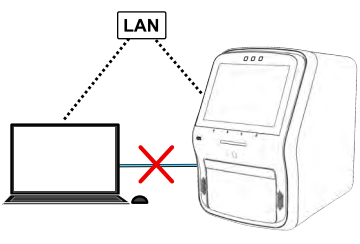
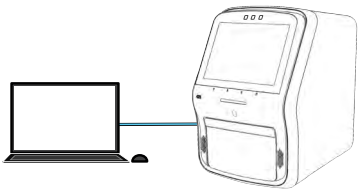
Networking

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 Connect cloud-based 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).

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

Additional information about connection options

Connect cloud-based platform connection (recommended): Allows access to features available on the 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 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.

Control and monitor networked instruments

The following items apply when the instrument is connected to a network:

- Computers on the network that are running the desktop software can control the instrument. Networked instruments can be controlled by only one computer at a time.
- Instruments linked to the Connect cloud-based platform cannot be controlled remotely. The following functions can be performed:
 - Remotely access the Connect cloud-based platform to create plate files and analyze data files.
 - Send plate files to the instrument run queue, then start a run from the instrument.
 - Monitor a run in real-time from the Connect cloud-based 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 8.
- 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-Connect platform and computer-to-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 linklocal (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

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Life Technologies Holdings Pte Ltd | Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256
For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

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Revision history: Pub. No. MAN0018431

Revision	Date	Description
D.0	7 January 2020	v1.2.1 <ul style="list-style-type: none">• Changed port 7000 to 7443 for instrument-to-computer connection.• Added instructions to test the connection to the Connect cloud-based platform and to view the privacy policy for the Connect platform.
C.0	15 October 2019	v1.2.0 <ul style="list-style-type: none">• Added instructions to create a four-digit PIN when using a Connect profile.• Added instructions to select a region when linking the instrument to the Connect platform.• Added instructions to connect to a proxy server.• Added network and password security requirements.
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).

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