QIAsphere® User Manual

QIAsphere
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Appendix A – Technical Data

Appendix B – IT Prerequisites for Using QIAsphere

Document Revision History
1 Introduction

Before connecting your QIAsphere-ready instrument to QIAsphere Cloud and using the QIAsphere Base, it is essential that you read this user manual carefully and pay attention to the safety information.

QIAsphere connects customers with our comprehensive digital ecosystem to deliver a unique user experience and improve laboratory efficiency and safety through cloud-based connectivity. The QIAsphere system consists of the following components:

- **QIAsphere-ready instruments** from QIAGEN®, which can be connected to the QIAsphere system
- **QIAsphere App** for instrument monitoring, available for mobile devices and web browser for desktop use
- **QIAsphere Base** which is an IoT (Internet of Things) gateway device for secure network communication, which can be applied either as QIAsphere Base Box (available as ReliaGATE 10-12 from Eurotech) or as QIAsphere Base Server (Linux OS supported).

1.1 About this user manual

This user manual provides information about QIAsphere in the following sections:

- Introduction
- Safety Information
- General Description
- QIAsphere Setup
- Before Installation
- Setting Up QIAsphere Base – QIAsphere Base Setup Wizard
- Connecting Users and Instruments in Cloud Mode
- Installing QIAsphere Mobile App
- Connecting QIAsphere-ready Instruments to Local Network and QIAsphere Base
- QIAsphere App
- QIAsphere Insights
- Administration of QIAsphere Base Setup Portal
- Resetting and Shutdown QIAsphere Base
- QIAsphere Export Tool Application
- Troubleshooting

The appendices contain the following information:

- Appendix A – Technical Data
- Appendix B – IT Prerequisites for Using QIAsphere
1.2 General information

1.2.1 Technical assistance

At QIAGEN, we pride ourselves on the quality and availability of our technical support. Our Technical Services Departments are staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of QIAGEN products. If you have any questions or experience any difficulties regarding QIAsphere or QIAGEN products in general, do not hesitate to contact us.

QIAGEN customers are a major source of information regarding advanced or specialized uses of our products. This information is helpful to other scientists as well as to the researchers at QIAGEN. We therefore encourage you to contact us if you have any suggestions about product performance or new applications and techniques.

For technical assistance, contact QIAGEN Technical Services.

1.2.2 Policy statement

It is the policy of QIAGEN to improve products as new techniques and components become available. QIAGEN reserves the right to change specifications at any time. In an effort to produce useful and appropriate documentation, we appreciate your comments on this user manual. Please contact QIAGEN Technical Services.

1.3 Intended use of the QIAsphere

QIAsphere is an IoT platform intended to connect QIAGEN instruments for remote monitoring, notifications, and other connectivity services to the cloud.

1.4 Requirements for QIAsphere users

The table below covers the general level of competence and training necessary for delivery, installation, use, maintenance, and servicing of QIAsphere components.

<table>
<thead>
<tr>
<th>Task</th>
<th>Personnel</th>
<th>Training and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery</td>
<td>No special requirements</td>
<td>No special requirements</td>
</tr>
<tr>
<td>Installation, routine use and maintenance</td>
<td>Laboratory technicians or equivalent</td>
<td>Appropriately trained and experienced personnel familiar with use of computers and automation in general</td>
</tr>
<tr>
<td>Servicing</td>
<td>QIAGEN Field Service Specialists only</td>
<td>Trained and authorized by QIAGEN</td>
</tr>
</tbody>
</table>
2 Safety Information

Before installing or using QIAsphere Base Box, it is essential that you carefully read the user manual provided by the hardware supplier Eurotech and pay attention to their safety information. The instructions and safety information in this user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition.

The safety information for QIAsphere Base Box (Eurotech – ReliaGATE 10-12) can be found at www.eurotech.com/products/reliagate-10-12
3 General Description

The QIAsphere system connects our QIAsphere-ready instruments via the QIAsphere Base gateway device to the QIAsphere App running on mobile devices or desktop PCs. This enables the user for an increasing number of applications such as remote instrument monitoring.

Using QIAsphere, you can immediately enhance your lab experience:

- **Stay connected** – Monitor your instrument(s) while being network independent in cloud mode. The QIAsphere App can access the QIAsphere Cloud from anywhere.
- **Monitor instrument status with mobile devices or from a desktop PC** – either via the mobile app for iOS and Android devices or the web app version for your desktop.
- **Full walk-away convenience** – Keep track of instrument status, such as run completion, through push notifications.
- **Faster service response** – Creating and sending service packages via e-mail is no longer necessary for instruments connected to QIAsphere (for devices that support it).
- **Schedule and reserve instruments** – Manage your instruments directly in the app; check instrument availability in the scheduler or reserve your next instrument.
- **QIAsphere Insights** – Explore cloud-based analytic capabilities by means of epidemiology monitoring reports that deliver statistics on pathogens’ detection from your instruments connected to QIAsphere (for instruments that support it).
- **Digital Order Inventory** – Never run out of the stock and let Digital Inventory analyze your stock levels, live usage information, expiration dates, and orders history to predict when you should place the next order (for instruments connected to QIAsphere and that support it).
- **Connect to multiple QIAsphere Bases** – Monitor instruments in your QIAsphere App that are connected to different local networks and to QIAsphere Bases in the same networks.

**Note**: QIAGEN does not collect any personal identifiable data when using QIAsphere. However, sensitive data such as patient health data are collected using QIAstat-Dx. QIAsphere Cloud is used to provide you fully functional instrument and epidemiology (for QIAstat-Dx®) monitoring and other cloud services. The QIAsphere Cloud is hosted on western European data center and servers. For more information on cyber security and privacy and data protection, download the corresponding whitepaper, see [www.qiagen.com/qiasphere](http://www.qiagen.com/qiasphere).

3.1 Network architecture and data flow

QIAsphere-ready instruments are connected via local network to a QIAsphere Base (see network architecture and data flow of cloud mode in Figure 1). The QIAsphere Base manages the instrument data transfer to the QIAsphere App using internet connection via the QIAsphere Cloud. Multiple QIAsphere Bases and associated instruments can also be connected to the cloud (not shown in Figure 1), so that instrument information from different networks is accessible via the QIAsphere App.
Figure 1. Network architecture (A) and data flow (B) between QIAsphere-ready instruments and QIAsphere App launched on mobile devices or desktop PCs in cloud mode.

1. QIAsphere-ready Instruments
2. QIAsphere Base (gateway device)
3. Local network/IT department
4. QIAsphere Cloud
5. Mobile device
6. Personal computer (PC)
4 QIAsphere Setup

Requirements on site:

- Create a My QIAGEN account; see Section 5.3 for reference.
- Request a QIAsphere License; see Section 5.4 for reference.
- Optional: Install QIAsphere App on mobile device; see Section 8 for reference.

Follow the steps below to set up QIAsphere:

1. First connect QIAsphere Base to the local network; see Section 6 for reference.

2. Connect QIAsphere Base to QIAsphere Cloud; see Section 13.1 for reference.

3. Connect QIAsphere-ready instrument to the local network and a QIAsphere Base; see Section 9 for reference.

4. Set up workgroup(s):
   - Create workgroup; see Section 7.1 for reference.
   - Assign connected instrument; see Section 7.2 for reference.
   - Invite and assign users; see Section 7.3 for reference.
4.1 External features of QIAsphere Base Box

Front view of QIAsphere Base Box

1. Status LEDs: User 1, User 2, User 3, and User 4
2. Power LED: Blue LED indicator for power On/Off
3. ETH1 ethernet port: Connect QIAsphere Base to local network
4. ETH0 ethernet port: Connect QIAsphere Base to personal computer
5. Two USB ports
6. Service panel (includes microSD card slot, factory reset button, and backup battery)
7. Power cord socket

Rear view of QIAsphere Base Box
5 Before Installation

Please read the site and power requirements described in Sections 5.1 and 5.2. To use QIAsphere, you need a valid My QIAGEN account and QIAsphere License. In case you do not have an account in My QIAGEN and QIAsphere License with associated administrator rights yet, please follow the instructions in Sections 5.3 and 5.4 before installation.

To set up QIAsphere and to use connectivity services, QIAsphere-ready instruments and QIAsphere Base must be integrated into your local network. Depending on your local network settings, you may need to consult your IT department. If required, please share the QIAsphere Product and Solution Security Whitepaper (www.qiagen.com/qiasphere) and Appendix B – IT Prerequisites for Using QIAsphere on page 85, listing IT prerequisites and network requirements for the network integration of QIAsphere with your IT specialist.

5.1 Site requirements

QIAsphere Base must be connected to the same network as other QIAsphere-ready instruments. QIAsphere Base does not need to be in close proximity to enable a proper connection.

The device (a mobile device or desktop PC) running the QIAsphere App is network independent.

5.1.1 QIAsphere Base Server

For the QIAsphere Base Server, a standalone, dedicated server is a prerequisite. The server should fulfill following recommended requirements:

- **Hardware:**
  - 2 GHz dual-core processor
  - 4 GB system memory
  - 25 GB of free hard drive space
  - Internet access

- **Software:**
  - Ubuntu 22.04 (recommended)

- **Server configuration:**
  - Directly accessible IP address within the internal network
  - Valid hostname with name resolution within the internal network
  - Time synchronization via NTP
  - Port forwarding 443 → 4443
5.2 Power requirements

QIAsphere Base Box requires 100–240 V AC, 50/60 Hz power supply. The included power supply transforms the voltage to the operational voltage of 6–36 V DC. Ensure that the voltage rating of the QIAsphere Base Box is compatible with the AC voltage available at the installation site. Main supply voltage fluctuations must not exceed 10% of the nominal supply voltages.

Important: The power connector is NOT protected against short circuit. Always include an external fuse to protect the product. Details about power supply specifications and on how to supply power can be found in the user manual from Eurotech: www.eurotech.com/products/reliagate-10-12

5.3 My QIAGEN account registration

A My QIAGEN account is required to access the QIAsphere Administration Portal and the QIAsphere App.

- Within My QIAGEN, the QIAsphere Administration widget is used to manage all QIAsphere Cloud connectivity and access rights for other users in your organization.
- The QIAsphere App is your primary tool for remote instrument monitoring and other features.

If you do not have a My QIAGEN account yet, please perform the following steps to register:

2. Click Register now.
3. Follow the steps and fill in the form, then click Register.
4. A confirmation e-mail will be sent to you. To complete the process, click CONFIRM REGISTRATION IN THE E-MAIL.
5.4 Requesting a QIAsphere license

Every organization needs at least one QIAsphere license. Multiple instruments and workgroups can be managed under the same license, with a single administrator managing QIAsphere for the entire organization.

However, QIAsphere also allows multiple licenses per organization, in case a single department or separate groups want to maintain their own QIAsphere.

The QIAsphere license administrator can establish cloud connectivity and manage access rights for other users. To request a license perform the following steps:

1. Log in to your My QIAGEN Account.

2. Go to the QIAsphere Administration widget, and click MANAGE QIAsphere.
   
   Note: If you do not see the QIAsphere Administration widget, click Manage Widgets, then select QIAsphere widget and save your settings.

   Note: If your My QIAGEN account is already assigned to a QIAsphere license, you will be directed to the Administration Portal.

3. If your My QIAGEN account is not yet assigned to a QIAsphere license, you will see a welcome screen.
4. Click on Get Started, depending on the license status, these three different scenarios are possible:

- **Scenario 1**: You do not have an institutional e-mail account.
  
  You will see the “For institutions only” screen with an option to update your e-mail account. Click **Update Email Now**, and change your e-mail in **My QIAGEN Personal Details**.

- **Scenario 2**: You have an institutional e-mail account but there is no license for your organization.
  
  Request a new license by clicking **Request QIAsphere License**. Fill out the 3-step request form as prompted and click **SEND REQUEST**.
Scenario 3: You have an institutional e-mail account, and there is a license for your organization.

On the input screen, you will be informed who the license administrator is for your organization. You have two options here:

- Request your own new license by clicking REQUEST YOUR OWN LICENSE. Fill out the form as requested and click SUBMIT.
- Contact the license administrator. This admin user can register you as a new user and assign you to a workgroup within the existing QIAsphere license.

**Note:** If required, the admin user can extend your rights to QIAsphere Administrator for the same license in a separate step (as described in Section 7.3.3).
5. As soon as the license is created, you will be guided to start the setup wizard.
6 Setting Up QIAsphere Base – QIAsphere Base Setup Wizard

The QIAsphere Base is an IoT gateway device for secure network connection of the connected instruments to the cloud. QIAsphere Base can be installed either as QIAsphere Base Box or as QIAsphere Base Server. Follow the instructions in the respective subsection to set up the QIAsphere Base.

6.1 QIAsphere Base server

This section describes how to set up the QIAsphere Base Server (also denoted as QIAsphere Base within this section) step by step from the installation to the configuration using the QIAsphere Base Setup Portal (QBSP). Note that a standalone, dedicated server is a prerequisite for the installation of QIAsphere Base Server – please refer to Section 5.1.1.

Important: Set up the QIAsphere Base in a location where a stable connection to the internet is possible. Otherwise, connection to the instruments may be hindered by an unstable network or changing the network IPs.

6.1.1 QIAsphere Base server installation

There are two prerequisites for the QIAsphere Base Server installation:

- QIAsphere Base Server installer (QB_Server_Installer_DD_MM_YYYY.zip)
- QIAsphere Base Server serial number file (qb.serial)

Contact QIAsphere support at support@qiagen.com for providing both prerequisites for QIAsphere Base Server installation.

1. Log in on the server, where QIAsphere Base Server will be installed. Note that the root permissions are required for the QIAsphere Base installation.
2. Optional: Run `apt update` and if necessary `apt upgrade` to keep the operating system up to date.
3. Copy/download QIAsphere Base Server installer zip-file and QIAsphere Base Server serial number file to the server, for example, to `HOME/download` directory.
4. Unzip QIAsphere Base Server installer zip-file into an installer directory, for example, `HOME/QB_Server_installer`.

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5. Copy QIAsphere Base Server serial number file into the installer directory, for example, `HOME/QB_Server_installer`.

```
root@debian:/download/installer# ./qb_core_installation.sh
```

6. Run QIAsphere Base Server installer located within the installer directory, for example, `HOME/QB_Server_installer/qb_core_installation.sh`.

```
QIAsphere
Base 3.0

-- Welcome to the QB installer --
=================================
Please provide necessary information to start installation process.
Available free disk space is under recommended value of 2G. For the optimal user experience it is recommended to free more disk space on the app's root partitions. Do you want to continue. (Y/n) 
```
7. If required, accept the recommended settings.

8. Enter the full path for where the QIAsphere Base Server should be installed.

--- Welcome to the QB installer ---

Please provide necessary information to start installation process.

Available free disk space is under recommended value of 2G. For the optimal user experience it is recommended to free more disk space on the app's root partitions. Do you want to continue. (Y/n) y

Please enter absolute installation directory path location (eq. /opt/qb): /opt/qb

--- Welcome to the QB installer ---

Please provide necessary information to start installation process.

Available free disk space is under recommended value of 2G. For the optimal user experience it is recommended to free more disk space on the app's root partitions. Do you want to continue. (Y/n) y

Please enter absolute installation directory path location (eq. /opt/qb): /opt/qb
Please provide which user should run application. Non-existent user will be created (eq. qb): qb
Please enter user group. Non-existent group will be created (eq. qb): qb
9. Enter user and group, respectively, for what the application should run.

```
Welcome to the QB installer

Please provide necessary information to start installation process.
Available free disk space is under recommended value of 2G. For the optimal user experience it is recommended to free more disk space on the app's root partitions. Do you want to continue? (Y/n) y
```

Please enter absolute installation directory path location (eq. /opt/qb): /opt/qb
Please provide which user should run application. Non-existent user will be created (eq. qb): qb
Please enter user group. Non-existent group will be created (eq. qb): qb
Curl is not installed. Would you like to install Curl? (Y/n): y

```
Installation summary:
- Installation directory ............: /opt/qb
- User.............................: qb
- User group.......................: qb
- Java JIL..........................: Installed
- OpenSsl..........................: Installed
- Zip...............................: Installed
- Curl..............................: Will be installed

Please confirm chosen option (Y/n): y
```
11. Review and accept the chosen options, if appropriate.

   2023.05.17 11:24:19 [OK]  | qbCore_installation.sh | Systemd service seem to work.
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | Starting build resources verification...
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | [OK] qb.version
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | [OK] qb.serial
   /opt/qb/app/qb.jar
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | [OK] Jarfile
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | [OK] Scripts main dir
   2023.05.17 11:24:19 [OK]  | qbCore_installation.sh | File verification finished successfully. App seem to be installed properly.
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | Post-install cleanup
   2023.05.17 11:24:19 [INFO] | qbCore_installation.sh | Synchronizing changes
   2023.05.17 11:24:20 [OK]  | qbCore_installation.sh | Post-install cleanup done.
   2023.05.17 11:24:20 [INFO] | qbCore_installation.sh | Checking application status...
   2023.05.17 11:24:40 [OK]  | qbCore_installation.sh | App is running
   2023.05.17 11:24:40 [OK]  | qbCore_installation.sh | Installation completed!
   You can now start using your QB.
   2023.05.17 11:24:40 [OK]  | qbCore_installation.sh | Now you should be able to enter application via: https://10.0.2.15:4443

12. After a successful installation, open a web browser (e.g., Chrome™ or Mozilla® Firefox) and proceed with QIAsphere Base Server registration – see Section 6.1.2.

   6.1.2 QIAsphere Base server registration

1. Open a web browser (e.g., Chrome or Mozilla Firefox), if not already done before, and enter the following URL to launch QBSP: https://IP-address, where IP-address is the actual IP address of your QIAsphere Base Server, which appears in the last line of the installation log, for example, 10.0.2.15 or localhost.

   Note: QIAsphere Base uses a QIAGEN-signed certificate for the secure https connection. Therefore, the browser may issue a security warning. Ignore the warning or add an exception to access the QIAsphere Base Setup Portal.
2. Enter the default login details with the following credentials:

**Username**: admin  
**Password**: Qiagen@123
3. Because this is the very first login in QBSP, change the default password. Afterwards, the admin password can be changed anytime as described in Section 13.2.

4. After a successful login, the Overview page will open. Click on the **Cloud connection** button on left-hand menu bar.
5. Proceed with the registration process by clicking the **REQUEST REGISTRATION KEY** button.

6. Your Registration key will be provided after few seconds (the response time depends on the network connection). Continue by clicking **GO TO QIASPHERE ADMINISTRATION** button.

7. Log in to **QIASpHERE Administration** as Administrator and add the currently registered QIASpHERE Base Server to QIASpHERE; see Section 13.1 for more details.

8. After successful QIASpHERE Server registration in QIASpHERE Administration, the setup of the QIASpHERE Base is completed.
6.1.3 Update check

There are two options for updating the QIAsphere Base software: automatic and manual update.

**Automatic update**

An automatic search for Software updates will be performed in the background for about 40 seconds. If an update is available, it will be installed automatically on the QIAsphere Base (this may take several minutes). Otherwise, QIAsphere Base has the latest software installed.

**Manual selection of timeslot for future updates**

Select an available 2 hour slot, or open the drop-down list and select a convenient update time range for future updates. Click continue to save the changes.

6.2 QIAsphere Base Box

This section describes how to set up the QIAsphere Base Box (also denoted as QIAsphere Base within this section) step by step using a personal computer (PC) and the QIAsphere Base Setup Portal (QBSP). This process requires a direct ethernet connection (ETH0) between a QIAsphere Base and the PC.

**Important**: Set up the QIAsphere Base in a location where a stable connection to the internet is possible without moving the device. Otherwise, connection to the instruments may be hindered by an unstable network or changing the network IPs.

6.2.1 Setting the network connection for QIAsphere Base

1. For Network connection, plug in the LAN cable (recommended) in ETH1 port of the QIAsphere Base.
2. Power up the QIAsphere Base by plugging the power cord into an appropriate power socket.
3. Wait for approximately 5 to 10 min until User 1 LED is on. Then connect your PC to the ETH0 port of QIAsphere Base using an ethernet cable.
4. Open a web browser (for example, Chrome or Mozilla Firefox) and enter the following URL to launch QBSP:
   ```
   https://172.16.0.1
   ```
   **Note**: Use a current browser. Older browsers (like Internet Explorer®) may not correctly display all features of the QBSP.
   **Note**: QIAsphere Base uses a QIAGEN-signed certificate for the secure https connection. Therefore, the browser may issue a security warning. Ignore the warning or add an exception to access the QIAsphere Base configuration.
5. Log in screen appears in your browser.
6. Enter the Default login details with following credentials:
   - Username: admin
   - Password: Qiagen@123
7. Follow the instructions in the wizard after changing default password.
8. If the ethernet connection has a Not Configured status, check if the LAN cables are connected to the right ports. Click EDIT CONNECTION SETTINGS and set up the connection manually.

**Note**: Contact your IT for information needed to set up the connection manually, or if you are facing any problem configuring the network connection.

**Note**: You can also connect with a Wi-Fi network in this step (by switching to Wi-Fi tab). Connecting to a network with both options (LAN and Wi-Fi) is not recommended as it can cause network issues in later steps.

### 6.2.2 Configuring the date and time for QIAsphere Base

Follow the instructions in the Wizard. Date and Time settings can be configured in two ways:

- Automatic NTP server (recommended)
- Manual settings

**Note**: Contact your IT if you are facing any problem configuring the NTP server.

### 6.2.3 Update check

**Note**: There are two options for updating the QIAsphere Base software: automatic or manual update.

#### Automatic update

An automatic search for Software updates will be performed in the background for approximately 40 seconds. If any update is available, updates will be installed automatically on the QIAsphere Base (this may take some minutes). Otherwise, QIAsphere Base has the latest software installed.

#### Manual selection of timeslot for future updates

Select an available 2 hour timeslot, or open the drop-down list and select a convenient update time range for future updates. Click **Continue** to save the changes.
6.2.4 QIAsphere Base registration

This step will help user to register QIAsphere Base on cloud or allow copy link for later registration. For both options, refer to section below for details:

For administrator user

1. Click Register QIAsphere Base.
2. The link will open in a new tab and you can log in to the administration account.
3. After log in, you will see the QIAsphere Base registration prefilled form with serial no. and registration key.
4. Enter the mandatory location details into the registration form and you can register your QIAsphere Base on the Cloud.

After the device is successfully registered, the QIAsphere Base Setup is complete. Close the Wizard page or click Start using QIAsphere Base to go back to QIAsphere Base portal.

For regular user

1. Click COPY REGISTRATION LINK (link will be copied on clipboard).
2. Send the copied information by to the Administrator, such as via e-mail and continue using QBSP. For manual registration from QBSP, refer to Section 13.1.
7 Connecting Users and Instruments in Cloud Mode

In My QIAGEN’s QIAsphere Administration widget, the admin users (see Section 7.3.2) can manage workgroups to provide additional users access to instrument information. If you are setting up the QIAsphere for the first time, it is recommended to perform the following steps in the suggested order:

1. Create a Workgroup; see Section 7.1 for reference.
2. Assign instruments to workgroup; see Section 7.2 for reference.
3. Assign/invite users to workgroup; see Section 7.3 for reference.

7.1 Create a workgroup

At least one workgroup is required to provide users access to instrument information in the QIAsphere App.

1. Log in to My QIAGEN and select QIAsphere Administration widget.
2. Go to Workgroups menu.
3. Click ADD WORKGROUP.
4. Enter the workgroup name that you want to create in the pop-up window.

   **Optional:** When setting up multiple workgroups, you can create subgroups by assigning an existing workgroup as parent workgroup.

   ![Add workgroup form]

   5. Click **Add**. The workgroup is created and is displayed in the Workgroups menu.

### 7.2 Assigning connected instruments to a workgroup

Users of the QIAsphere App can view instrument features and information about instruments assigned to their workgroup. When instruments are connected to the cloud via QIAsphere Base, they are visible to the list of available instruments and can be easily assigned to a workgroup. The steps are shown below.

1. Log in to **My QIAGEN** and select **QIAsphere Administration** widget.
2. Go to **Instruments** menu.

   ![Instruments menu]

3. Click on the instrument or QIAsphere Base.

   **Note:** If you assign one QIAsphere Base to a workgroup, all the instruments that are connected to that QIAsphere Base will also be automatically assigned to the workgroup. Individual instruments can still be assigned to other workgroups later.

4. To edit, click the pencil icon.
5. In the **Edit instrument details** pop-up window, make sure that QIAsphere connection is enabled. If it shows **Disabled**, change the status to **Enabled**.

6. Click the pencil icon at the **Workgroup name** field and select the relevant workgroup.

7. Click **Save**. The instrument is now assigned to a workgroup.

### 7.3 User management

To provide other users access to instrument information, you can create and invite users to QIAsphere and add them to a workgroup.

The QIAsphere Administration portal supports two User Roles:

- **QIAsphere User**
  
  QIAsphere User has full access to instruments assigned to its workgroup(s) in the QIAsphere App, but only limited (read) access in the QIAsphere Administration Portal.

- **QIAsphere Administrator**
  
  QIAsphere Administrator has full access to instruments assigned to its workgroup(s) in the QIAsphere App, as well as full read-and-write access in QIAsphere Administration Portal. An administrator can set up and manage cloud connectivity and set up workgroups by assigning instruments and users. QIAsphere Administrators can also create and invite new users and upgrade other users to QIAsphere Administrators.
7.3.1 Creating new user in QIAsphere

Before a user can see instruments in the QIAsphere App, the user must be invited to QIAsphere and added to a workgroup.

1. Log in to My QIAGEN and select QIAsphere Administration widget.
2. Go to User menu.
3. Click ADD USER.
4. Fill out all mandatory fields such as First name, Last name, and E-mail address in the pop-up window. The new user can now be assigned to a workgroup.
5. Check the box, and click Invite.
6. The new user will receive an e-mail. By clicking Activate your QIAsphere Account link in the e-mail, the user will be added to QIAsphere and can be found in the Users menu. The new user can launch the QIAsphere App and can immediately see all instruments when the user is assigned to a workgroup during the invitation.

Note: To use QIAsphere App (web app version or mobile app), the user needs to have a My QIAGEN account (see Section 5.3).
7.3.2 Adding new user to a QIAsphere workgroup

Existing users can be added to one or more workgroups.

1. Log in to My QIAGEN and select the QIAsphere Administration widget.
2. Go to Users menu.

3. In the list of available users, search for the user you want to add and click on the user.
4. To edit, click the pencil icon.
5. Select the relevant workgroup.
6. Check the box, and click SAVE.

7.3.3 Editing user role

User with QIAsphere Administrator role can change the role of other existing users. To edit user role:

1. Log in to My QIAGEN and select the QIAsphere Administration widget.
2. Go to Users menu.

3. From the list of available users, search and select for the user you want to change the user role.
4. To change the user role, use the User role dropdown menu in the user screen.

**Note:** Only user with the same e-mail domain as administrator can be granted QIAsphere Administrator role.

- **Change role from QIAsphere User to QIAsphere Administrator.**
  After selecting the new role QIAsphere Administrator from the dropdown menu, a pop-up window with additional information about the user role change appears. Click the Confirm button to request new user role QIAsphere Administrator.

The promoted user receives an e-mail with confirmation on being promoted to administrator.

- **Change role from QIAsphere Administrator to QIAsphere User.**
  After selecting the new role QIAsphere User from the dropdown menu, a pop-up window with additional information about the user role change appears. Click the Confirm button to request new user role QIAsphere User.

**Note:** At least one user with role QIAsphere Administrator is required to be able to administrate QIAsphere. It is prevented to reduce the role of the last remaining QIAsphere Administrator. In this case, the User role field is grayed out and an appropriate information message is shown.
8 Installing QIAsphere Mobile App

The QIAsphere App can be used with iOS and Android devices. Follow the instructions in the respective subsection to install the mobile app.

8.1 Installing mobile application on iOS devices

**Important**: The minimum iOS version to install the QIAsphere App is iOS 11 or later.

1. Go to App Store using your mobile device and search for QIAsphere App released by QIAGEN.
2. Follow the system instructions for app installation.

8.2 Installing mobile application on Android devices

**Important**: The minimum Android version to install the QIAsphere App is Android 6.0 or later.

1. Go to Google Play Store using your mobile device and search for QIAsphere App released by QIAGEN:
2. Follow system instructions for app installation.

Note: If Google Play Store is not available in your country, go to www.qiagen.com/qiasphere and download QIAsphere App (apk file).
9 Connecting QIAsphere-ready Instruments to Local Network and QIAsphere Base

The process of connecting instruments to the local network and to QIAsphere Base can vary depending on the instrument type and its operating software. Please refer to the user manual of your instrument for specific instructions and make sure that the instrument is connected to the same network as the QIAsphere Base.

To connect an instrument to a QIAsphere Base, you need the IP address and the instrument connection password of the respective QIAsphere Base. If you have performed the network configuration of QIAsphere Base with QBSP, the QIAsphere Base IP address is displayed in the ethernet or wireless network field of the QBSP overview screen.

The instrument connection password can be set in QBSP (Section 13.5). The default instrument connecting password of a new QIAsphere Base or after factory reset is test1234.

When your instrument is connected, proceed with Section 10 to run the QIAsphere app.
10 QIAsphere App

The QIAsphere App is available in two versions. A mobile app can be installed on mobile iOS or Android devices (see Section 8), whereas the web app version can be launched in a web browser on a desktop PC.

10.1 Starting mobile QIAsphere app

1. Download and install the QIAsphere App as described in Section 8.
2. Launch the QIAsphere App.
3. To enter the app in cloud mode, log in with your My QIAGEN username and password. If you do not have an account in My QIAGEN, register as described in Section 5.3.

10.2 Starting QIAsphere web app

The web app version is only available in cloud connected mode.

1. Go to www.qiagen.com/myqiagen and log in with your My QIAGEN credentials. If you do not have a My QIAGEN account, register as described in Section 5.3.
2. Open the QIAsphere widget to launch the QIAsphere web app.
   
   **Note:** If you do not see QIAsphere widget, click Manage Widgets, then select QIAsphere widget and save your settings.
10.3  My Account view

Go to **My Account** menu. In this menu, the user has access to various setting options.

10.3.1 Scheduler

Users of the same workgroup can manage the use of shared instruments with the Scheduler function. Instruments can be reserved, and a shared calendar provides an overview about instrument availabilities. Using the Scheduler function, you can:

- Create an instrument reservation.
- Edit your instrument reservations.
- Delete your instrument reservations.
- See a shared calendar view of reserved instruments.
10.3.2 My Instruments list

Go to My Account menu and select My Instruments list. Select which instruments shall be displayed in the instrument list by switching the respective toggle switch on or off.
10.3.3 Notification settings

Go to My Account menu and select Notification Settings. Settings of push notifications are displayed per instrument type:

- Select the type of events where push notifications and in-app notifications should be received by switching the respective toggle switch on or off.

10.3.4 QIAsphere media

Go to My Account menu and select QIAsphere Media:

- To download the short version of the user manual, click QIAsphere Quick Start Guide.
- To download the detailed QIAsphere user manual, click QIAsphere User Manual.
To download the QIAsphere Product and Solution Security Whitepaper, click QIAsphere Security Sheet.

10.3.5 About

In the mobile App, click on the menu icon on the top right corner and select About. In the web app version, click About below the left-hand navigation. The About view provides information on:

- Installed mobile app version.
- License information – Click License information to see the end user license agreement that was accepted by the user during the first log in to the app, including an overview of the 3rd party software used.
- Mobile application privacy policy – Click the respective line to see the policy.
- QIAGEN privacy policy – Click the respective link to see the policy on www.qiagen.com
11 QIAsphere Insights

QIAsphere Insights brings cloud-based analytic capabilities to QIAstat-Dx instrument users. Using data from QIAsphere-connected QIAstat-Dx instruments, QIAsphere Insights provides epidemiology monitoring reports and statistics about pathogen detection in a browser-based dashboard.

11.1 Prerequisites

The QIAsphere Insights is available for the users, who meet the following prerequisites:

- The user needs to have a QIAsphere account with an active license.
- The user needs to have the QIAstat-Dx instrument connected to QIAsphere.
- The user needs to have the role “Lab Manager” (please see User management under QIAsphere Administration).

11.2 Homepage

After successfully logging in, the user will be directed to the QIAsphere Insights homepage. The menu on the left-hand side of the screen enables navigation between the different reports, including QIAstat-Dx-specific panel reports. This menu appears on all pages for easy navigation. Below the menu are three buttons leading to QIAsphere Administration, the QIAsphere App, and the Digital Inventory tool.

The main content of the homepage consists of six tiles. Three tiles lead to panel-specific reports (Respiratory, Meningitis/Encephalitis, Gastrointestinal) and two tiles lead to paginated reports (Epidemiology report, Consumption report). The last tile leads to a report of the geographic distribution of pathogens detected by QIAstat-Dx instruments connected to the QIAsphere network.

In the upper right corner, there is a My QIAGEN button that leads to the user’s main My QIAGEN page.
11.3 Respiratory panel

11.3.1 Pathogen diversity

This report presents a heatmap of positive results per month for each pathogen from the QIAstat-Dx Respiratory SARS-CoV-2 Panel and QIAstat-Dx Respiratory Panel. On the Y-axis is a list of pathogens and on the X-axis is the timeline in months. To see the exact number of positive detections for each pathogen, the user can move the cursor over a tile on the heatmap. A tooltip will appear with the month, pathogen name, number of positive results and percent of positive results. Above the heatmap there is also a bar graph displaying the number of test runs for each month. On the left side of the report is a filter section that allows the user to change the scope of data shown in the visuals. It consists of the following filters: Date, Assays, Pathogens, Workgroups and Instruments. The user can also switch between the time division of the visuals by clicking Weekly view, Yearly view, and Monthly view, respectively. The monthly view is always default.
### 11.3.2 Positive pathogens

This report shows positive detection data for the QIAstat-Dx Respiratory SARS-CoV-2 Panel and QIAstat-Dx Respiratory Panel. The “Positive pathogens” dashboard is similar to the “Pathogen diversity” dashboard except data is presented in the form of bar charts. The upper visual shows the number of positive results per month whereas the bottom one shows the percent of positive results for a given pathogen in relation to all positive results. On the right side of the page is a key showing the color-coding for each pathogen present on the selected panel. On the left side are the following filters: Date, assays, pathogens, workgroups and instruments. This report can also be switched between monthly, weekly, and yearly views using the button in the bottom left corner.
11.3.3 Co-detection rate

his dashboard consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The upper visual, “Co-detection per total number of tests” shows bars with the numbers of three types of results per month: Co-detection (more than one pathogen present in a sample), single positive (only one pathogen in a sample) and negative. On top of these bars is a line chart presenting the total number of runs. The lower visual displays all co-detections per month, divided into three types: Virus + bacteria, virus + virus and bacteria + bacteria. The user can filter the results by changing the date range or switching the assay, workgroup or instrument. This report can also be switched between monthly, weekly and yearly views using the button in the upper right corner.
11.3.4 Pathogen co-detection

The pathogen co-detection report presents the number of co-detections between every possible pair of pathogens from the QIAstat-Dx Respiratory SARS-CoV-2 Panel and QIAstat-Dx Respiratory Panel, as well as the most frequent co-detections. The lower visual, “Pathogens co-detections”, displays a heatmap for co-detections between every possible pair of pathogens. The upper visual, “Most frequent pathogen co-detections over time”, is a line chart showing a monthly count of the five pathogen pairs with the highest number of total co-detections. The filters that the user can apply to narrow the results are date, assays, workgroups, and instruments.
11.3.5 Low-plex vs. syndromic testing

This report displays the rate of pathogen detections using the syndromic panel (the QIAstat-Dx Respiratory SARS-CoV-2 Panel or QIAstat-Dx Respiratory Panel) versus what a theoretical low-plex panel (consisting of only 4 targets: Influenza A, Influenza B, SARS-CoV-2, RSV) would possibly detect. The upper visual presents a bar chart with the monthly results ratio for positives low-plex, positives syndromic testing and negatives. Overlaid on the bar chart is a line chart with the total number of tests performed. The lower visual shows only the ratio between low-plex and syndromic testing positives. It is worth noting that syndromic testing also covers the detections from the theoretical low-plex assay. The report can be filtered by date, assay, workgroup, and instrument. It can also be switched between monthly, weekly, and yearly views using the button in the upper right corner.
11.3.6 Ct values

This dashboard contains two visuals: “Mean Ct value and positives per month” and “Ct value per month”. The upper visual presents a bar chart of positive results per month along with a line chart with mean Ct values. The lower visual gives a more detailed view of monthly Ct values. It shows the number of samples tested, along with maximum, minimum, mean, median and standard deviation for the Ct values. These two visuals can be filtered by date, assay, pathogens, workgroups, and instruments. Their scope can also be changed by switching between monthly and weekly view, and between mean and median Ct (the latter only applies to the first visual).
11.4 Meningitis/encephalitis

11.4.1 Pathogen diversity

This report presents a heatmap of positive results per month for each pathogen from the QIAstat-Dx Meningitis/Encephalitis Panel (QIAstat-Dx ME Panel). On the Y-axis is a list of pathogens and on the X-axis is the timeline in months. To see the exact number of positive detections for each pathogen, the user can move the cursor over a tile on the heatmap. A tooltip will appear with the month, pathogen name, number of positive results and percent of positive results. Above the heatmap there is also a bar graph displaying the number of test runs for each month. On the left side of the report is a filter section that allows the user to change the scope of data shown in the visuals. It consists of the following filters: Date, Assays, Pathogens, Workgroups and Instruments. The user can also switch between the time division of the visuals by clicking Weekly view, Yearly view, and Monthly view, respectively. The monthly view is always default.
11.4.2 Positive pathogens

This report shows positive detection data for the QIAstat-Dx ME Panel. The “Positive pathogens” dashboard is similar to the “Pathogen diversity” dashboard except data is presented in the form of bar charts. The upper visual shows the number of positive results per month whereas the bottom one shows the percent of positive results for a given pathogen in relation to all positive results. On the right side of the page is a key showing the color-coding for each pathogen present on the selected panel. On the left side, there are the following filters: date, assays, pathogens, workgroups, and instruments. This report can also be switched between monthly, weekly, and yearly views using the button in the bottom left corner.
### 11.4.3 Co-detection rate

This dashboard for the QIAstat-Dx ME Panel consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The upper visual, "Co-detection per total number of tests," shows bars with the numbers of three types of results per month: Co-detection (more than one pathogen present in a sample), single positive (only one pathogen in a sample) and negative. On top of these bars is a line chart presenting the total number of runs. The lower visual displays all co-detections per month, divided into seven types: Virus co-detection (virus + virus), virus + bacteria, virus + fungus, bacterial co-detection (bacteria + bacteria), bacteria + fungus, fungus co-detection (fungus + fungus) and virus + bacteria + fungus. The user can filter the results by changing the date range or switching the assay, workgroup, or instrument. This report can also be switched between monthly, weekly, and yearly views using the button in the upper right corner.
11.4.4 Pathogen co-detection

The pathogen co-detection report presents the number of co-detections between every possible pair of pathogens from the QIAstat-Dx ME Panel, as well as the most frequent co-detections. The lower visual, “Pathogens co-detections”, displays a heatmap for co-detections between every possible pair of pathogens. The upper visual, “Most frequent pathogen co-detections over time”, is a line chart showing a monthly count of the five pathogen pairs with the highest number of total co-detections. The filters that the user can apply to narrow the results are date, assays, workgroups, and instruments.
11.4.5 Ct values

This dashboard for the QIAstat-Dx ME Panel contains two visuals: “Mean Ct value and positives per month” and “Ct value per month”. The upper visual presents a bar chart of positive results per month along with a line chart with mean Ct values. The lower visual gives a more detailed view of monthly Ct values. It shows the number of samples tested, along with maximum, minimum, mean, median and standard deviation for the Ct values. These two visuals can be filtered by date, assay, pathogens, workgroups, and instruments. Their scope can also be changed by switching between monthly and weekly view, and between mean and median Ct (the latter only applies to the first visual).
11.5 Gastrointestinal

11.5.1 Pathogen diversity

This report presents a heatmap of positive results per month for each pathogen from the QIAstat-Dx Gastrointestinal Panel 2 and QIAstat-Dx Gastrointestinal Panel. On the Y-axis is a list of pathogens and on the X-axis is the timeline in months. To see the exact number of positive detections for each pathogen, the user can move the cursor over a tile on the heatmap. A tooltip will appear with the month, pathogen name, number of positive results and percent of positive results. Above the heatmap there is also a bar graph displaying the number of test runs for each month. On the left side of the report is a filter section that allows the user to change the scope of data shown in the visuals. It consists of the following filters: date, assays, pathogens, workgroups, and instruments. The user can also switch between the time division of the visuals by clicking Weekly view, Yearly view, and Monthly view, respectively. The monthly view is always default.
11.5.2 Positive pathogens

This report shows data for the QIAstat-Dx Gastrointestinal Panel 2 and QIAstat-Dx Gastrointestinal Panel. The “Positive pathogens” dashboard is similar to the “Pathogen diversity” dashboard except data are presented in the form of bar charts. The upper visual shows the number of positive results per month whereas the bottom one shows the percent of positive results for a given pathogen in relation to all positive results. On the right side of the page is a key showing the color-coding for each pathogen present on the selected panel. On the left side, there are the following filters: date, assays, pathogens, workgroups, and instruments. This report can also be switched between monthly, weekly, and yearly views using the button in the bottom left corner.
11.5.3 Co-detection rate

This dashboard for the QIAstat-Dx Gastrointestinal Panel 2 and QIAstat-Dx Gastrointestinal Panel consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The upper visual, “Co-detection per total number of tests” shows bars with the numbers of three types of results per month: co-detection (more than one pathogen present in a sample), single positive (only one pathogen in a sample), and negative. On top of these bars, there is a line chart presenting the total number of runs. The lower visual displays all co-detections per month, divided into seven types: Virus co-detection (virus + virus), virus + bacteria, virus + parasite, bacterial co-detection (bacteria + bacteria), bacteria + parasite, parasite co-detection (parasite + parasite) and virus + bacteria + parasite. The user can filter the results by changing the date range or switching the assay, workgroup, or instrument. This report can also be switched between monthly, weekly, and yearly views using the button in the upper right corner.
11.5.4 Pathogen co-detection

The pathogen co-detection report presents the number of co-detections between every possible pair of pathogens from the QIAstat-Dx Gastrointestinal Panel 2 and QIAstat-Dx Gastrointestinal Panel, as well as the most frequent co-detections. The lower visual, “Pathogens co-detections“, displays a heatmap for co-detections between every possible pair of pathogens. The upper visual, “Most frequent pathogen co-detections over time“, is a line chart showing a monthly count of the five pathogen pairs with the highest number of total co-detections. The filters that the user can apply to narrow the results are date, assays, workgroups, and instruments.
11.5.5 Ct values

This dashboard for the QIAstat-Dx Gastrointestinal Panel 2 and QIAstat-Dx Gastrointestinal Panel contains two visuals: “Mean Ct value and positives per month” and “Ct value per month”. The upper visual presents a bar chart of positive results per month along with a line chart with mean Ct values. The lower visual gives a more detailed view of monthly Ct values. It shows the number of samples tested, along with maximum, minimum, mean, median, and standard deviation for the Ct values. These two visuals can be filtered by date, assay, pathogens, workgroups, and instruments. Their scope can also be changed by switching between monthly and weekly view, and between mean and median Ct (the latter only applies to the first visual).
11.6 Epidemiology report

Epidemiology report shows a summary of detected results and Ct values based on selected filters. To display the report, the user has to fill in the six filters required: date from, date to, workgroups, instruments, assay, and assay version – with workgroup and instruments being multichoice lists. Only then does the View report button become active. When loaded, the report shows three tables. The first one presents the dataset to which the search has been narrowed: assay, assay version, date range, OM, and AM serial numbers, total number of tests, and number of failed and invalid tests. The second table presents a list of pathogens from the chosen assay, with exact numbers of tests in which each of them was or was not detected, along with their median Ct values. The third table displays all the Ct values for the detected pathogens.
11.7 Consumption report

Consumption report presents a summary of used consumables based on selected filters. To display the report, the user has to fill in the five filters required: start date ("date from"), end date ("date to"), workgroups, instruments, and assays – with workgroups, instruments and assays being multichoice lists. Only then does the View report button become active.

When loaded, the report shows two tables. The first one presents the dataset to which the search has been narrowed: Institutions, assays, date range, workgroups, OM and AM serial numbers and total number of tests. The second table displays the number of tests performed during the chosen date range by assay, by month, by workgroup, by OM and AM and finally their total sum.
11.8 QIAstat-Dx positives distribution

This dashboard presents a map showing positive results per pathogen and per country. The results are displayed in the form of bubbles whose size reflects the percentage of positives per total number of tests in a given country. By hovering over a bubble, the tooltip will display the positive results ratio per country along with the global percentage of positives per total number of tests. Filters that apply to this visual are date range, panel (which changes the list of assays and pathogens available below), assay, and pathogen.
12 Digital Inventory

The Digital Inventory is a web application and a complete solution for QIAGEN customers who analyzes multiple data sources like stock levels, live usage information, expiration dates of every consumable, and order history to accurately predict the time when the order should be placed to maintain testing continuity in customers’ laboratories.

12.1 Prerequisites

The Digital Inventory application is available to be used when all of the following prerequisites are met:

- The user needs to have a QIAsphere account with an active license.
- The user needs to have the QIAstat-Dx instrument connected to QIAsphere.
- The user needs to have an active Quote on consumables available in Digital Inventory, that is, QIAstat-Dx kits.
- QIAsphere needs to have live usage data from the connected instrument.
- The user needs to add initial Stock Level values of the consumables for the given Workgroup.

12.2 Setting up the application

1. Setting shipping and billing addresses for a workgroup can be done with any of the following mechanisms (availability may vary):

1a. Syncing addresses from historical orders
1b. Selecting addresses from address book

2. Once the addresses are added, all Workgroup members receive a Welcoming Email:
3. Updating stock levels

The user can update stock levels from the Dashboard screen of the application:

By clicking **Update Stock No.** button:

Stock levels are saved once entered and confirmed, and the application is ready to generate the first Order Proposal.
12.3 Order Proposal is created

When the application detects that the User is running out of consumables soon, an Order Proposal is created.

When Order Proposal is created, all Workgroup users receive an email:

The Order Proposal is also available from the Application screen:
From the active Order Proposal screen, the user can finalize the order by clicking **Go To Checkout** (directly going to the last step of finalizing the order) or **Edit** (The user can change cart contents before finalizing the order).

### 12.4 Dashboard

The main Application screen is the Dashboard, where the user can see the overview of all workgroups within the organization.

The Dashboard contains a list of workgroups with charts representing the number of consumables available for use. Every chart can be expanded to see the details of every consumable type and its usage information such as estimated stock out, average usage, and number of kits proposed in the Order Proposal.
The charts are updated with the live usage data on an hourly basis and represent the real number of consumables of a given type with as high precision as possible based on the available data.

To maintain the highest data precision, the user is highly encouraged to regularly check the stock levels and update them when necessary.

The Dashboard includes a Stock Expiration Overview section, where the user can see the expiration dates of consumables in Workgroup, so they can be used in the first order to prevent consumables from being expired and, thus, unavailable for use.
13 Administration of QIAsphere Base Setup Portal

QIAsphere Base administration can be performed through the QIAsphere Base Setup Portal (QBSP). In the QBSP, you can access the system time settings (available in QIAsphere Base Box only), cloud connection, QIAsphere maintenance features, and instrument administration.

1. Open a web browser (e.g., Chrome or Mozilla Firefox) and enter the following URL to launch QBSP: https://172.16.0.1 for QIAsphere Base Box connected via ETH0 or https://IP-address for QIAsphere Base Server (IP-address is the actual IP address of your QIAsphere Base Server).
2. Enter your admin user login credentials.
   - **Username:** admin
   - **Password:** Self-defined password that was set during initial QIAsphere Base set up.
3. The QBSP home screen is displayed.
13.1 QIAsphere Base cloud connection

In case you have not connected QIAsphere Base to the cloud during Initial setup follow the instructions below:

1. Go to Cloud Connection menu.

2. Wait until registration key is displayed; it may take a few seconds. You are automatically directed to step 2 of the registration process.

3. Click GO TO QIASPHERE ADMINISTRATION. Do not close the QBSP window in your browser.


   Note: If the page does not open automatically, go to www.qiagen.com/myqiagen and click the QIAsphere Administration widget.
5. Click Add QIAsphere Base.

6. In the pop-up window, enter the QIAsphere Base serial number and registration key as displayed in step 5. You may go back to the QBSP window in your browser to copy the values.

7. Click Add.

8. Fill out the device details. Ensure that the QIAsphere connection is enabled, and click Save.

9. A pop-up window appears, confirm by clicking OK.

**Note:** Your instruments that are connected to the respective QIAsphere Base must be enabled proactively for QIAsphere connection as well. See Section 7.2, step 5.
10. Your QIAsphere Base will appear on the list of instruments.

11. Go back to the QBSP window in your browser.

12. When the registration is successful, you will be automatically directed to step 3 of the cloud connection and receive a confirmation about the completed setup.

   **Note:** Because your QIAsphere Base is now connected to QIAsphere Cloud, it is subject to automatic updates. It may happen that an automatic update was already triggered at this point and the QBSP does not react anymore. In this case, close the browser and wait for the update process to complete.

13. The device is now connected to the QIAsphere Cloud.

### 13.2 Changing admin password

1. To change the QIAsphere Base login password, select **Settings** menu and open the **QIAsphere Base Setup Portal password** tab.

2. Enter **New Password**.

3. Click **SAVE**.

### 13.3 QIAsphere Base software update

By updating QIAsphere Base software, you can have access to new and stable features which can be done using two methods:

- **Recommended:** Select feasible 2 hour timeslot for latest software update using automatic update option.
- **Manually upload:** Require to download latest software on local device and upload manually in zip format.
13.4 Proxy settings

1. To set proxy connection, go to Network Configuration menu and select Network proxy configuration section.

![Network Configuration menu](image)

2. Switch on the toggle of the proxy on the top-right corner.

3. Enter proxy setting of your network and click Save.
   
   **Note:** Contact IT department for Proxy address and Port.

13.5 Changing instrument connection password

The instrument connection password is required to set up the connection of a QIAsphere-ready instruments to a respective QIAsphere Base. The default instrument connecting password of a new QIAsphere Base or after factory reset is: `test1234`.

**Note:** This is not a password set for your instrument itself, but for the connection between your instrument and your QIAsphere Base.
13.6 Creating support package of QIAsphere Base

1. Go to Settings menu and open the Support Package tab.

2. Download the Support Package locally.
   
   **Note:** This file contains logs for QIAsphere Base and you can use these logs for troubleshooting.

13.7 Configuration of the Export Tool Interface

The Export Tool Interface of the QIAsphere Base provides certain data from the connected QIAsphere-ready Instruments to the QIAsphere Export Tool, within the local network — see Section 14. It is required for the correct function of the following:

To disable the Interface or change the configuration (password, number of stored run reports, instrument administration), select Settings menu and open the Export Tool Interface tab.

13.7.1 Disabling the Export Tool Interface

The Export Tool Interface is initially enabled. To disable the interface, switch the toggle position from Enable to Disable in the interface section.
13.7.2 Changing the QIAsphere Export Tool password

The QIAsphere Export Tool password is used to set up the credentials for the connection between the QIAsphere Export Tool and your QIAsphere Base. The default password is Qiagen@123.

1. To change the QIAsphere Export Tool password, select Settings menu and open the Local App and Export Tool Interface tab.

2. Enter New password, then click SAVE.

3. Your new password has been saved. Remember your password for future Export Tool connection.

13.7.3 Changing number of stored run reports

1. To change number of stored run reports locally, go to Settings menu and open the Local App and Export Tool Interface tab.

2. The system will inform you about the maximum number of run reports.

3. Enter the desired number and click SAVE.
14 Resetting and Shutdown QIAsphere Base

There are three options to reset your QIAsphere Base (available in QIAsphere Base Box only):

- QIAsphere Base reboot, for example, when connection issues occur.
- QIAsphere Base shutdown, for example, when disconnecting all instruments.
- QIAsphere Base factory reset, for example, when all settings shall be removed.

14.1 QIAsphere Base reboot and shutdown

If you are facing connection issues or the device is not responding, try to reboot and shut down the device by clicking the respective buttons mentioned below.

14.2 QIAsphere Base factory reset

When all QIAsphere Base settings shall be removed, you can reset it to factory settings.

**Important:** Once the factory reset is done, this operation cannot be reversed. All existing data including log files and settings will be deleted. The QIAsphere Base password will be reset to the default password Qiagen@123. The QIAsphere Base will be rebooted and will start with the initial configuration.

**Important:** Make sure no dongle is attached to the Q-Base.

1. To turn it on, plug in the Q-Base power cord.
2. Wait until **User 2** and **User 4** LED turn on.
3. Open the lid on the side of the device.
4. Click and hold the marked button in the picture below for 10 s:

5. **LED USER1** indicator blinks during operation and turns off once it is done.
15 QIAsphere Export Tool Application

The QIAsphere Export Tool is a Windows application that provides a fast and safe way to automatically download experiment and run reports from instruments connected to a QIAsphere Base gateway to a configurable location. With software version 1.1.0, the QIAsphere Export Tool can connect to multiple QIAsphere Bases at the same time.

Important: QIAsphere Base software version 2.2.0 or higher is required to use the QIAsphere Export Tool. See Section 11 to check the installed software version and how to update it if required.

Note: The QIAsphere Export Tool itself has no limitation regarding the maximum number of connected QIAsphere Base gateways. The limiting factor is the used computer.

15.1 Download and Installation

The application is only suitable for the Windows operating system version 7 or higher.

To install the QIAsphere Export Tool:

2. Double-click the installation file.
3. Follow the system instructions for app installation.

15.2 QIAsphere-Base-CA root certificate installation

The QIAsphere Export Tool needs to retrieve data directly from the QIAsphere Base via the local network. The installation of a QIAsphere-Base-CA root certificate is mandatory to allow secure, direct communication.

If the installation wizard of the QIAsphere Export Tool is confirmed with the Finish button (see Section 15.1), a security warning regarding the installation of the QIAsphere-Base-CA root certificate is displayed.
Click **Yes** to install the required certificate. The installation process continues without any further user actions. After installing the certificate, the **QIAsphere Export Tool** is restarted and the QIAsphere Export Tool **Welcome** screen for initial setup is displayed (see Section 15.3).

Once the **QIAsphere Export Tool** is installed, the **Security Warning** pop up for **QIAsphere-Base-CA** will not appear again.
**Note:** Without the root certificate, the *QIAsphere Export Tool* cannot connect to QIAsphere Base gateway. If you skipped the certificate installation, the prompt to install the *QIAsphere-Base-CA root certificate* appears again when trying to connect to a QIAsphere Base.

15.3 Initial configuration settings

After installation, the application starts the initial setup automatically. Next, a connection to the desired QIAsphere Base gateways must be established, because experiment and run results of instruments are transferred via these gateways. Later you can customize the list of connected instruments for each connected QIAsphere Base to specify which instrument reports should be stored.

To start the initial setup of the *QIAsphere Export Tool*, press **GET STARTED** on the Welcome screen. A Wizard guides you through the several steps:
1. Enter the IP address and **QIAsphere Export Tool** password of the QIAsphere Base when prompted.

   **Note:** The **QIAsphere Export Tool** password has to be configured in the QIAsphere Base Setup Portal (QBSP) of the selected QIAsphere Base (see Section 13.7.2). If the password was not changed, you can use the default password: **Qiagen@123**.

2. Click **CONNECT**.

3. After successful connection to QIAsphere Base, follow the step-by-step instructions in Export tool setup to complete the process.
15.3.1 Changing settings of a QIAsphere Base

To change the setting mentioned below, click the pencil icon or the Edit button of the respective QIAsphere Base in the Overview screen (see image below).

- Adjust QIAsphere Base password.
- Change the destination folder.
- Change instrument selection.
- Delete the QIAsphere Base from the QIAsphere Export Tool.
16 Troubleshooting

This section provides information about what to do if an error occurs when using the [Instrument Name] system.

If further assistance is required, contact QIAGEN Technical Services using the contact information below:

Website: support.qiagen.com

When contacting QIAGEN Technical Services about an error with the QIAsphere, note the steps leading up to the error and any information appearing in any dialog boxes. This information will help the QIAGEN Technical Services solve the problem.

When contacting QIAGEN Technical Services about errors, please have the following information ready:

- Instrument name serial number, type, and version
- Software version (if applicable)
- Timepoint when the error occurred for the first time
- Frequency of error occurrence (i.e., intermittent or persistent error)
- Detailed description of the error situation
- Photo of the error, if possible
- Copy of log files

This information will help you and your QIAGEN Technical Service Specialist to deal most efficiently with your issue.

Note: Information about the latest software and protocol versions can be found at www.qiagen.com. In some cases, updates may be available for addressing specific problems.

16.1 General information

This section provides information about what to do if an error occurs when using QIAsphere Base.

16.2 Contacting QIAGEN technical services

When you encounter an error in your QIAsphere Base, be sure to have the following information at hand:

- Detailed description of the error situation
- QIAsphere Base log files

This information will help you and your QIAGEN Technical Service Specialist to deal most efficiently with the issue.

Note: Information about the latest software versions can be found at www.qiagen.com.
16.3 FAQs

16.3.1 Which network settings are supported by the QIAsphere Base?

You can use either wired ethernet or Wi-Fi connection, which is Wi-Fi Protected Access 2 (WPA2) protected.

16.3.2 Why are not all applications/kits/protocol files visible in the QIAcube Connect run setup?

Each time a QIAcube Connect instrument is switched on, all data (e.g., protocol files) will be uploaded to QIAsphere Base. During this upload phase, the QIAcube Connect App is not able to show the files that have not yet been uploaded for run setup. Wait for 10 minutes and retry.

16.3.3 How can I retrieve a forgotten password?

If the password is lost, it can be reset by performing a factory reset of QIAsphere Base (see Section 14.2).

16.3.4 Can the number of run records be changed?

Yes, the number of run records can be set using the Q-Base Administration Portal. Refer to Section 13.7.3 for details. The default value is 60.

16.3.5 Why can’t I reach the QIAsphere Base Setup Portal?

Make sure that you have successfully connected the QIAsphere Base into your network and it has a valid IP address. Then, enter https://IP-address in your internet browser window. Make sure to include the letter s in https://. QIAsphere Base uses a self-signed certificate for the https connection. Therefore, the browser may issue a security warning. Ignore the warning or add an exception to access the QIAsphere Base configuration.
Appendix A – Technical Data

Technical data of the QIAsphere Base can be found in the data sheet of the hardware supplier Eurotech [Eurotech – ReliaGATE 10-12] at the following site:

Appendix B – IT Prerequisites for Using QIAsphere

To set up QIAsphere and to use connectivity services, QIAsphere clients such as QIAsphere-ready instruments and QIAsphere Base gateway device must be integrated into your local network (see network diagrams in Section 3.1). Depending on your local network settings, you may need to consult your IT department. If required, the checklist below provides guidance to clarify the IT prerequisites and to prepare the network infrastructure with your IT specialist before starting with the network integration of QIAsphere.

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
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| Network connection          | QIAsphere clients can be connected to a wireless or wired network. Consider the following prerequisites depending on the connection: a) **Wireless** – Have Wi-Fi network name and password available  
                             b) **Wired ethernet** – One active ethernet wall socket per QIAsphere client |
| Network setup of QIAsphere clients | Make sure QIAsphere Base and QIAsphere-ready instruments are connected to the same local network. |
| IP configuration            | Using DHCP as network protocol is recommended and configured by default. If required, static IP can be set manually.  
                             a) **DHCP** – Make sure the server has minimum one free IP address per QIAsphere client available.  
                             b) **Static IP** – Provide the following network parameters for each QIAsphere client: IP address and Subnet mask, Default Gateway and DNS server. |
| NTP configuration           | Maintaining a correct time setting on the QIAsphere Base is of great importance to all QIAsphere functions. Wherever possible, the QIAsphere Base should be connected to an NTP server.  
                             By default, it is configured to connect to 0.pool.ntp.org  
                             Make sure communication to this server on TCP port 123 is allowed by your firewall or request the correct server to be used from your IT department. |
| Firewall rules              | QIAsphere clients use the following communication ports and protocols to transfer data. Set local firewall rules accordingly to allow communication on these ports:  
                             | URL | Port | Protocol |
|-----------------------------|----------------------------------|----------------------------------|------------------|
| cs.qiasphere.qiagen.com      | Outbound TCP 443                 | HTTPS                           |
| api.qiasphere.qiagen.com     |                                  |                                 |
| global.azure-devices-provisioning.net | Outbound TCP 443 and 8883 | MQTT and HTTPS |
| qiaspherecloudconnector.blob.core.windows.net |                              |
| prdlandingzoneweu.blob.core.windows.net/ |                              |
| prd-qiasphere-iot-hub.azure-devices.net | Outbound TCP 433 and 8883 and 433 | MQTT and HTTPS |

If your IT department ask for the MAC address of the QIAsphere Base, you can find it on the QIAsphere Base type plate on the device bottom.

For up-to-date licensing and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.
## Document Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>September 2023</td>
<td>Updated according to QIAsphere Base version 3.0.0 and extended by QIAsphere Insights and Digital Inventory.</td>
</tr>
<tr>
<td>September 2022</td>
<td>Reworked the complete user manual according to new wizard functionality. Deleted many sections. Added new screens. Explained new automated registration process.</td>
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