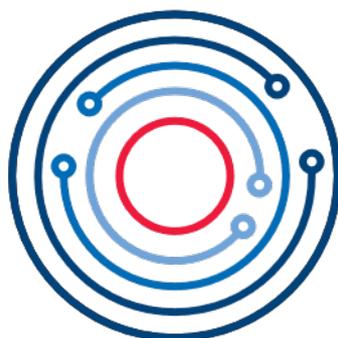




January 2025

QIASphere[®] User Manual



QIASphere

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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 the 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.

Task	Personnel	Training and experience
Delivery	No special requirements	No special requirements
Installation, routine use and maintenance	Laboratory technicians or equivalent	Appropriately trained and experienced personnel familiar with use of computers and automation in general
Servicing	QIAGEN Field Service Specialists only	Trained and authorized by QIAGEN

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 can be found at www.compulab.com/products/iot-gateways/iot-gate-imx8-industrial-arm-iot-gateway for CompuLab's IOT-GATE-iMX8 and www.eurotech.com/products/reliagate-10-12 for Eurotech's 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. 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 and system usage reports which include kit consumption and instrument usage of your instruments connected to QIASphere.
- **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 QIASphere. QIASphere Cloud is used to provide you fully functional instrument and epidemiology (for QIASphere[®]) 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

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.

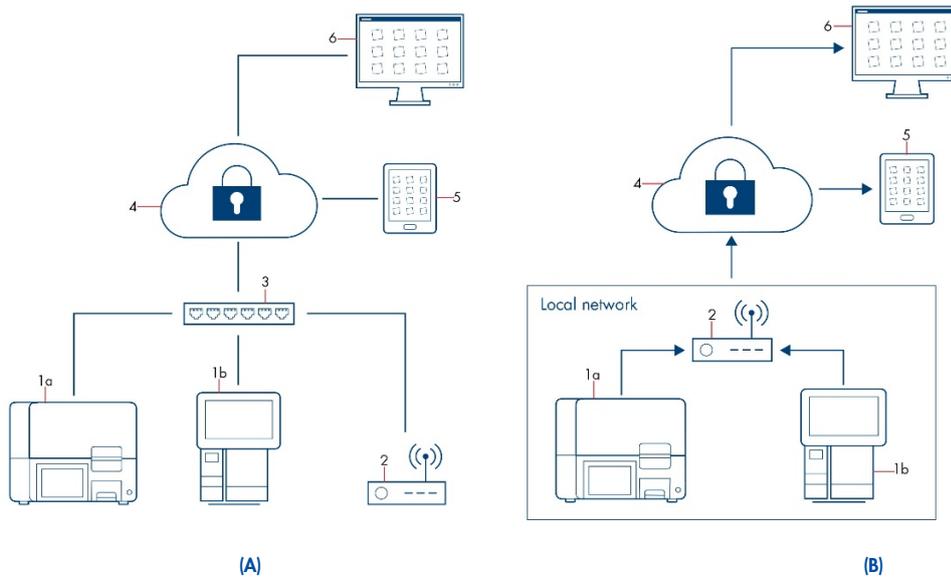


Figure 1. Network architecture (A) and data flow (B) between QIASphere-ready instruments and QIASphere App launched on mobile devices or desktop PCs in cloud mode.

1	QIASphere-ready instruments	4	QIASphere Cloud
2	QIASphere Base (gateway device)	5	Mobile device
3	Local network/IT department	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:

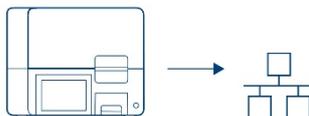
1. First connect QIAsphere Base to the local network; see Section 6 for reference.



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.



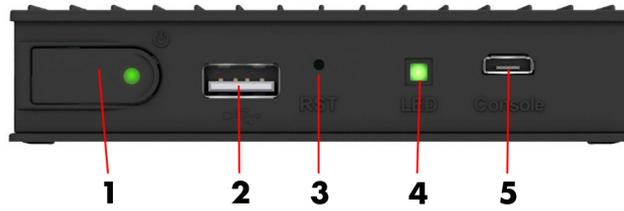
4. Set up workgroup(s):



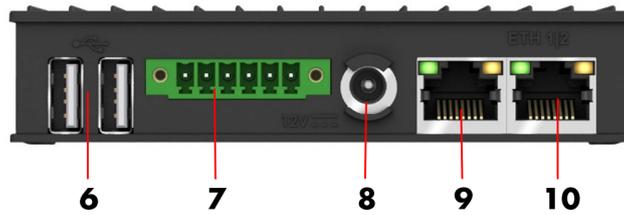
- Create workgroup; see Section 7.1 for reference.
- Assign connected instrument; see Section 7.2 for reference.
- Invite and assign users; see Section 7.3 for reference.

4.1. External features of QIAsphere Base Box

4.1.1. IOT-GATE-IMX8 from CompuLab



Front view of QIAsphere Base.



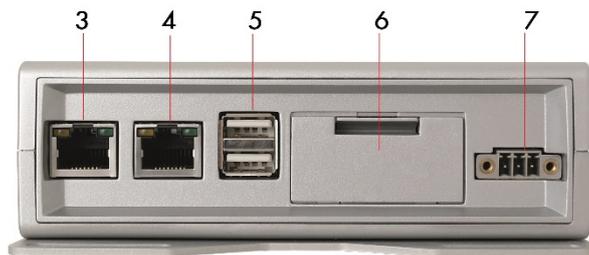
Rear view of QIAsphere Base.

- | | | | |
|---|--|----|--|
| 1 | Power button with LED power indicator and factory reset button | 6 | Two USB ports |
| 2 | USB port | 7 | RS485/RS232 serial interface |
| 3 | Reset button | 8 | Power cord socket |
| 4 | Status three-color LED | 9 | ETH1 Ethernet port to connect personal computer to QIAsphere Base – denoted as a service port |
| 5 | Debug console | 10 | ETH2 Ethernet port to connect QIAsphere Base to local network – denoted as a connectivity port |

4.1.2. ReliaGATE 10-12 from Eurotech



Front view of QIAsphere Base Box.



Rear view of QIAsphere Base Box.

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

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, 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
 - 64 GB of free hard drive space
 - Internet access
- Software:
 - Microsoft Windows 10 Pro or Microsoft Windows Server 2022
 - Ubuntu 22.04 as a recommended Debian-based Linux distribution
- 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 12 V DC for IO-GATE-iMX8 from CompuLab and to the operational voltage of 24 V DC for ReliaGATE 10-12 from Eurotech. 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 CompuLab at www.complab.com/products/iot-gateways/iot-gate-imx8-industrial-arm-iot-gateway or in the user manual from Eurotech at 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:

1. Go to My QIAGEN login page at www.qiagen.com/myqiagen
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**.

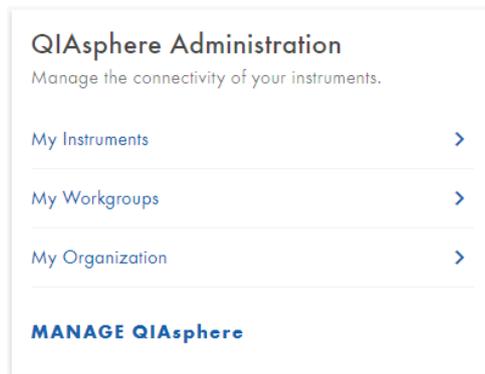
5.4. Requesting a QIASphere license

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.

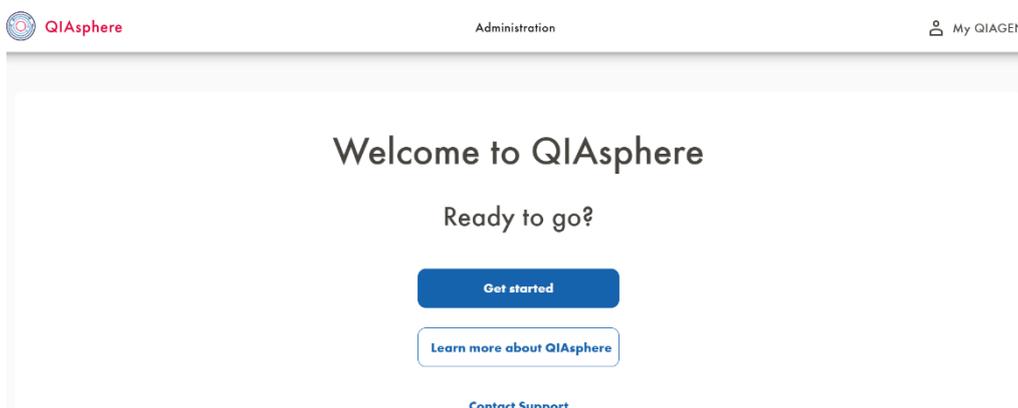


2. Go to the QIASphere Administration widget, and click **MANAGE QIASphere**.

Note: If you do not see the QIASphere Administration widget, click **Manage Widgets**, then select the **QIASphere** widget and save your settings.

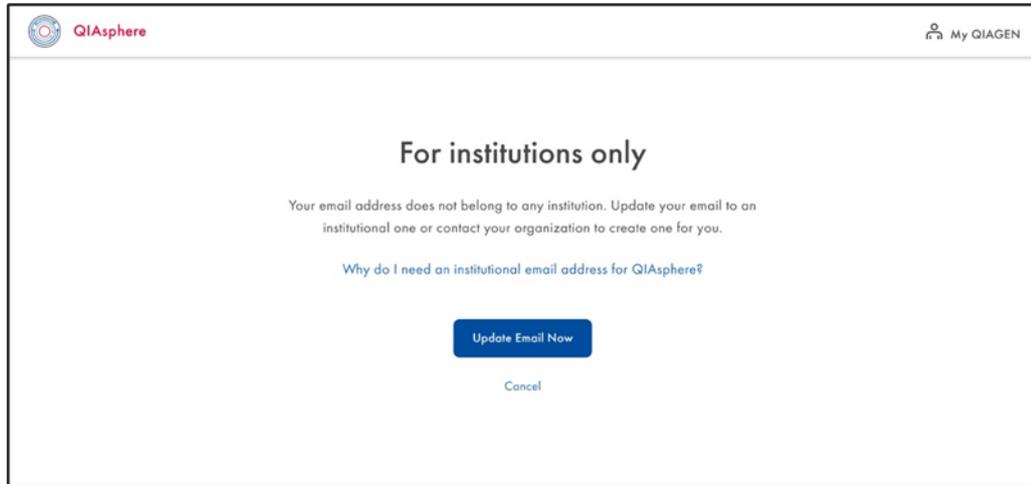
Note: If your My QIAGEN account is already assigned to a QIASphere license, you will be directed to the Administration Portal.

If your My QIAGEN account is not yet assigned to a QIASphere license, you will see a welcome screen.



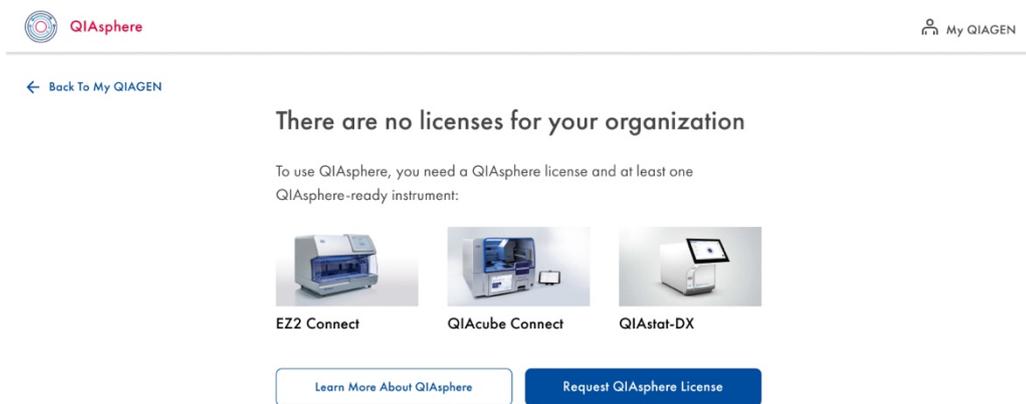
4. Click **Get Started**, depending on the license status, these three different scenarios are possible:

- **Scenario 1:** You do not have an institutional e-mail account.



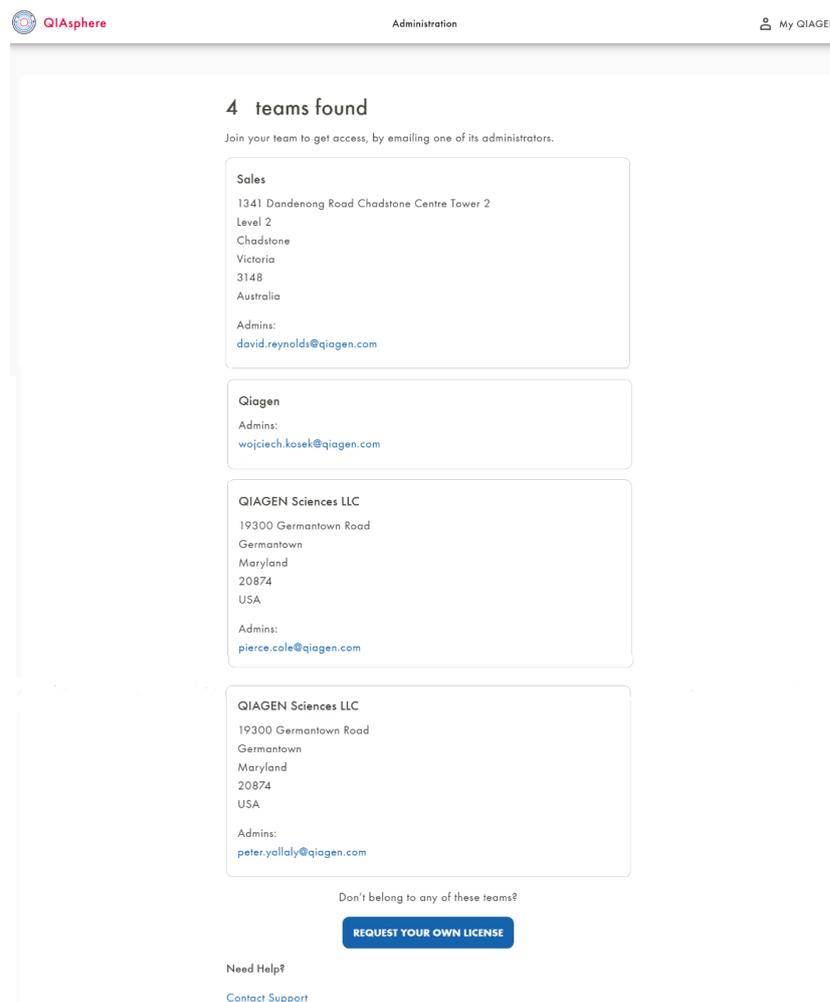
You will see the “For institutions only” screen with an option to update your e-mail account. Click **Update Email Now**, and change your e-mail in **My QIAGEN Personal Details**.

- **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.

Your QIASphere license has been granted

You've received a confirmation email with the license details.

To proceed with QIASphere Setup, continue with the step-by-step instruction to connect your QIASphere Base.

[Start QIASphere Setup](#)

[Skip For Now](#)

[Contact Support](#)

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. The 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.

Note: If QIAsphere Base Server requires a proxy, follow Section 6.1.4 to set up proxy for the QIAsphere Base Server.

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 – Linux OS

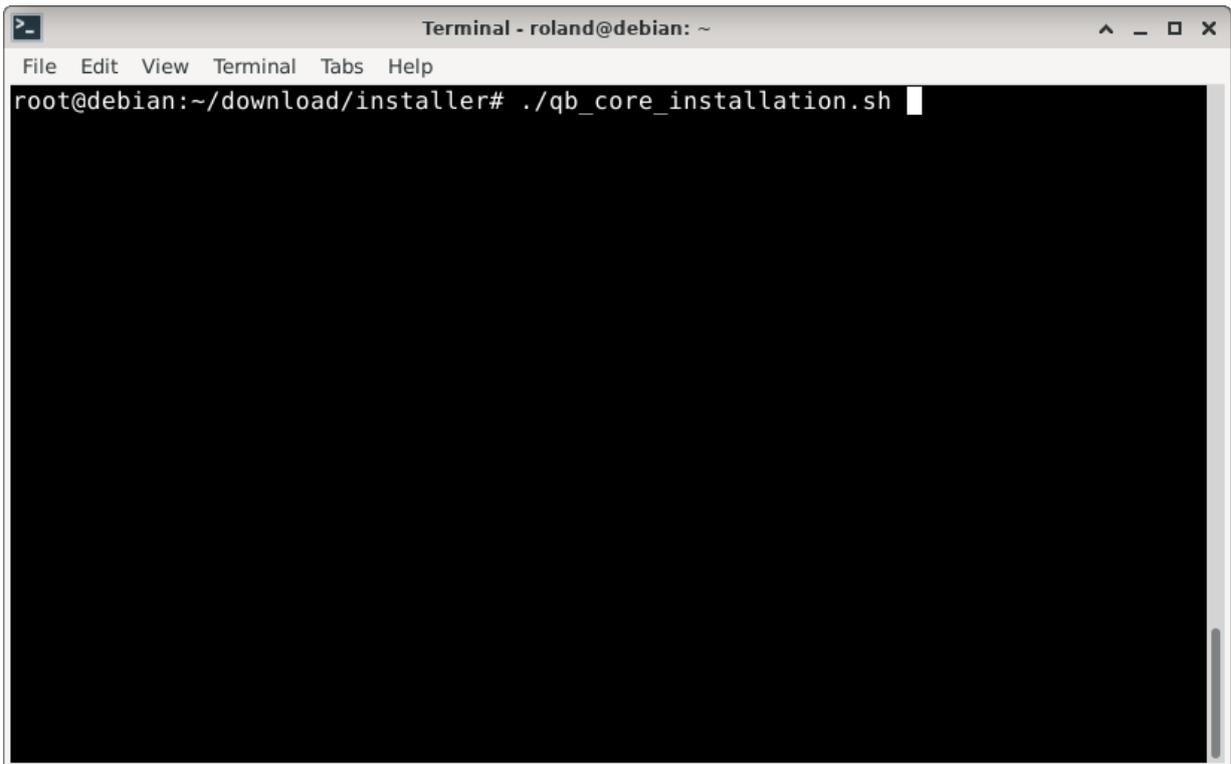
There are two prerequisites for the QIAsphere Base Server installation under Linux OS:

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

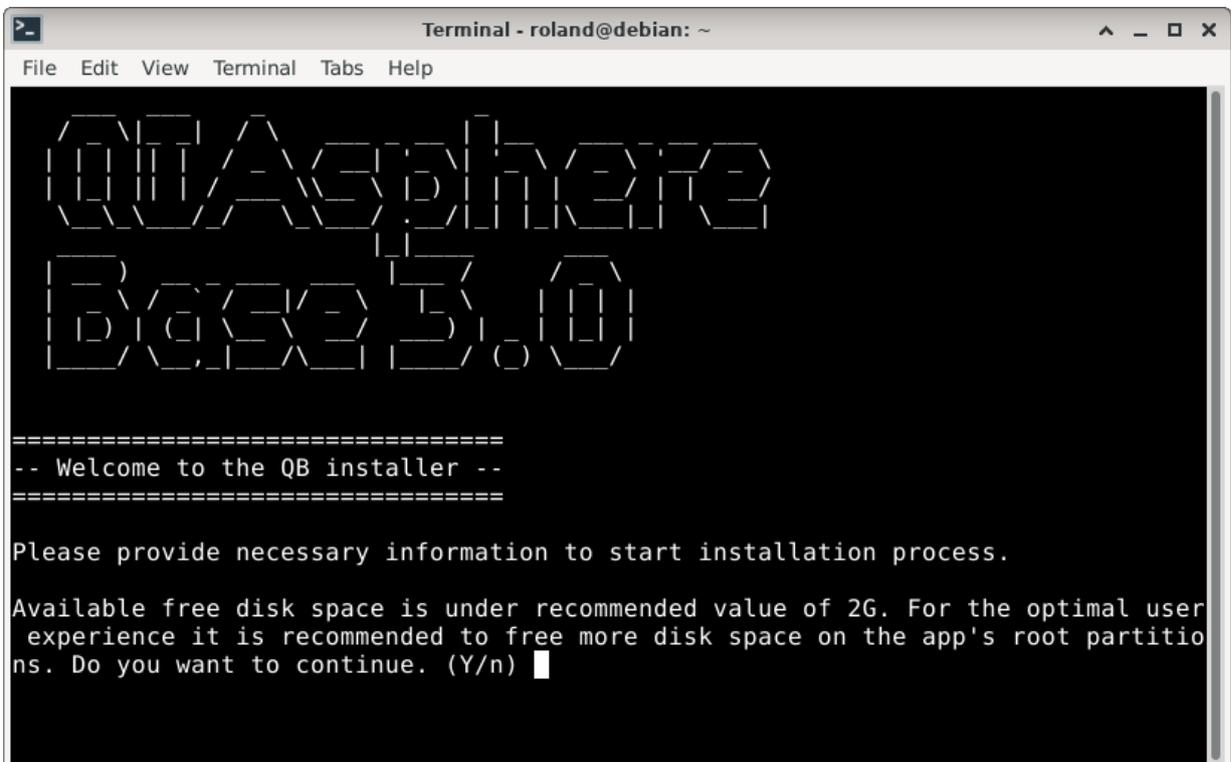
Contact QIAsphere technical support at GGlobalQIAspheresupport@qiagen.com for providing both prerequisites for QIAsphere Base Server installation.

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, but recommended:** Run **apt update**, and if necessary, run **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`.

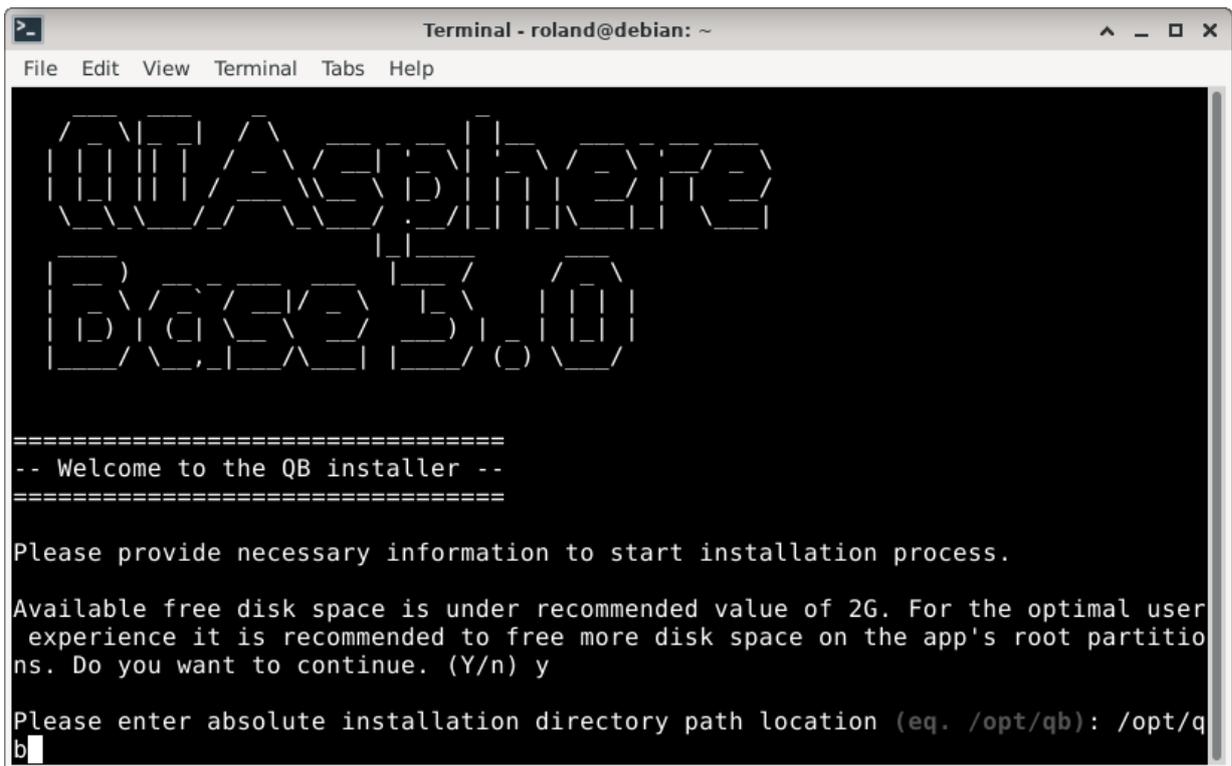
5. Copy QIAsphere Base Server serial number file into the installer directory, for example, HOME/QB_server_installer.



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



7. If required, accept the recommended settings.



```
Terminal - roland@debian: ~
File Edit View Terminal Tabs Help

QIAsphere
Base 5.0

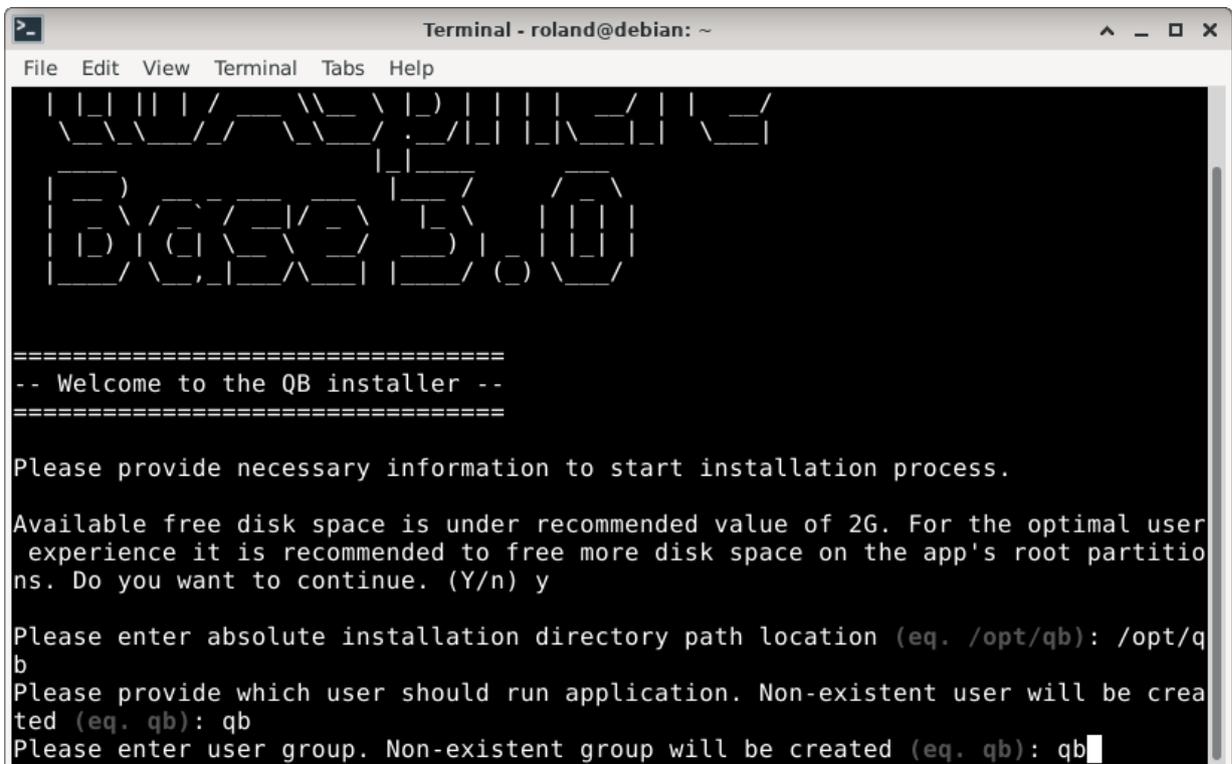
=====
-- Welcome to the QB installer --
=====

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 partitio
ns. Do you want to continue. (Y/n) y

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

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



```
Terminal - roland@debian: ~
File Edit View Terminal Tabs Help

QIAsphere
Base 5.0

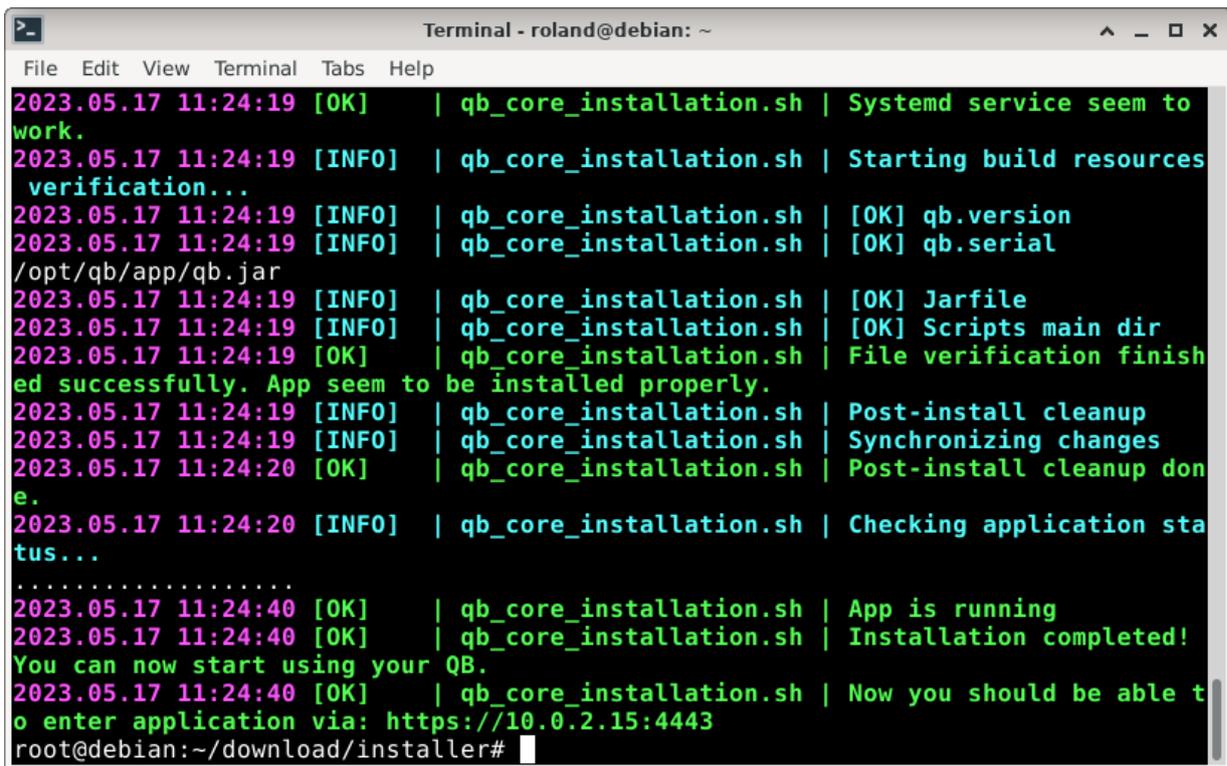
=====
-- Welcome to the QB installer --
=====

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 partitio
ns. Do you want to continue. (Y/n) y

Please enter absolute installation directory path location (eq. /opt/qb): /opt/q
b
Please provide which user should run application. Non-existent user will be crea
ted (eq. qb): qb
Please enter user group. Non-existent group will be created (eq. qb): qb
```


11. Review and accept the chosen options, if appropriate.



```
Terminal - roland@debian: ~
File Edit View Terminal Tabs Help
2023.05.17 11:24:19 [OK] | qb_core_installation.sh | Systemd service seem to
work.
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | Starting build resources
verification...
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | [OK] qb.version
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | [OK] qb.serial
/opt/qb/app/qb.jar
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | [OK] Jarfile
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | [OK] Scripts main dir
2023.05.17 11:24:19 [OK] | qb_core_installation.sh | File verification finish
ed successfully. App seem to be installed properly.
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | Post-install cleanup
2023.05.17 11:24:19 [INFO] | qb_core_installation.sh | Synchronizing changes
2023.05.17 11:24:20 [OK] | qb_core_installation.sh | Post-install cleanup don
e.
2023.05.17 11:24:20 [INFO] | qb_core_installation.sh | Checking application sta
tus...
.....
2023.05.17 11:24:40 [OK] | qb_core_installation.sh | App is running
2023.05.17 11:24:40 [OK] | qb_core_installation.sh | Installation completed!
You can now start using your QB.
2023.05.17 11:24:40 [OK] | qb_core_installation.sh | Now you should be able t
o enter application via: https://10.0.2.15:4443
root@debian:~/download/installer#
```

12. If QIAsphere Base Server requires a proxy, follow Section 6.1.4 to set up proxy for the QIAsphere Base.
13. After a successful installation, open a web browser (e.g., Chrome™ or Mozilla® Firefox) and proceed with QIAsphere Base Server registration – see Section 6.1.3.

6.1.2. QIAsphere Base Server installation – MS Windows / MS Windows Server

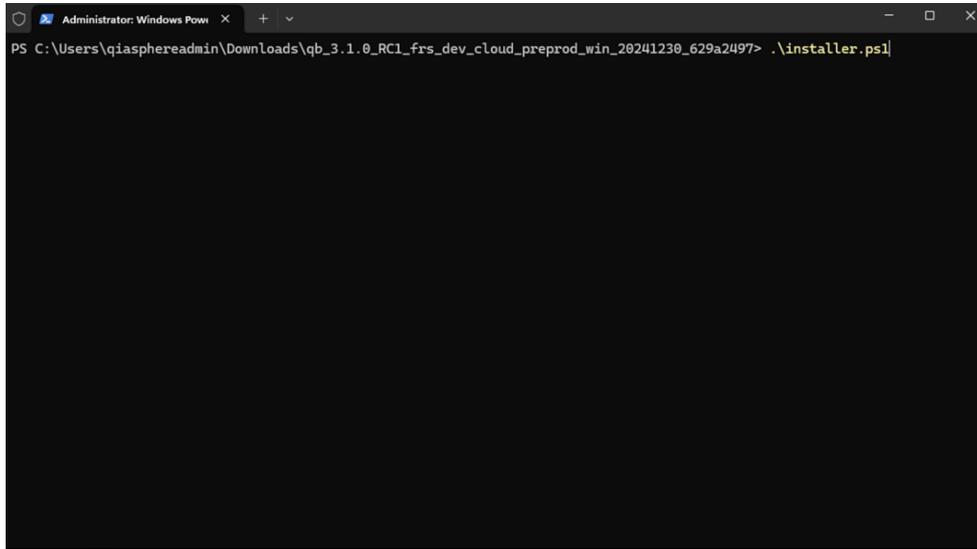
There are two prerequisites for the QIAsphere Base Server installation under MS Windows or MS Windows Server:

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

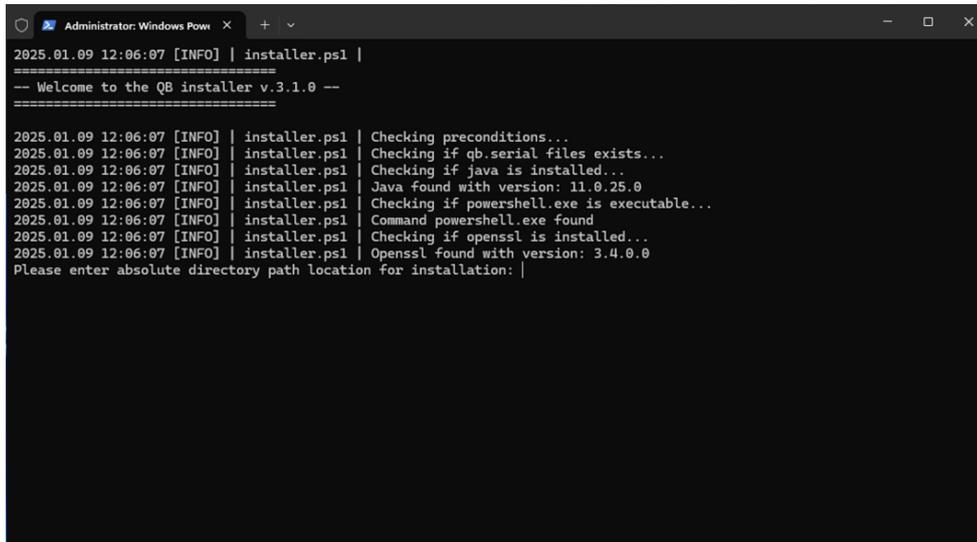
Contact QIAsphere technical support at support@qiagen.com for providing both prerequisites for QIAsphere Base Server installation.

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, but recommended:** Update the operating system to keep it up to date..
3. Install Java JDK 11 from www.oracle.com/java/technologies/downloads/?er=221886#license-lightbox
4. Install OpenSSL from <https://slproweb.com/products/Win32OpenSSL.html>. Choose Win64 OpenSSL v3.4.0.
5. Copy/download QIAsphere Base Server installer zip-file and QIAsphere Base Server serial number file to the server, for example, to c:/download directory.
6. Unzip QIAsphere Base Server installer zip-file into an installer directory, for example, c:/qb_server_installer.

7. Copy QIAsphere Base Server serial number file into the installer directory, for example, c:/qb_server_installer.
8. Open Windows Power Shell and navigate into the the directory used in step 5.
9. Run QIAsphere Base Server installer located within the installer directory by issuing the ./installer.ps1 command.



10. Enter the full path for where the QIAsphere Base Server should be installed. Please note that the given directory must already exist.



11. Confirm the installation settings by pressing "Y" or "N" in case changes need to be made.

```
Administrator: Windows Powe x + v
2025.01.09 12:07:31 [INFO] | installer.ps1 |
-----
-- Welcome to the QB installer v.3.1.0 --
-----
2025.01.09 12:07:31 [INFO] | installer.ps1 | Checking preconditions...
2025.01.09 12:07:31 [INFO] | installer.ps1 | Checking if qb.serial files exists...
2025.01.09 12:07:31 [INFO] | installer.ps1 | Checking if java is installed...
2025.01.09 12:07:31 [INFO] | installer.ps1 | Java found with version: 11.0.25.0
2025.01.09 12:07:31 [INFO] | installer.ps1 | Checking if powershell.exe is executable...
2025.01.09 12:07:31 [INFO] | installer.ps1 | Command powershell.exe found
2025.01.09 12:07:31 [INFO] | installer.ps1 | Checking if openssl is installed...
2025.01.09 12:07:31 [INFO] | installer.ps1 | Openssl found with version: 3.4.0.0
Please enter absolute directory path location for installation: C:\QB3_WORKDIR
Installation summary:
-----
- Installation directory.....: C:\QB3_WORKDIR
-----
Please confirm chosen option ?
[Y] Yes [N] No [?] Help (default is "Y"): |
```

12. After the installation is completed, the following information will be presented in the Windows Power Shell console.

```
Administrator: Windows Powe x + v
subjectAltName      = @alternate_names
nsComment           = \"OpenSSL Generated Certificate\"
extendedKeyUsage    = serverAuth

[ alternate_names ]
DNS.1 = dev-qa-qb3-weu
DNS.2 = 10.136.52.20
DNS.3 = 127.0.0.1
IP.1 = 10.136.52.20
IP.2 = 127.0.0.1
2025.01.09 12:08:38 [INFO] | certs.ps1 | Generating server Certificate request
2025.01.09 12:08:38 [INFO] | certs.ps1 | Signing with root Certificate
Certificate request self-signature ok
subject=CN=QIAsphere-Base-Y119LXA0009, O=QIAGEN GmbH, OU=QIAsphere Base, L=Hilden, C=DE
2025.01.09 12:08:38 [INFO] | certs.ps1 | Add certificate to key store
-----
1/9/2025 12:08 PM 0 certificateRegenerated
2025.01.09 12:08:38 [INFO] | certs.ps1 | Generation of SSL certificate done
2025.01.09 12:08:38 [INFO] | certs.ps1 | End of SSL Certificate reload process
2025.01.09 12:08:38 [INFO] | installer.ps1 | Certificates generated

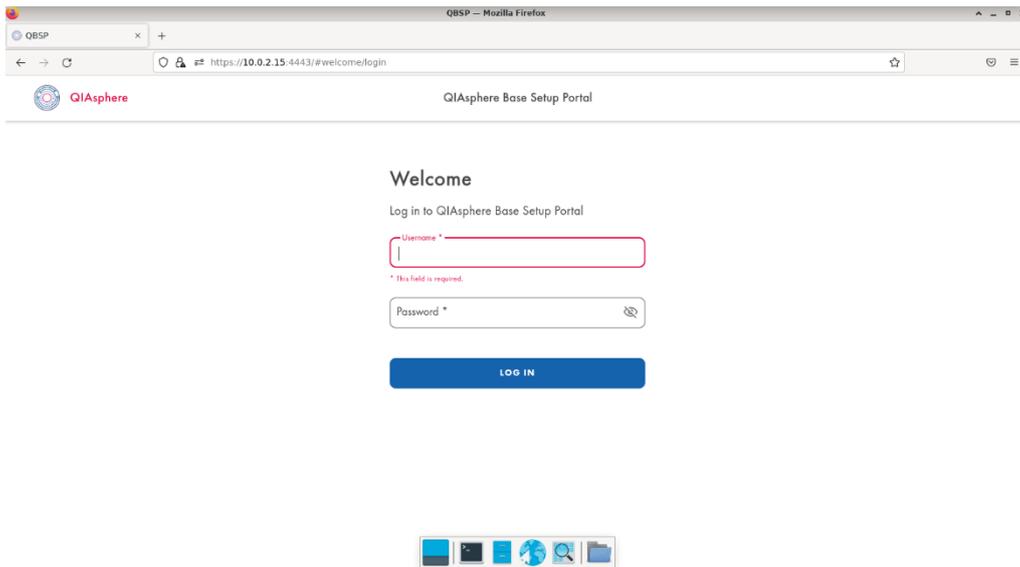
Status      : Stopped
Name        : QB.Service
DisplayName : QB.Service

2025.01.09 12:08:40 [INFO] | installer.ps1 | Qb windows service enabled
2025.01.09 12:08:40 [INFO] | installer.ps1 | QIAsphere Base v3.1.0 installation FINISHED successfully.
2025.01.09 12:08:40 [INFO] | installer.ps1 | Now you should be able to enter application via: https://127.0.0.1:4443

PS C:\Users\qiasphereadmin\Downloads\qb_3.1.0_RC1_frs_dev_cloud_preprod_win_20241230_629a2497> |
```

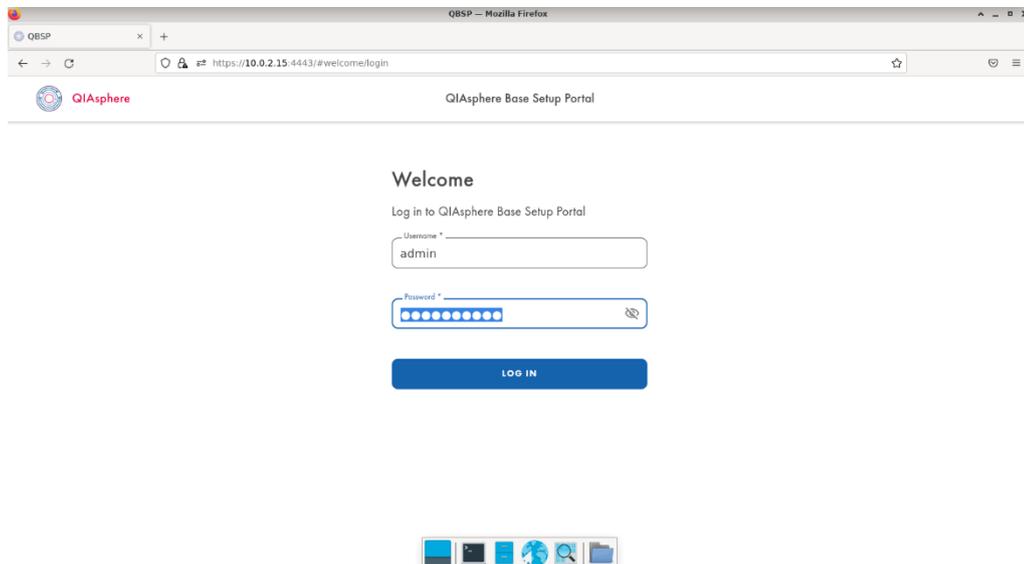
13. If QIAsphere Base Server requires a proxy, follow Section 6.1.4 to set up proxy for the QIAsphere Base.
14. After a successful installation, open a web browser (e.g., Chrome or Mozilla Firefox) and proceed with QIAsphere Base Server registration – see Section 6.1.3.

6.1.3. 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.

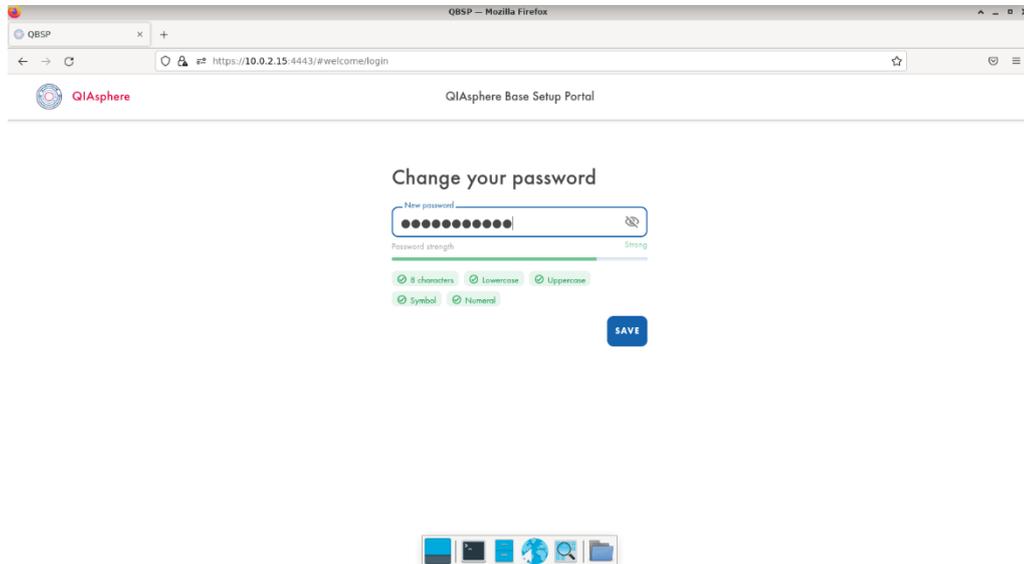
Note: QIAsphere Base uses a QIAGEN-signed certificate for the secure https connection. Therefore, the browser may issue a security warning. Ignore the warning or add an exception to access the QIAsphere Base Setup Portal.



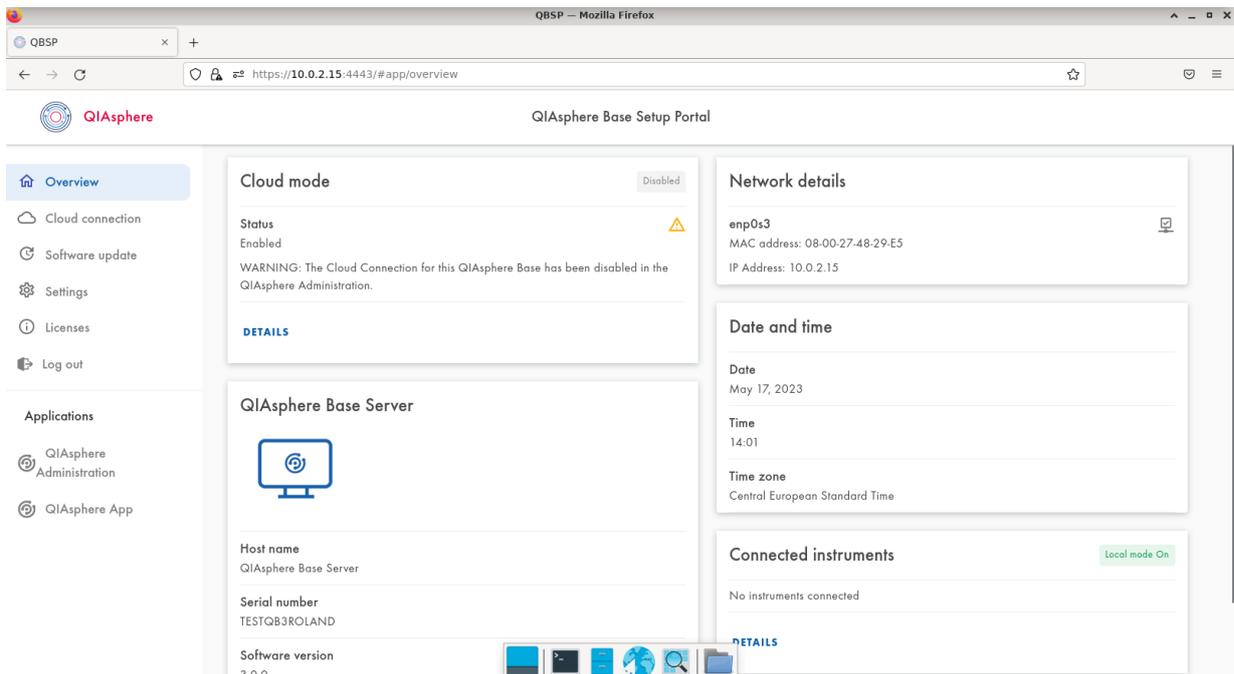
2. Enter the default login details with the following credentials:

Username: admin

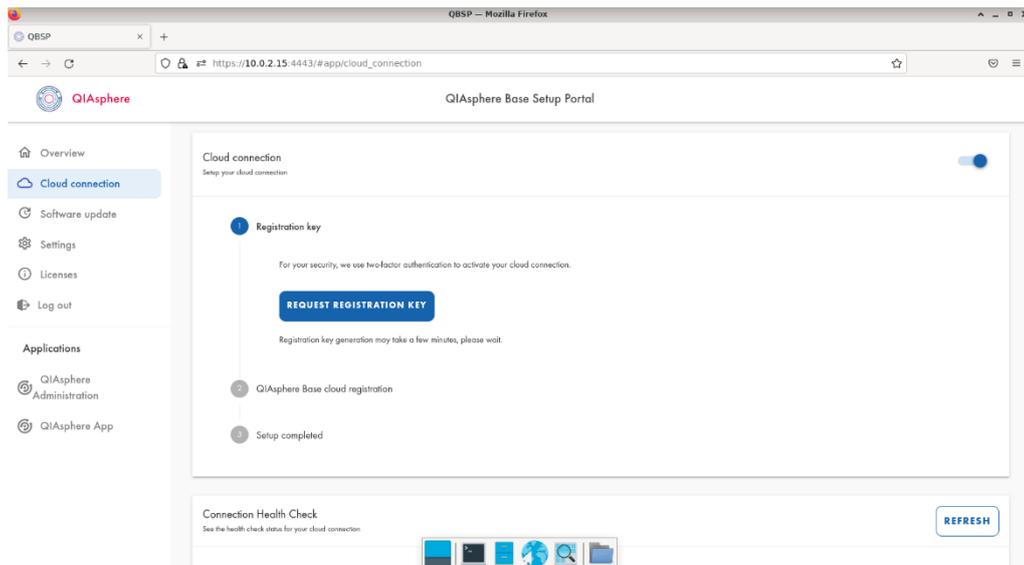
Password: Qiagen@123



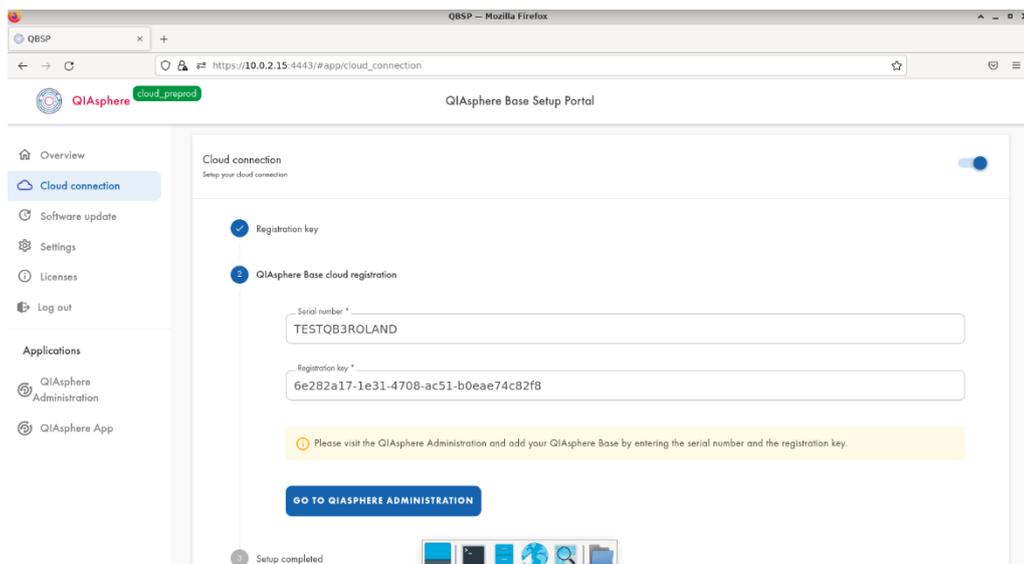
3. Because this is the very first login in QBSP, change the default password. Afterwards, the admin password can be changed anytime as described in Section 13.2.



4. After a successful login, the Overview page will open. Click the **Cloud connection** button on left-hand menu bar.

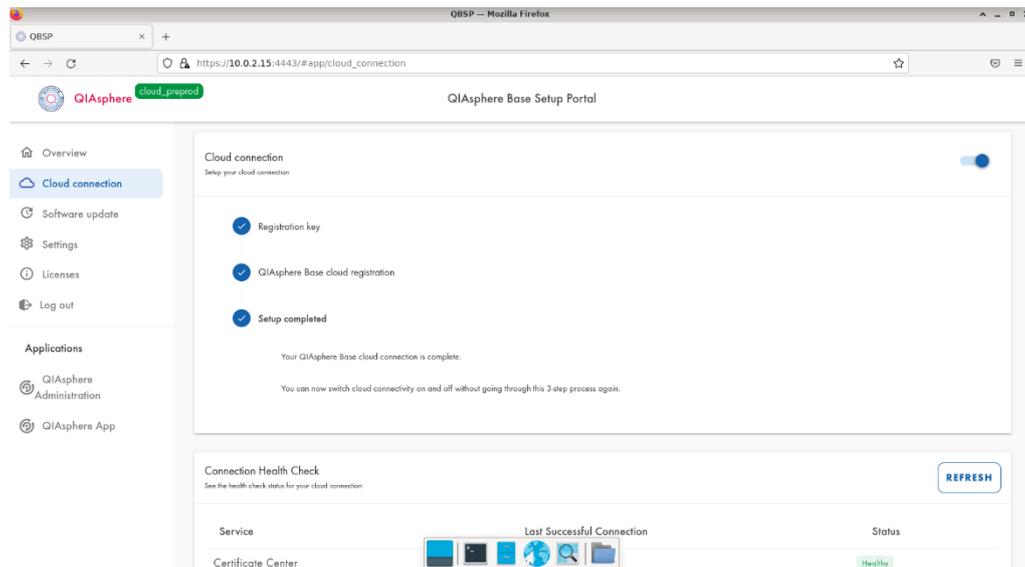


5. Proceed with the registration process by clicking the **REQUEST REGISTRATION KEY** button.



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.



8. After successful QIAsphere Server registration in QIAsphere Administration, the setup of the QIAsphere Base is completed.

6.1.4. Proxy settings

If a proxy is required for the QIAsphere Base Server, create a proxy configuration file located under `/QB_APP_PATH/config/proxy.config` and edit it according to the following template:

- `proxy_enabled=true`
- `host_proxy="proxy_host"`
- `port_proxy="proxy_port"`
- `user_proxy="some_user"`
- `password_proxy="some_password"`

If no proxy is required, delete the proxy configuration file `/QB_APP_PATH/config/proxy.config`.

6.1.5. 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 between a QIAsphere Base, connected via the service port, 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 the connectivity port of the QIAsphere Base.
2. Power up the QIAsphere Base by plugging the power cord into an appropriate power socket. Press the power button, if applicable.
3. Wait for approximately 2 to 10 min until status LED (IOT-GATE-iMX8 from CompuLab) lights green or User 1 LED (or ReliaGATE 10-12 from Eurotech) is on. Then connect your PC to the service 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

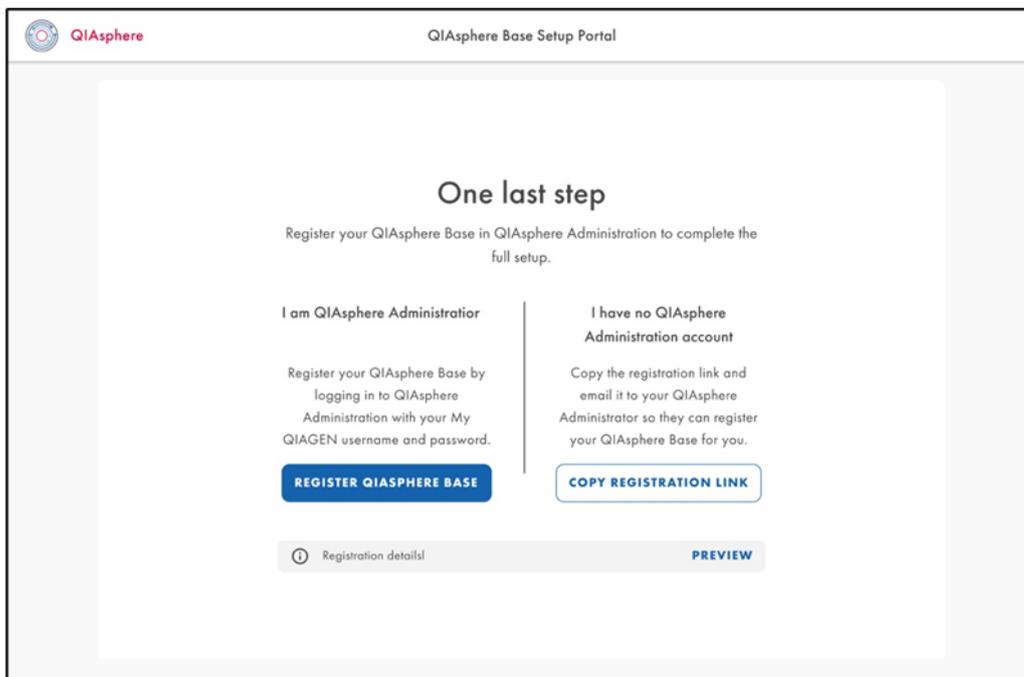
An automatic search for Software updates will be performed in the background for approximately 40 seconds. If any update is available, updates will be installed automatically on the QIASphere Base (this may take some minutes). Otherwise, QIASphere Base has the latest software installed.

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 the 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.

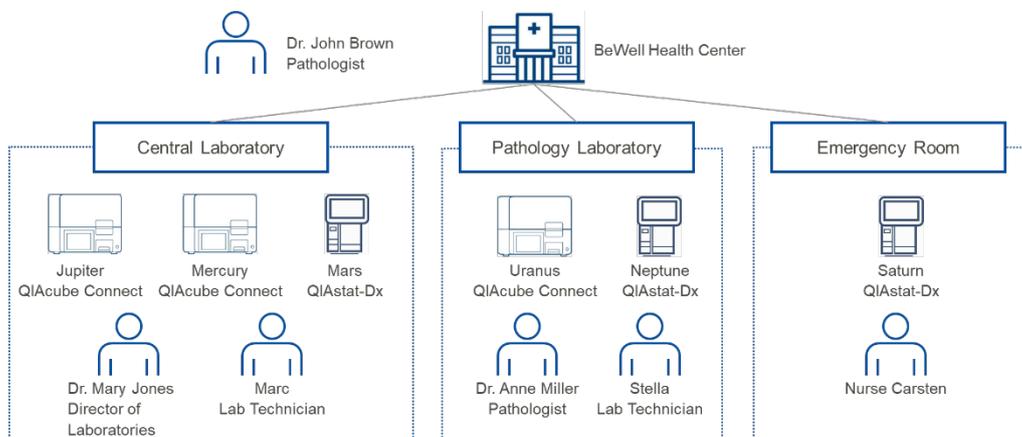
7. Connecting Users and Instruments in Cloud Mode

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:

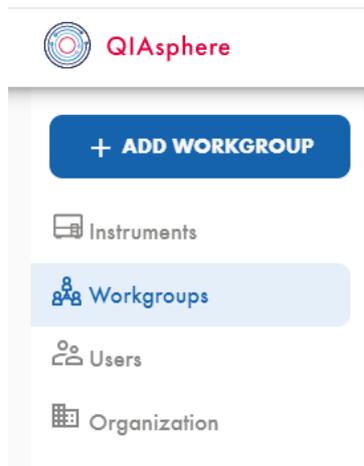
1. Create a Workgroup; see Section 7.1 for reference.
2. Assign instruments to workgroup; see Section 7.2 for reference.
3. Assign/invite users to workgroup; see Section 7.3 for reference.

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

Workgroup name

Parent workgroup

Workgroup name is required.

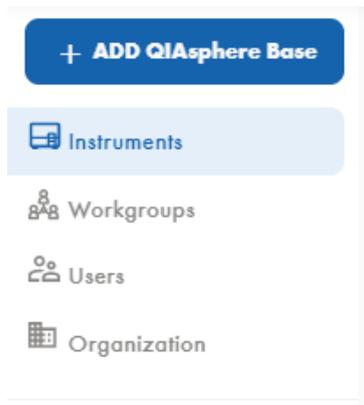
CANCEL ADD

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.

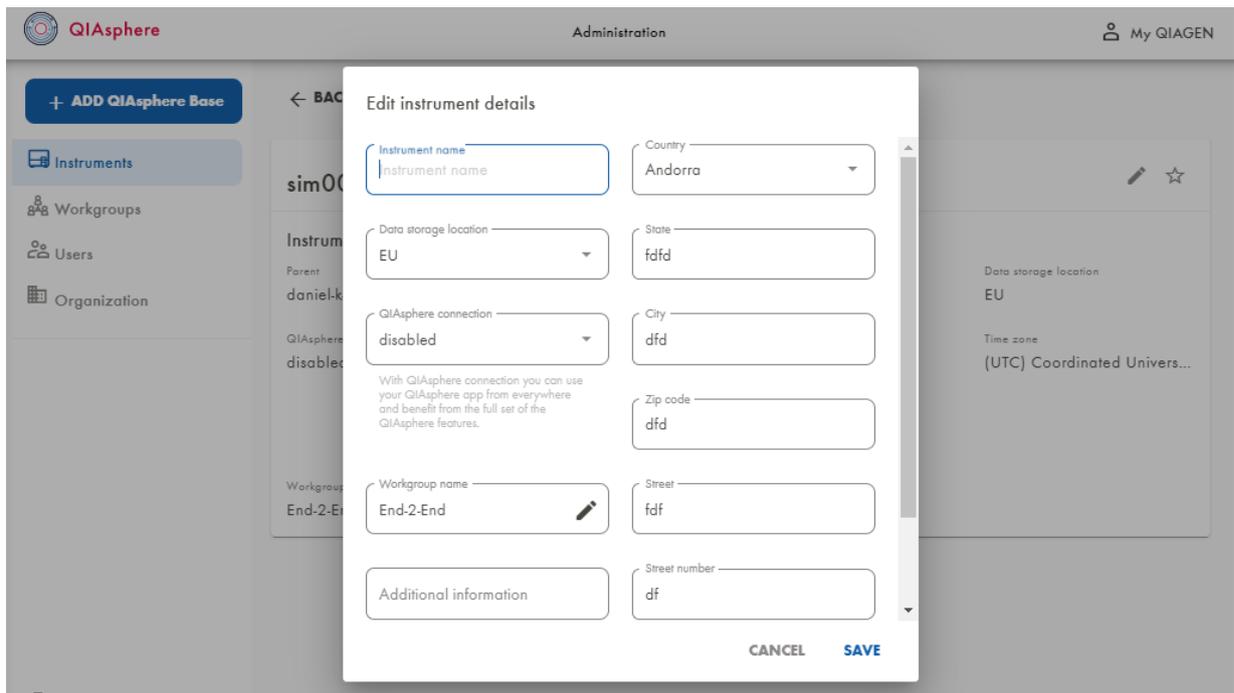


3. Click on the instrument or QIASphere Base.

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.

- In the Edit instrument details pop-up window, make sure that QIAsphere connection is enabled. If it shows **disabled**, change the status to **enabled**.



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

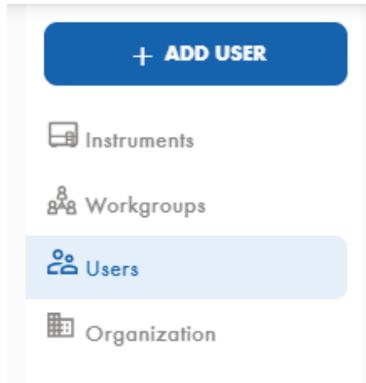
The QIAsphere Administration portal supports two User Roles:

- 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.

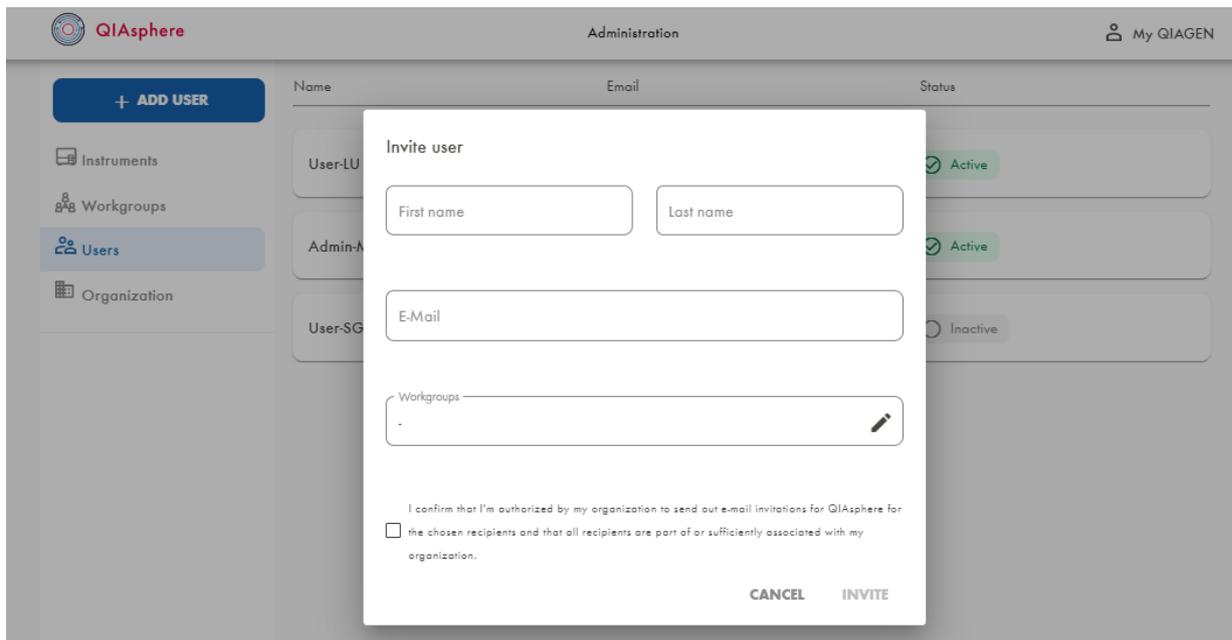
7.3.1. Creating new user in QIASphere

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.



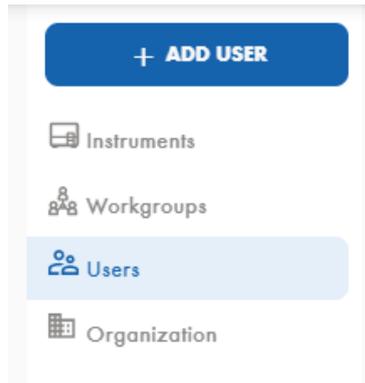
5. Check the box, and click **Invite**.
6. The new user will receive an e-mail. By clicking the **Activate your QIASphere Account** link in the e-mail, the user will be added to QIASphere and can be found in the **Users** menu. The new user can launch the QIASphere App and can immediately see all instruments 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.

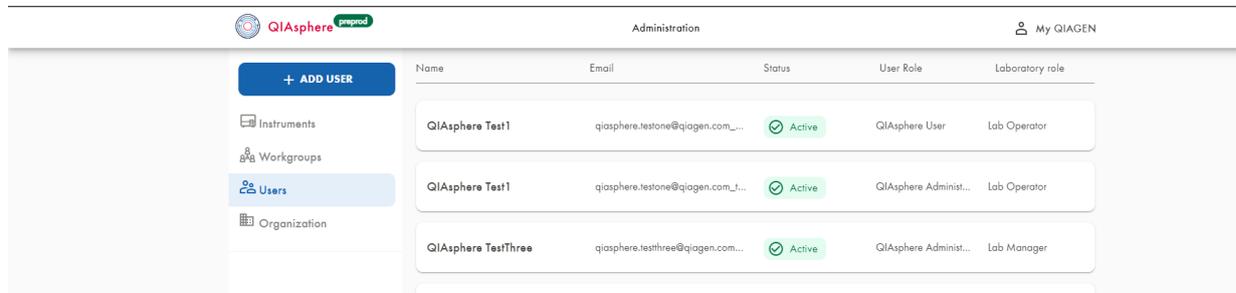


3. In the list of available users, search for the user you want to add and click on the user.
4. To edit, click the pencil icon.
5. Select the relevant workgroup.
6. Check the box, and click **SAVE**.

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.



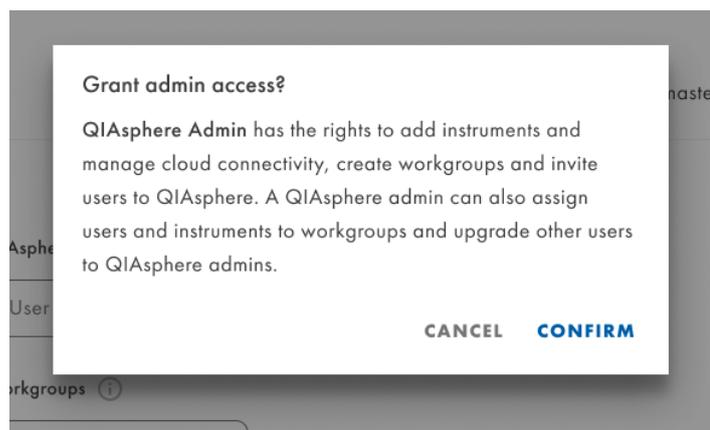
3. From the list of available users, search and select for the user you want to change the user role.
4. To change the user role, use the **User role dropdown** menu in the user screen.



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**.

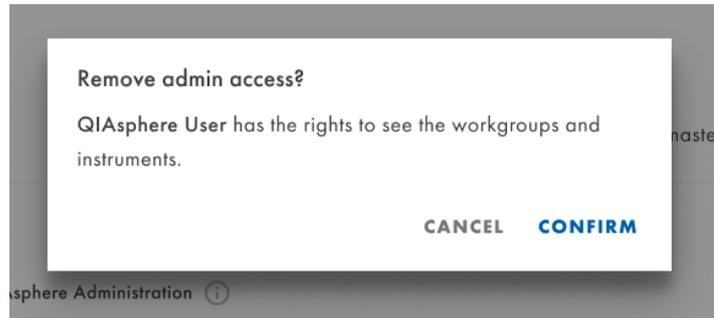
After selecting the new role QIASphere Administrator from the dropdown menu, a pop-up window with additional information about the user role change appears. Click the **Confirm** button to request new user role QIASphere Administrator.



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 the 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:



Note: If Google Play Store is not available in your country, go to www.qiagen.com/qiasphere and download QIASphere App (*.apk file).

2. Follow the system instructions for app installation.

8.3. [On premise features] Mobile app certificate installation

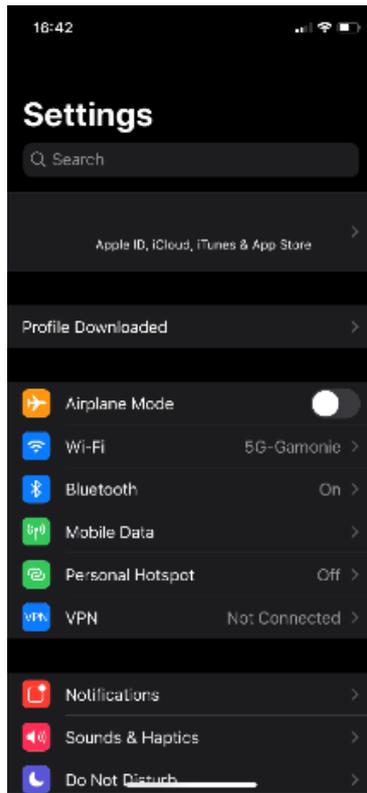
To use the report on premise feature, the QIASphere App needs to retrieve data directly from the QIASphere Base via the local network. To allow direct communication, installation of a certificate is required.

8.3.1. Certificate installation on iOS devices

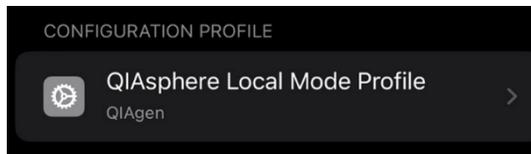
Important: Install QIASphere App first before you proceed with certificate installation (see Section 8.1).

1. Use your iOS device and go to QIASphere Product page at www.qiagen.com/qiasphere
2. Download the iOS QIASphere Profile (**QIASphere Local Mode Profile.mobileconfig**).

3. Go to **Settings** app of your device and click **Profile Downloaded**.



4. Click the **QIAsphere Base Intranet Profile**.

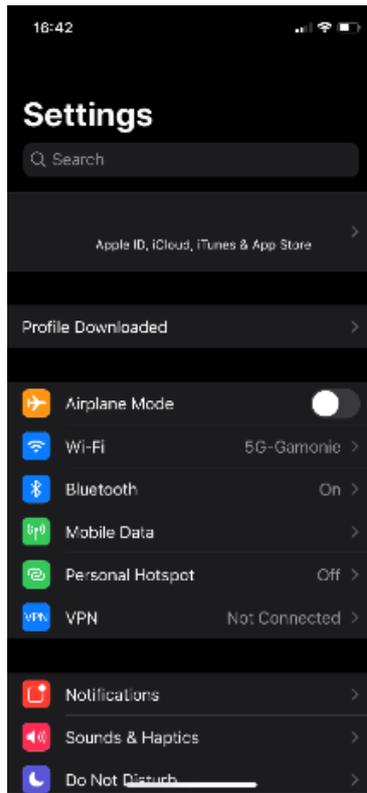


5. Verify the profile and click **Install**.

6. Enter your device passcode or password and click **Done**.

7. Read the warning and click **Install**.

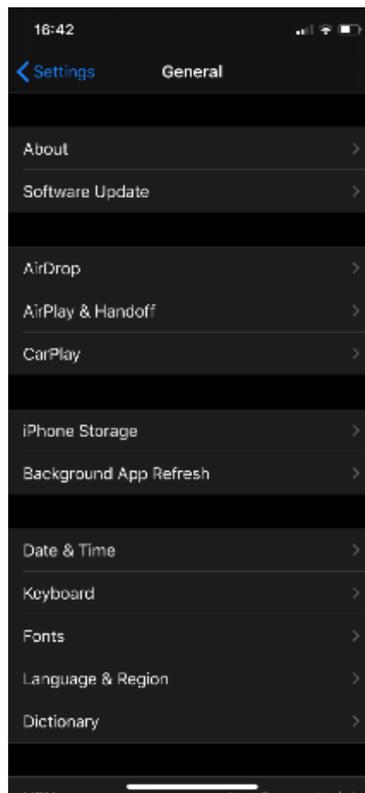
8. Go to the **Settings** app of your device and click **Profile Downloaded**.



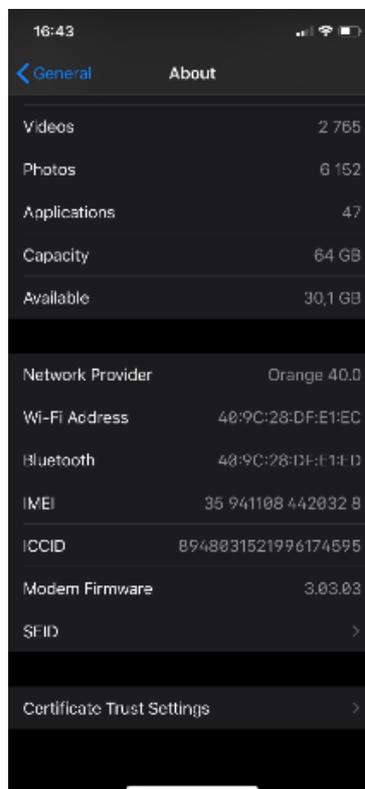
9. Acknowledge installation by clicking **Install**.

10. Profile is installed. Close the window by clicking **Done**.

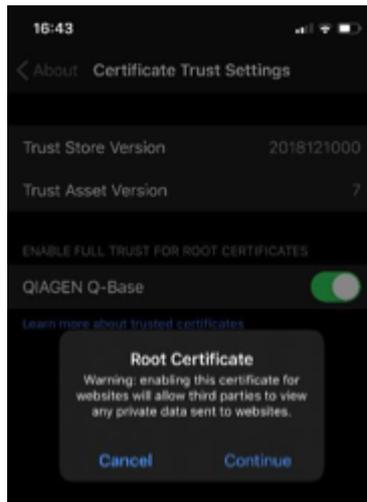
11. Go to the **General** section of the **Settings** app and choose **About**.



12. In the **About** section, scroll all the way down and go to **Certificate Trust Settings**.



13. Find the QIAGEN QIASphere Base root certificate and click the toggle switch.



14. Acknowledge the fact that you are trusting Root Certificate by clicking **Continue**.

15. QIAGEN QIASphere Base certificate is now installed.

8.4. Certificate installation on Android devices

Important: Install QIASphere App first before you proceed with certificate installation (see Section 8.2).

1. Download Certificate for Android at www.qiagen.com/qiasphere
2. Go to **My Files**.
3. Select the folder where the file has been downloaded to and open the file (find and choose the certificate from your files folder).
4. An installation process is started. During this process, it is necessary to:
 - a. Enter your pin or password.
 - b. Assign a name to the certificate (you can choose any name). QIAGEN recommends selecting a name that is easily identifiable like QIASphereCert.
 - c. Select a credential use. Set it to **VPN and apps**.

You can check on the security certificates screen of the Android settings, whether the certificate was successfully installed or not. How this screen can be reached depends on the type of device. On a Samsung Galaxy Tab A, for example, they can be reached by selecting **Settings > Security > Other Security settings > View security certificates**. The newly installed certificate should be visible in the **Users** tab.

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**.

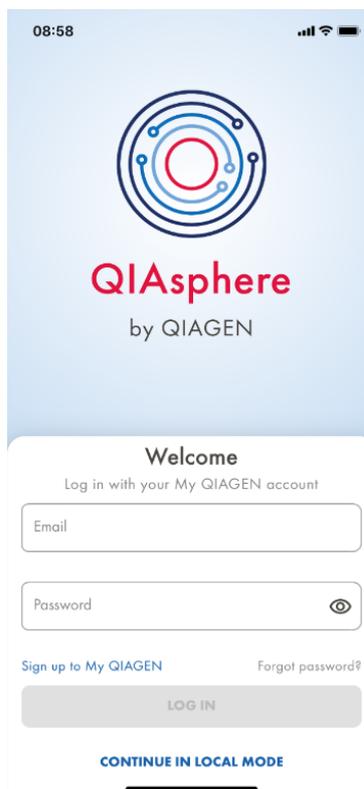
When your instrument is connected, proceed with Section 10 to run the QIASphere app.

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

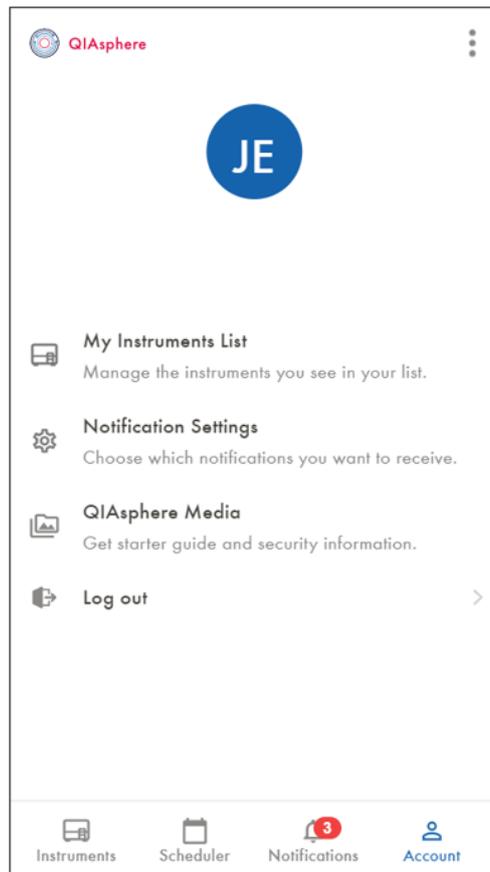
The web app version is only available in cloud connected mode.

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, users 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

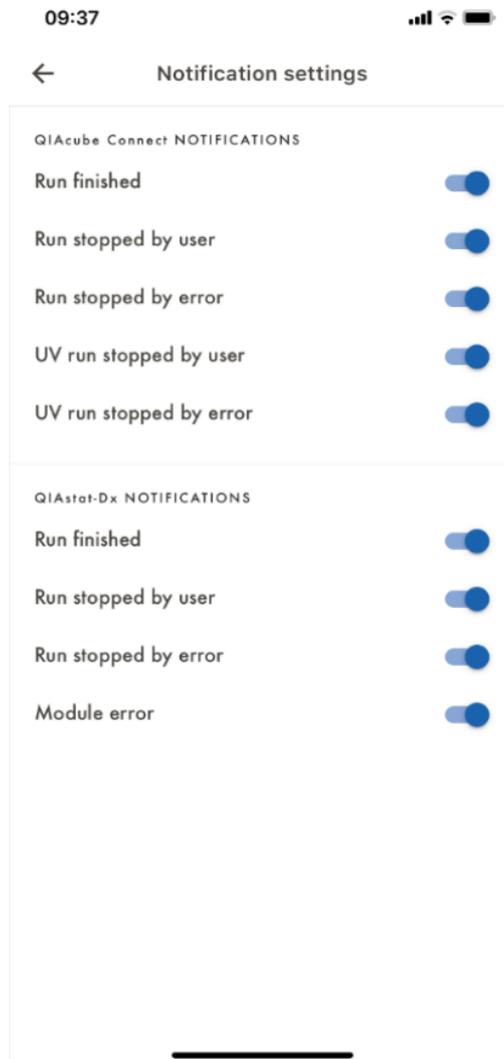
Go to **My Account** menu and select **My Instruments list**. Select which instruments shall be displayed in the instrument list by switching the respective toggle switch on or off.



10.3.3. Notification settings

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

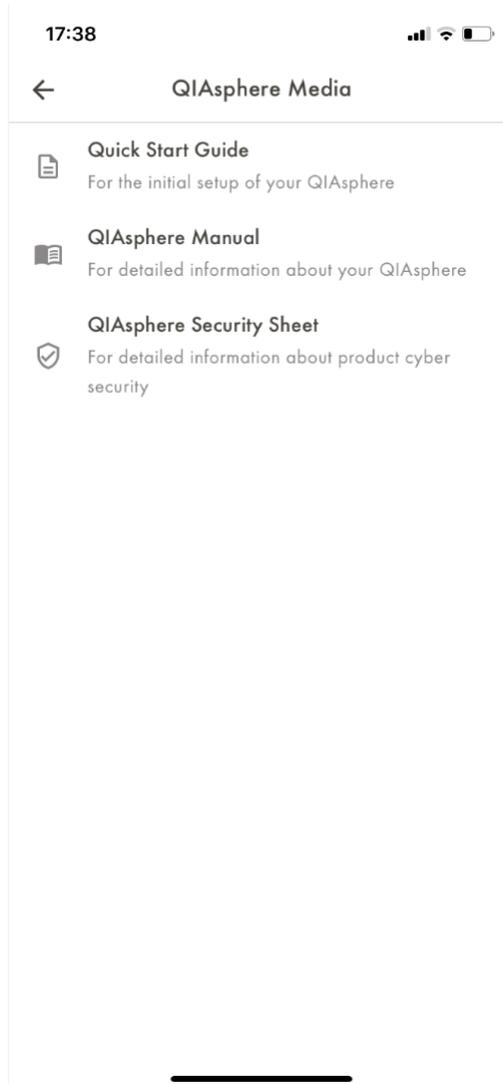
Select the type of events where push notifications and in-app notifications should be received by switching the respective toggle switch on or off.



10.3.4. QIASphere media

Go to **My Account** menu and select **QIASphere Media**:

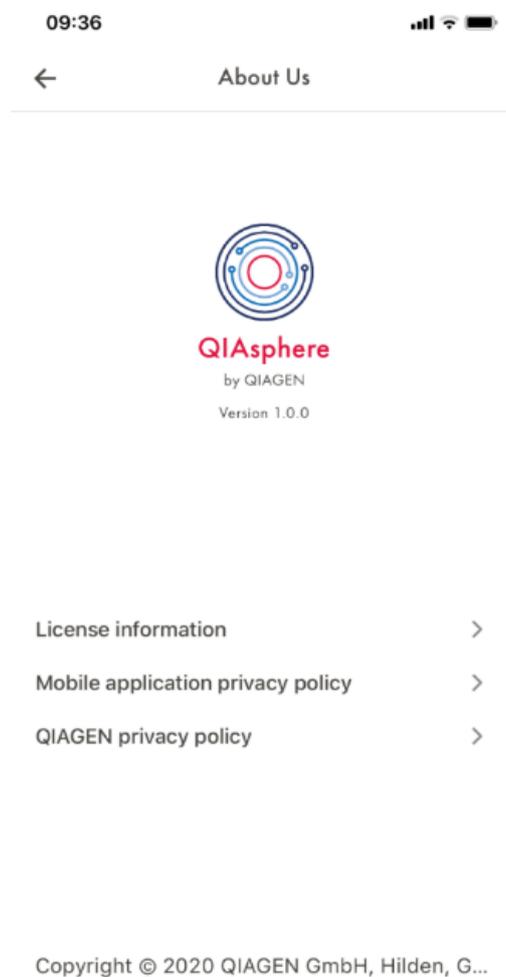
- To download the short version of the user manual, click **Quick Start Guide**.
- To download the detailed QIASphere user manual, click **QIASphere Manual**.
- To download the QIASphere Product and Solution Security Whitepaper, click **QIASphere Security Sheet**.



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 third-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



10.4. Report on premise (QIAstat-Dx 2.0 only)

In case the QIASphere Application is used while connected to the same network as the QIASphere Base, it is possible to view reports generated by the QIAstat-Dx 2.0 using a local network direct connection. The viewable reports are stored locally on the QIASphere Base and not uploaded to the cloud.

10.4.1. Prerequisites

Report on premise requires a certificate installed. Please follow steps according to the used platform

- Android – Section 8.2
- iOS – Section 8.1
- Windows
 - Go to qiagen.com/qiasphere
 - Download the **Android Certificate for Local-Only Mode**.
 - Open the *.crt file and follow system instructions.
 - Alternatively, you can install the certificate by installing the QIASphere Export Tool – Section 1.5.1.
- MacOS
 - Go to qiagen.com/qiasphere
 - Download the **Android Certificate for Local-Only Mode**.
 - Open the *.crt file and follow the system instructions.

10.4.2. Report on premise in QIASphere Application

Once the prerequisites are fulfilled and QIASphere Application is used on the same local network as the QIASphere Base, it is possible to view the locally stored run reports. In order to view a report:

- Open the QIASphere Application.
- Navigate to the **Instruments** section on the left-hand side menu.
- Select the QIAstat-Dx instrument that you would like to view the reports from.

- Open the **History** tab in the instrument details panel.

The screenshot shows the QIASphere user interface. At the top left is the QIASphere logo, and at the top right is 'My QIAGEN'. The left sidebar contains navigation options: Instruments, Scheduler, My Notifications, Account, and About this app. Below these are links to QIASphere Administration, QIASphere Insights, and Digital Inventory. The main content area is titled 'Test Instrument' and shows a 'Test Instrument' card for 'QIAstat-Dx' with an 'Available' status. Below this is a 'History' tab with three entries:

Time	Analytical module	Application	Cartridge ID
TODAY, 1:15 PM	1	RP SARS-CoV-2	P00000007
TODAY, 12:40 PM	1	BCID_GN_RUO	P00000007
TODAY, 12:39 PM	1	BCID_GN_RUO	P00000007

Each entry includes an 'Urgently check report' button.

- Select a run for which you would like to view the results.

- Click on the PDF report link in the Reports section. The report will be downloaded automatically.

The screenshot displays the QIASphere application interface. At the top left is the QIASphere logo, and at the top right is the user profile 'My QIAGEN'. The main interface is divided into three sections:

- Left Sidebar:** Contains navigation options: 'Instruments', 'Scheduler', 'My Notifications', 'Account', and 'About this app'. At the bottom, there are links for 'QIASphere Administration', 'QIASphere Insights', and 'Digital Inventory'.
- Test Instrument Panel:** Shows a 'Test Instrument' card for 'QIAstat-Dx' with a green 'Available' status indicator.
- Main Content Area:** Displays a report summary for 'Test Instrument, QIAstat-Dx' as of 'Today, 1:15 PM'.

PROGRESS	
Urgently check report	
Start time	Today, 1:15 PM
End time	Today, 1:15 PM

ATTRIBUTES	
Application	RP SARS-CoV-2
Cartridge ID	P00000007

REPORTS	
resultsReport_20240308_131539_OMTestInstrument.pdf	

11. QIASphere Insights

QIASphere Insights brings cloud-based analytic capabilities to our customers. It consists of two main modules:

- Epidemiology, with a number of reports aiming to deliver statistics about pathogens' detection considered from different aspects
- System Usage, with kit consumption and instrument usage reports for all the instrument types connected to QIASphere

11.1. Prerequisites

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

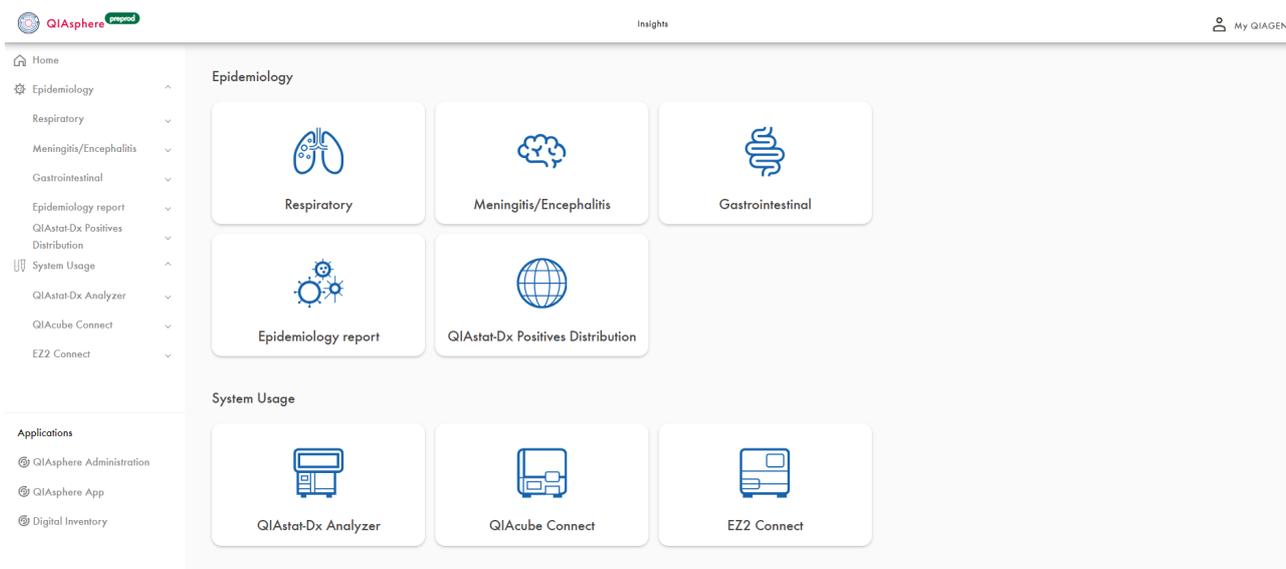
- The user needs to have a QIASphere account with an active license.
- The user needs to have a QIASphere-ready instrument connected to QIASphere.
- The user needs to have the role "Lab Manager" (please see Section 7.3).

11.2. Homepage

It is the starting page that appears after having successfully logged in QIASphere Insights. On the left-hand side, there is the side menu that serves to navigate between panels and reports. It is always present next to the contents of every page. Below the menu, there are three buttons that lead to QIASphere Administration, QIASphere App, and Digital Inventory, respectively.

The main content of this page consists of eight tiles representing and leading to all the main sub-sections of the application. In the upper part, there are three epidemiology panels (Respiratory, Meningitis/Encephalitis, and Gastrointestinal), Epidemiology report, and QIASphere-Dx positives distribution report. The other tiles in Section 11.4 direct the user to the utilization and consumption reports for every instrument type user's organization connected to QIASphere network.

In the upper right corner, there is My QIAGEN button which leads to the user's main **My QIAGEN** page.

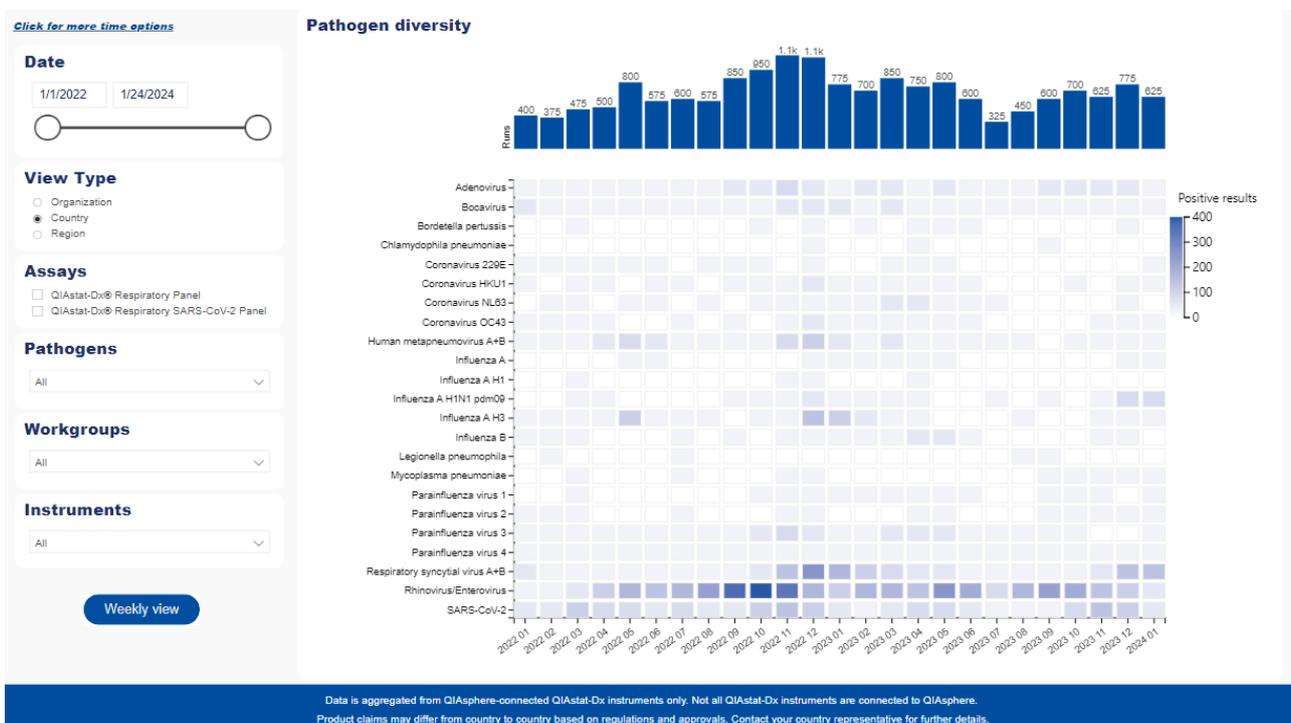


11.3. Epidemiology

11.3.1. Respiratory panel

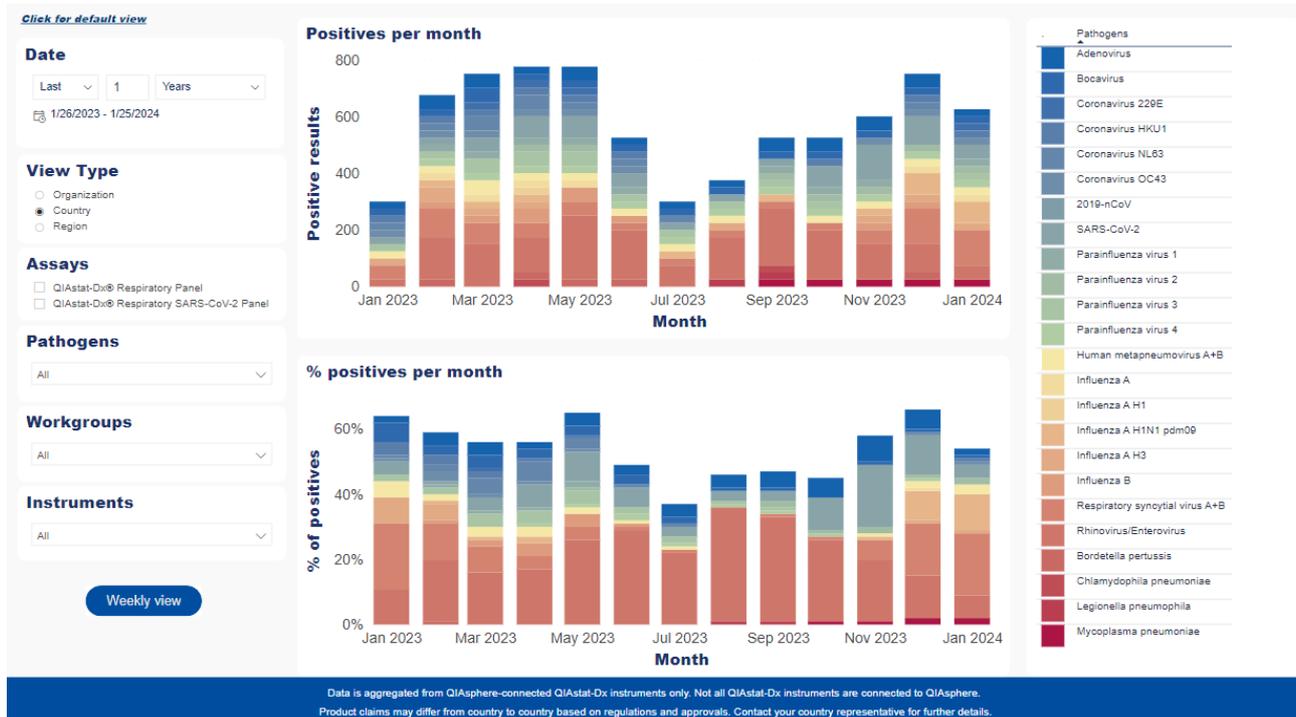
Pathogen diversity

This report presents a heatmap of positive results per month for each pathogen from Respiratory panel. On the Y axis, there is a list of pathogens, and on the X axis, there is a timeline divided by months. To see the exact numbers for each pathogen, the user can move the cursor over a tile on the heatmap and a tooltip will appear showing month, pathogen name, number of positive results, and percentage of positive results. Above the heatmap, there is also a bar graph with a number of test runs in each month. On the left side of the report, there is the filter section allowing the user to change the scope of data shown in the visuals by selecting a date range on the slider or a checkbox corresponding to a desired assay, pathogen, workgroup, or instrument. The user also has the option to change the time granularity of the visuals by clicking on the buttons labeled "Weekly view", "Yearly view", and "Monthly view". Additionally, the user can switch among "Organization", "Country", and "Region" views, allowing to display not only the organization's data but also rounded results from the organization's country and region.



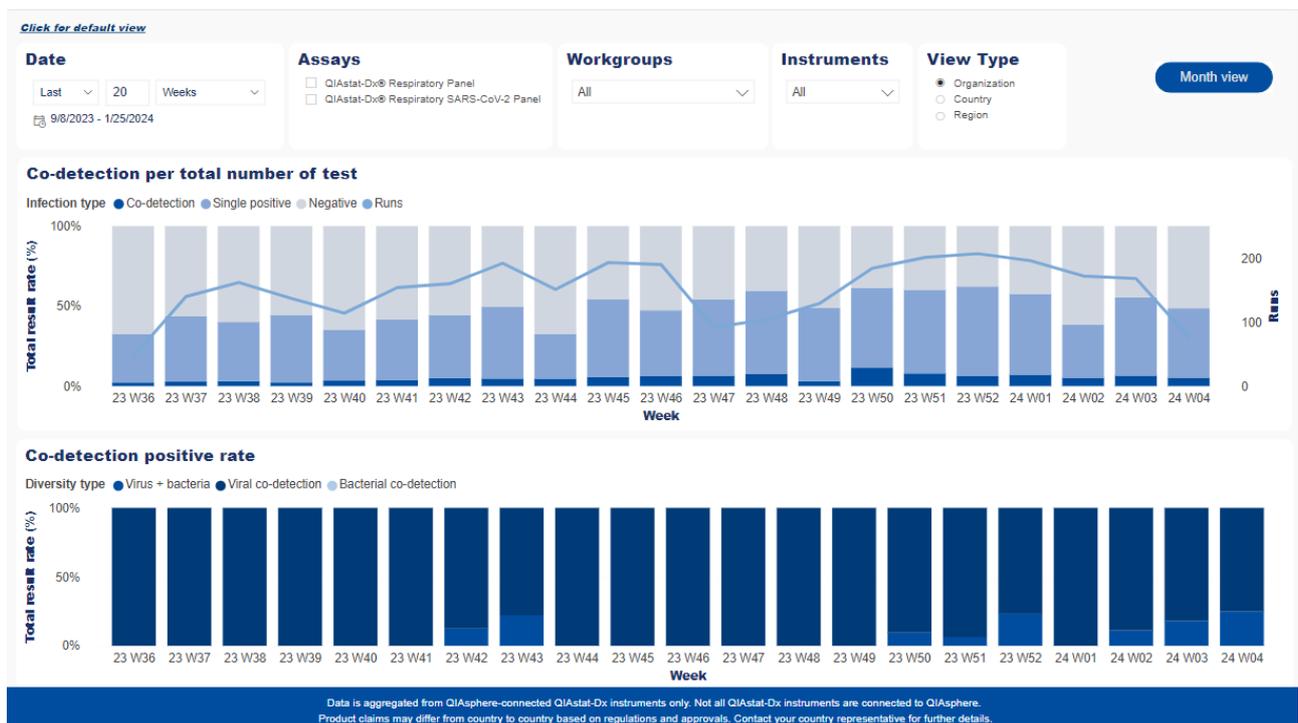
Positive pathogens

The "Positive pathogens" dashboard is similar to "Pathogen diversity"; however, it presents data under 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 of a given pathogen in relation to all positive results. On the right side of the page, there is a list of all pathogens, each with corresponding color in which it appears on the visuals. On the left side there are the following filters: date, assays, pathogens, workgroups, and instruments. This report can also be switched among "Monthly", "Weekly", and "Yearly" views using the button in the bottom left corner. Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section.



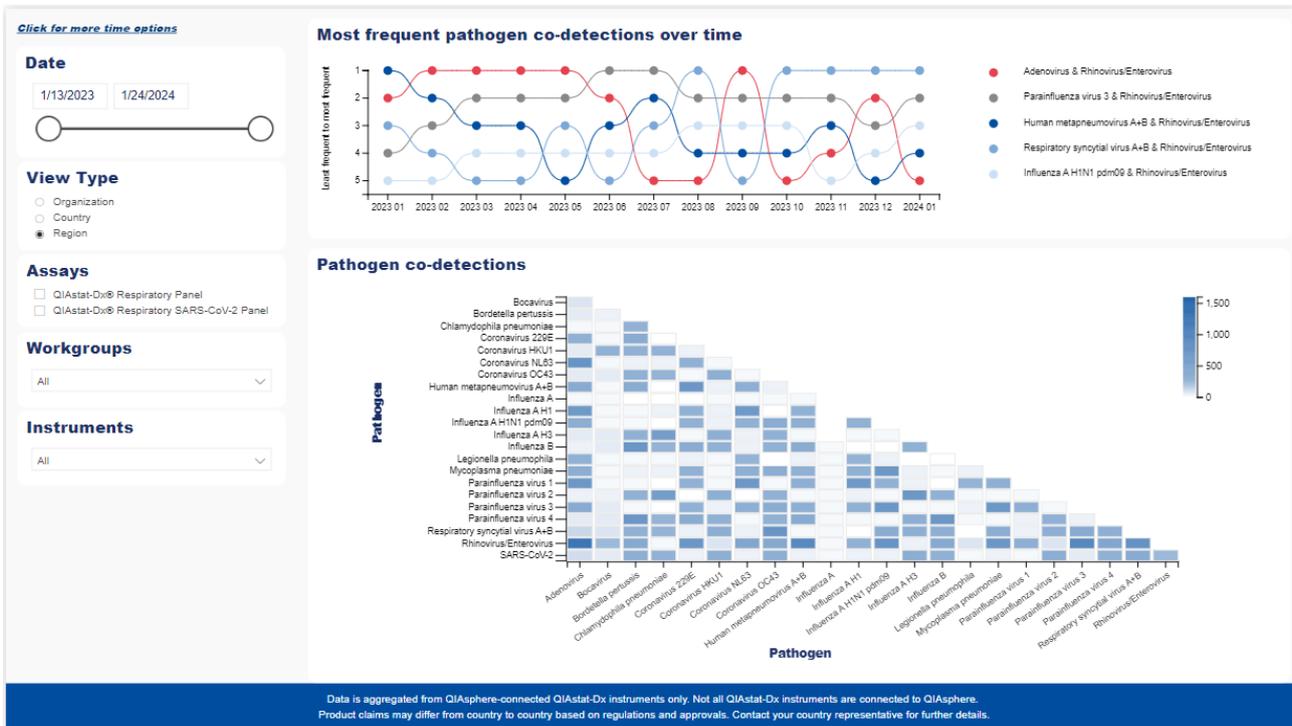
Co-detection rate

This dashboard consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The first (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 second 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 date or picking assay, workgroup or instrument. This report can also be switched among "Organization", "Country", and "Region" view, or among "Monthly", "Weekly", and "Yearly" views using the button in the upper right corner. Additionally, data from both visuals can be exported to *.xlsx or *.csv table by clicking **More options** in the upper right corner of the visual and selecting **Export data**.



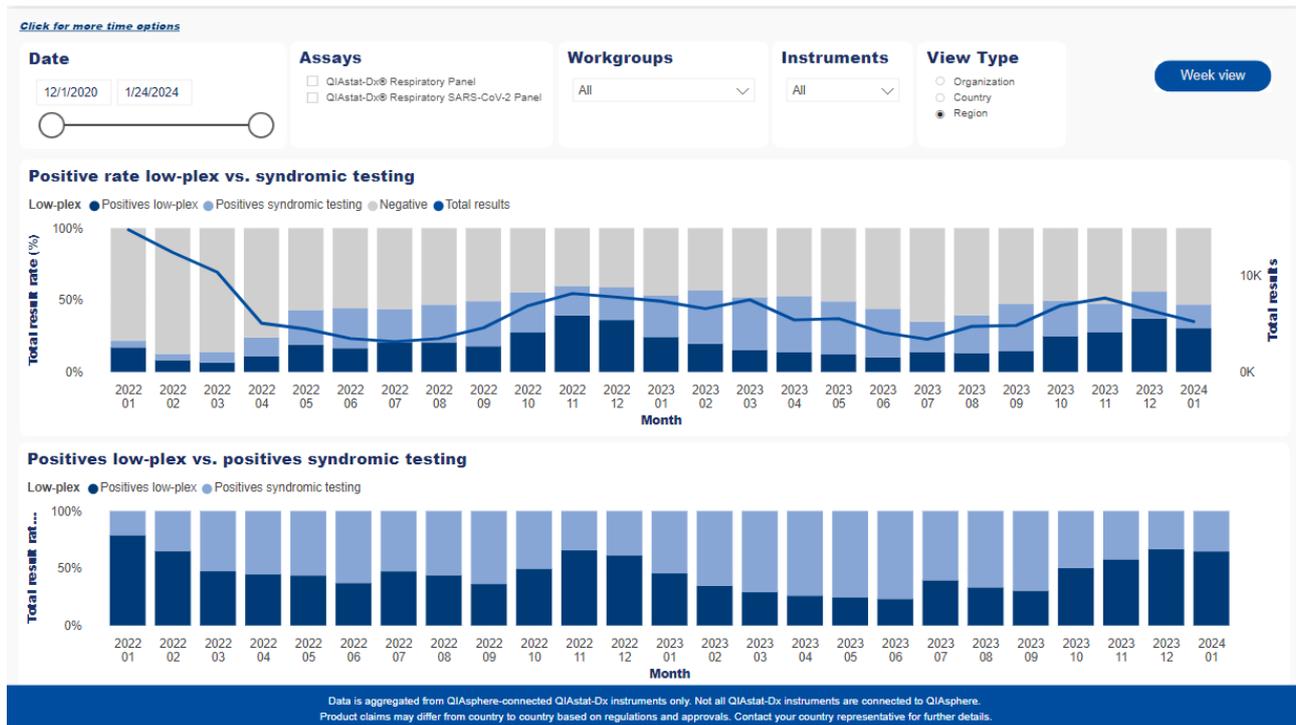
Pathogen co-detection

Pathogen co-detection report presents the number of appearances of every two pathogens from the Respiratory panel. The main visual, "Pathogens co-detections", displays a heatmap with the number of every pair of pathogens' co-detections. Above, there is "Most frequent pathogen co-detections over time" line chart showing 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. Additionally, the report can be switched among "Organization", "Country", and "Region" views.



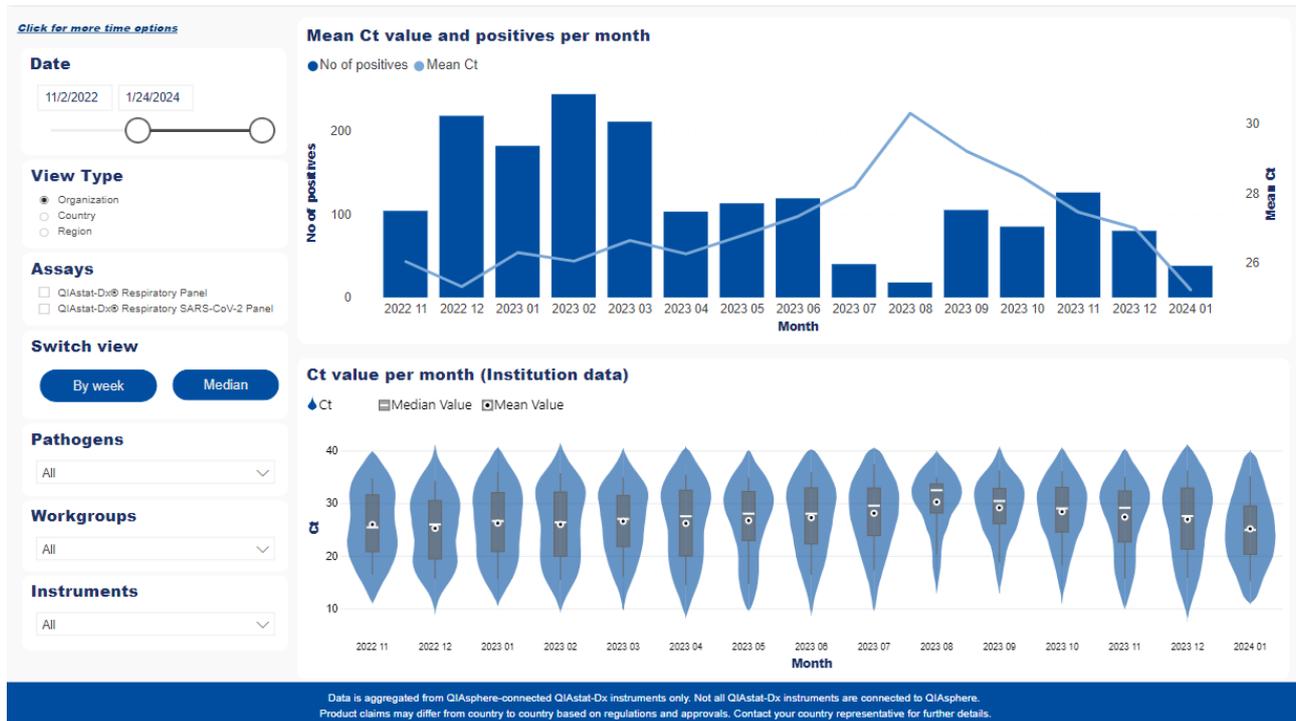
Low-plex vs. syndromic testing

This report displays the rate of detections of syndromic panel versus what low-plex panel would possibly detect. The first (upper) visual presents a bar chart with monthly results ratio categorized into positives low-plex, positives syndromic testing, and negatives. Over the bar chart, there is also a line chart with total number of tests. The second (bottom) visual shows only the ratio between low-plex and syndromic testing positives. It is worth noting that syndromic testing also covers the detections from low-plex. The report can be filtered by date, assay, workgroup, and instrument. It can also be switched among "Monthly", "Weekly", and "Yearly" views using the button in the upper right corner. Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section.



Ct values

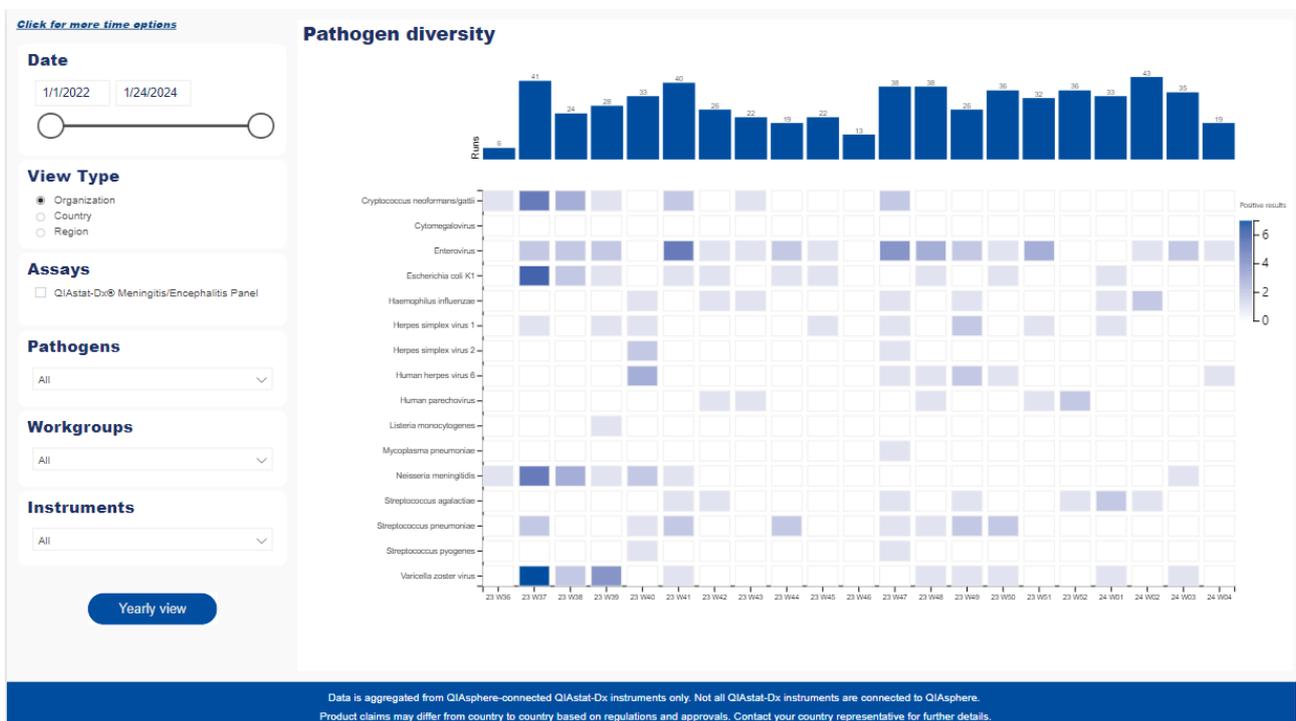
This dashboard contains two visuals: "Mean Ct value and positives per month" and "Ct value per month". The first (upper) one presents a bar chart of positive results per month along with a line chart with mean Ct values. The second (bottom) one gives a more detailed insight into monthly Ct values: it 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). Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section. This also affects only the upper visual.



11.3.2. Meningitis/encephalitis

Pathogen diversity

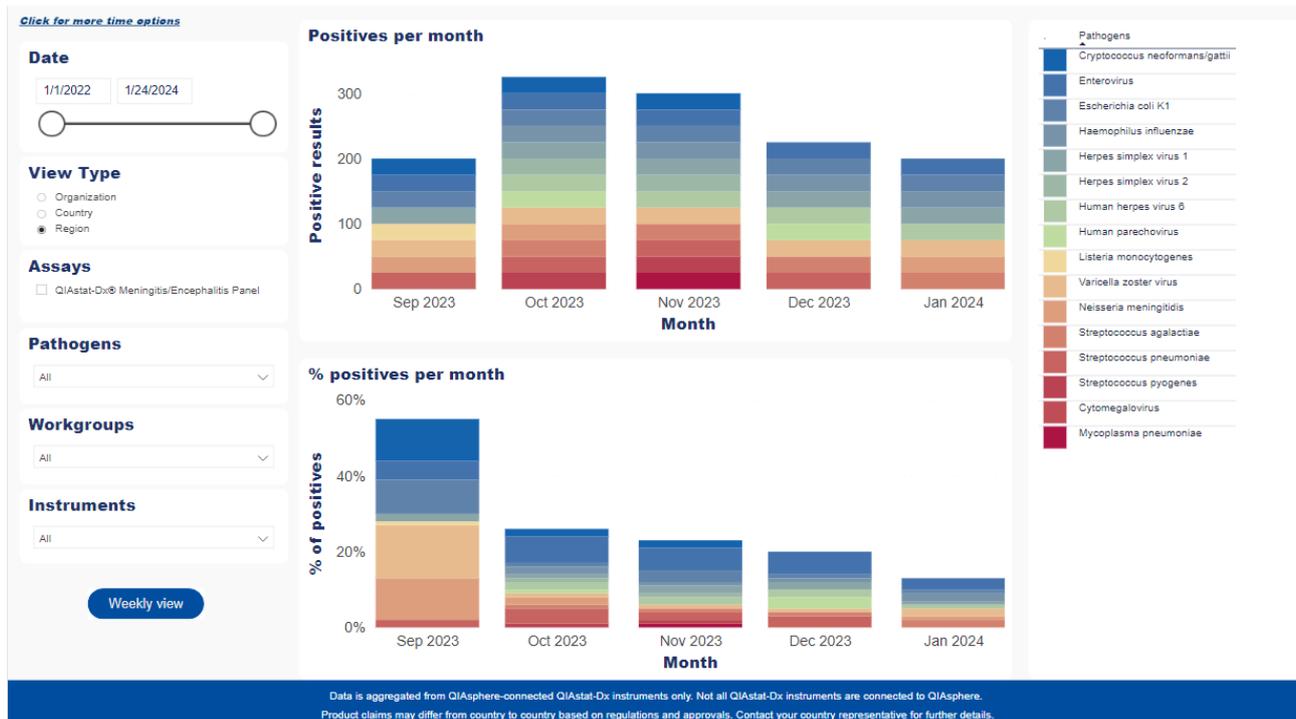
This report presents a heatmap of positive results per month for each pathogen from Meningitis panel. On the Y axis, there is a list of pathogens and on the X axis there is a timeline divided by months. To see the exact numbers for each pathogen, the user can move the cursor over a tile on the heatmap and there a tooltip will appear showing month, pathogen name, number of positive results, and percentage of positive results. Above the heatmap, there is also a bar graph with a number of test runs in each month. On the report's left side, there is the filter section allowing 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 also has the option to change the time granularity of the visuals by clicking on the buttons labeled "Weekly view", "Yearly view", and "Monthly view". Additionally, the user can switch among "Organization", "Country", and "Region" views, allowing to display not only the organization's data but also rounded results from the organization's country and region.



Data is aggregated from QIASphere-connected QIAstat-Dx instruments only. Not all QIAstat-Dx instruments are connected to QIASphere. Product claims may differ from country to country based on regulations and approvals. Contact your country representative for further details.

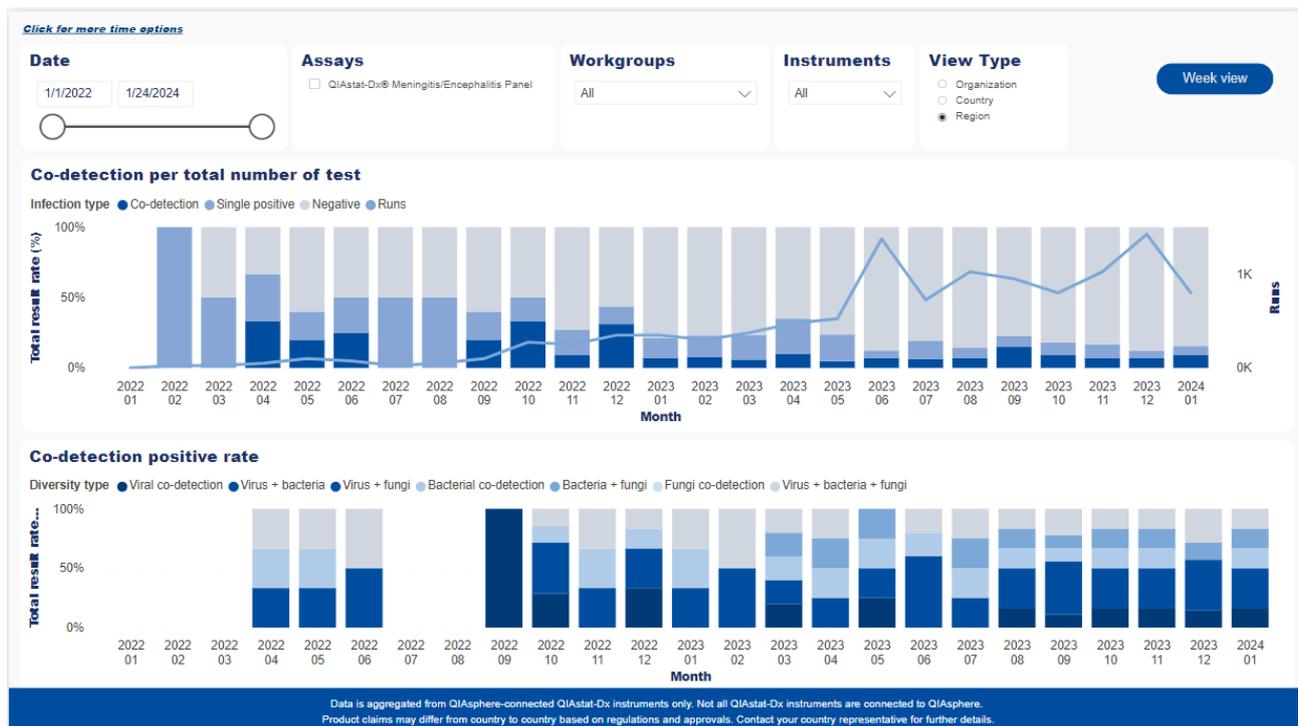
Positive pathogens

This report shows data for Meningitis panel. The "Positive pathogens" dashboard is similar to "Pathogen diversity"; however, it presents data under 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 of a given pathogen in relation to all positive results. On the right side of the page, there is a list of all pathogens, each with corresponding color in which it appears on the visuals. On the left side, there are the following filters: date, assays, pathogens, workgroups, and instruments. This report can also be switched among "Monthly", "Weekly", and "Yearly" views using the button in the bottom left corner. Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section.



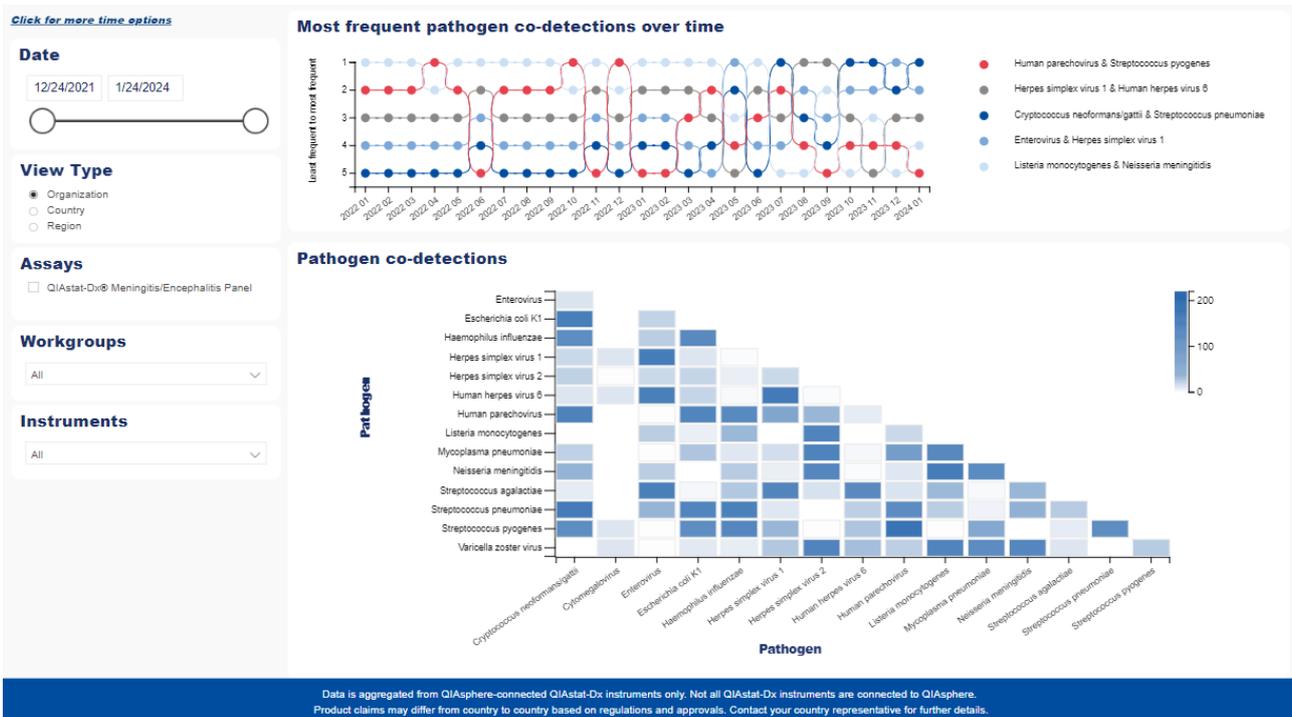
Co-detection rate

This dashboard for Meningitis panel consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The first (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 second 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 or picking assay, workgroup, or instrument. This report can also be switched among "Organization," "Country," and "Region" view, or among "Monthly," "Weekly," and "Yearly" views using the button in the upper right corner. Additionally, data from both visuals can be exported to *.xlsx or *.csv table by clicking **More options** in the upper right corner of the visual and selecting **Export data**.



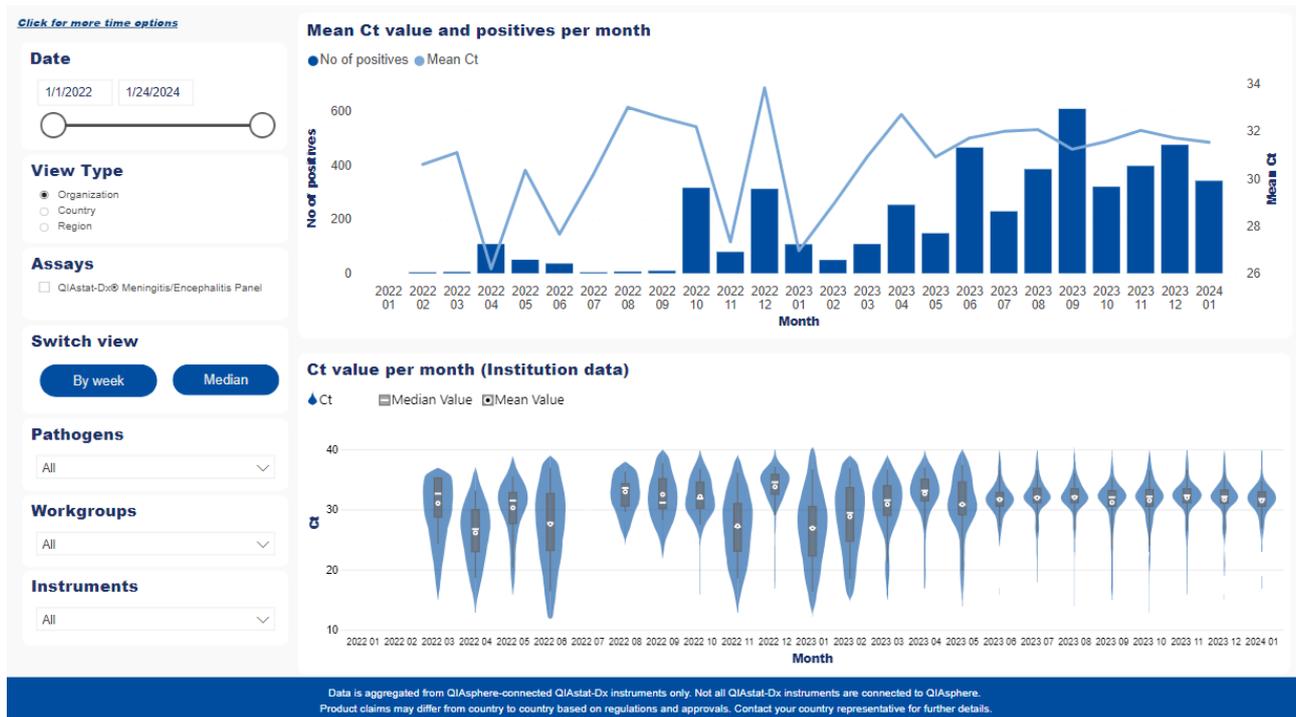
Pathogen co-detection

Pathogen co-detection report for Meningitis panel presents the number of appearances of every two pathogens from the Respiratory panel. The main visual, "Pathogens co-detections," displays a heatmap with the number of every pair of pathogens' co-detections. Above, there is "Most frequent pathogen co-detections over time" line chart showing monthly count of the five pathogen pairs with the highest number of total co-detections. The user can apply the following filters to narrow the results: date, assays, workgroups, and instruments. Additionally, the report can be switched among "Organization", "Country", and "Region" views.



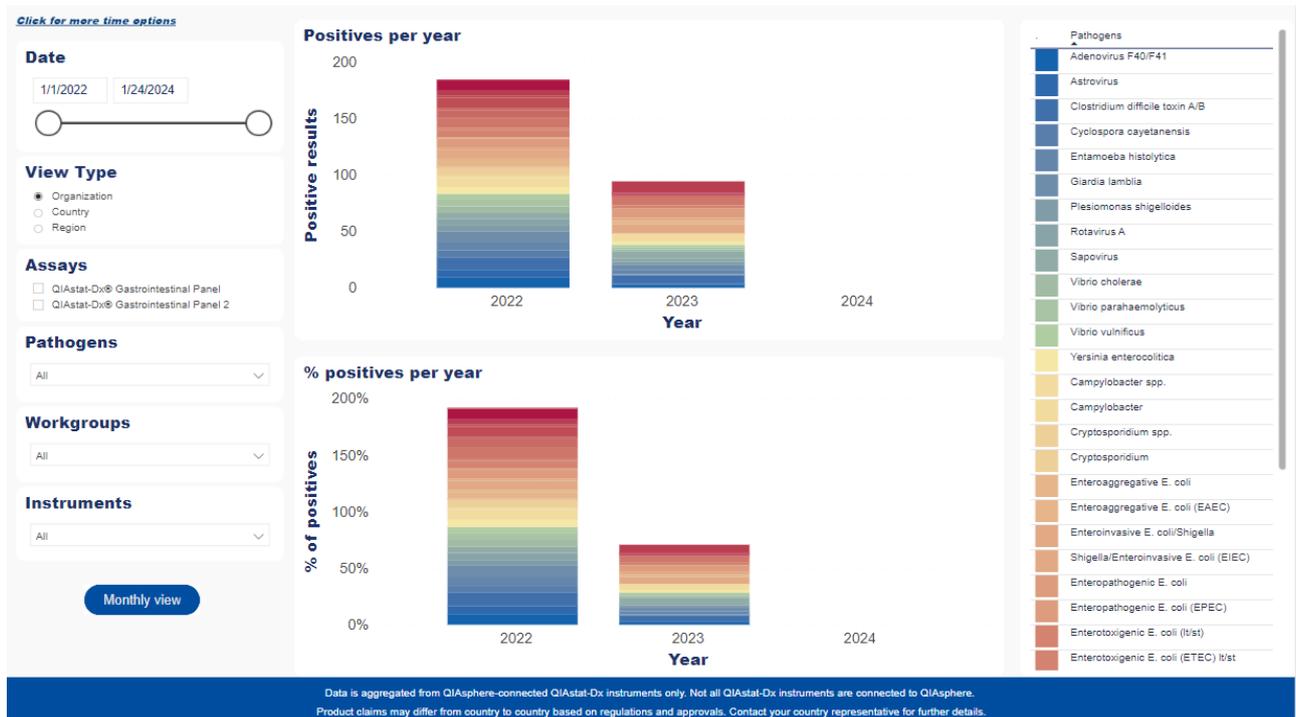
Ct values

This dashboard for Meningitis panel contains two visuals: "Mean Ct value and positives per month" and "Ct value per month." The first (upper) one presents a bar chart of positive results per month along with a line chart with mean Ct values. The second (bottom) one gives a more detailed insight into 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). Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section. This also affects only the upper visual.



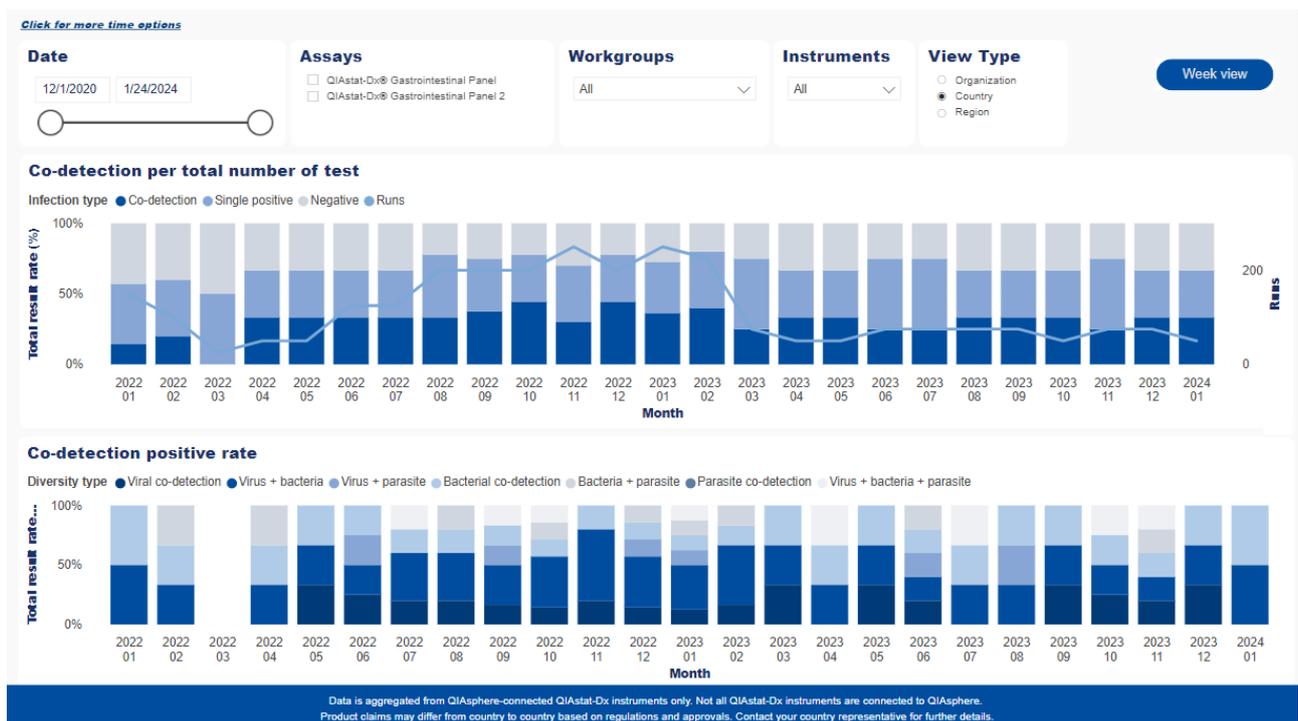
Positive pathogens

This report shows data for Gastrointestinal panel. The "Positive pathogens" dashboard is similar to "Pathogen diversity"; however, it presents data under 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 of a given pathogen in relation to all positive results. On the right side of the page, there is a list of all pathogens, each with corresponding color in which it appears on the visuals. On the left side, there are the following filters: date, assays, pathogens, workgroups, and instruments. This report can also be switched among "Monthly", "Weekly", and "Yearly" views using the button in the bottom left corner. Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section.



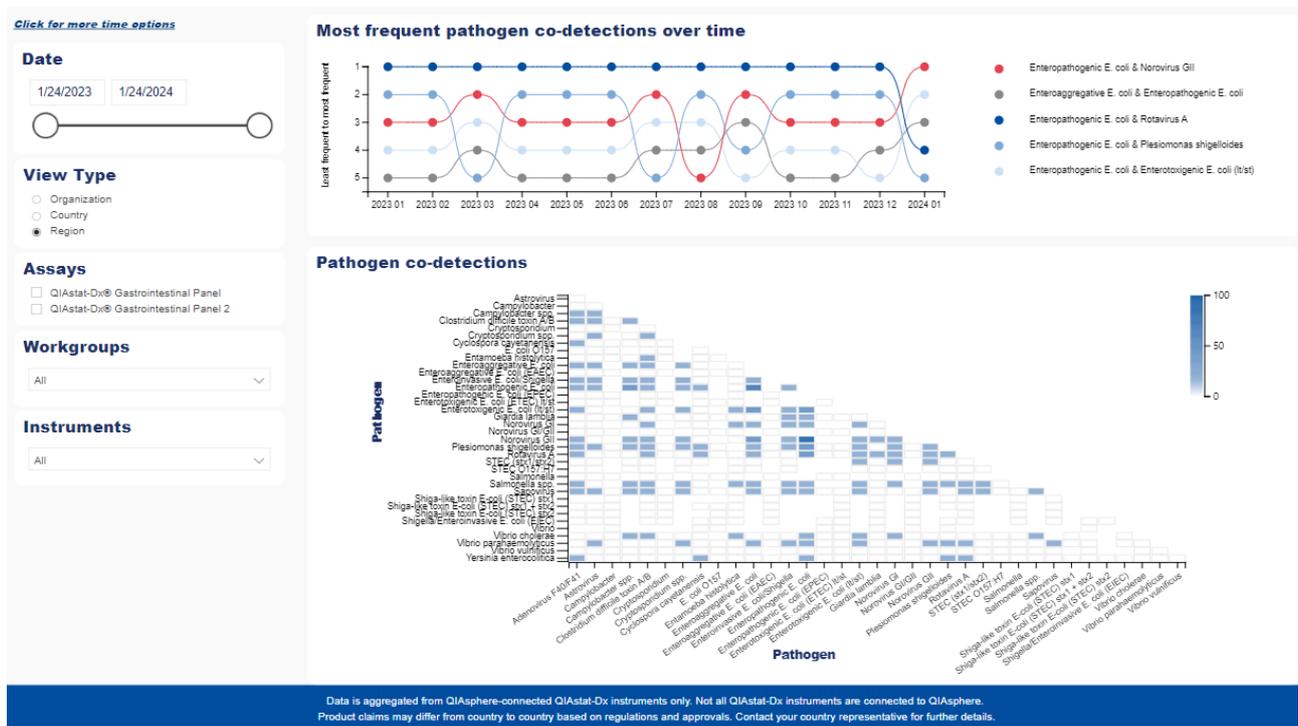
Co-detection rate

This dashboard for Gastrointestinal panel consists of two visuals presenting data related to pathogen co-detections and the ratio between these and other test results. The first (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 second 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 or picking assay, workgroup, or instrument. This report can also be switched among "Organization", "Country", and "Region" view, or among "Monthly", "Weekly", and "Yearly" views using the button in the upper right corner. Additionally, data from both visuals can be exported to *.xlsx or *.csv table by clicking on **More options** in the upper right corner of the visual and selecting **Export data**.



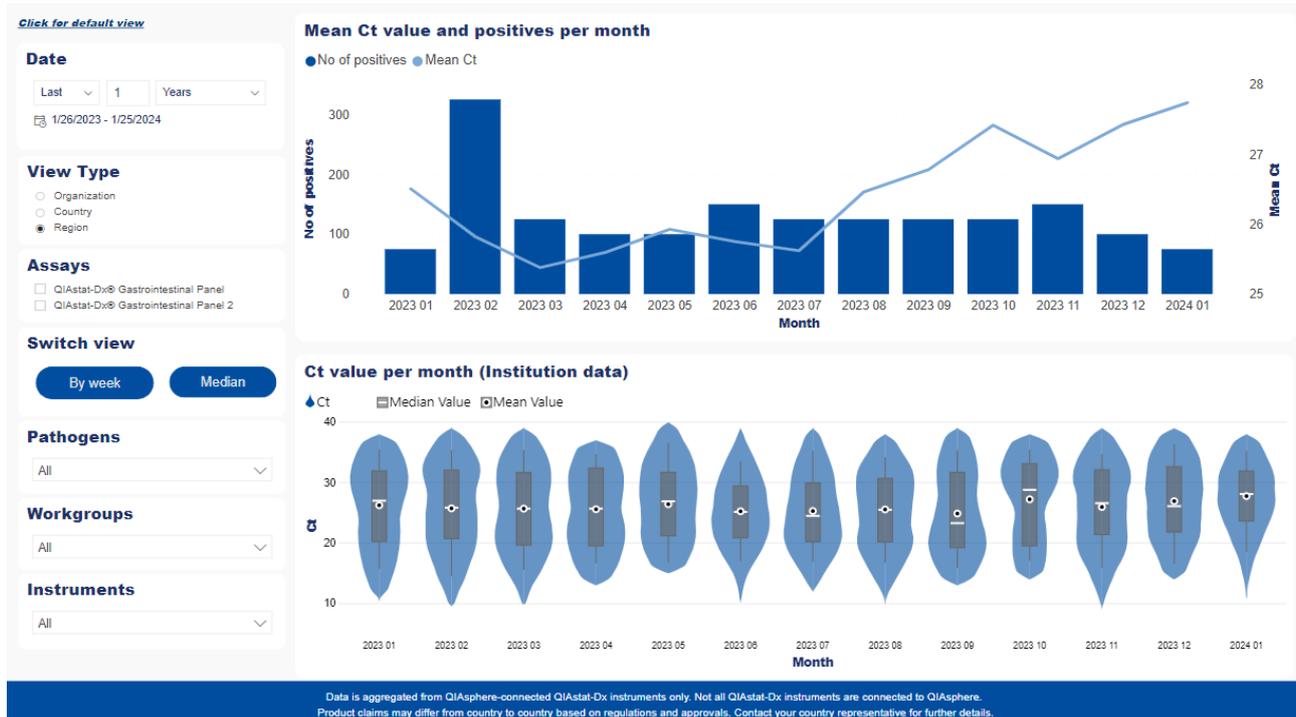
Pathogen co-detection

Pathogen co-detection report for Gastrointestinal panel presents the number of appearances of every two pathogens from the Respiratory panel. The main visual, "Pathogens co-detections", displays a heatmap with the number of every pair of pathogens' co-detections. Above, there is "Most frequent pathogen co-detections over time" line chart showing monthly count of the five pathogen pairs with the highest number of total co-detections. The user can apply the following filters to narrow the results: date, assays, workgroups, and instruments. Additionally, the report can be switched among "Organization", "Country", and "Region" views.



Ct values

This dashboard for Gastrointestinal panel contains two visuals: "Mean Ct value and positives per month" and "Ct value per month." The first (upper) one presents a bar chart of positive results per month along with a line chart with mean Ct values. The second (bottom) one gives a more detailed insight into 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). Additionally, the user can switch among "Organization", "Country", and "Region" views by selecting the corresponding radio buttons in the filters section. This also affects only the upper visual.



11.3.4. Epidemiology report

Epidemiology report shows a summary of detected results and Ct values based on selected filters. To display the report, the user needs 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 particular pathogens.

File Home View

Export Parameters

Date from: 7/1/2022 Date to: 7/31/2022

Workgroup: Oulu Instruments: 000001482, 00000148...

Assay: QIAstat-Dx® Respirator... Assay version: 1.4

 **Epidemiology Report**

Assay	QIAstat-Dx® Respiratory SARS-CoV-2 Panel
Assay version	1.4
Date from	2022-07-01
Date to	2022-07-31
Serial Number OMs	20819055,000001482,000001483
Serial Number AMs	10819049,10919111,10719126,10619082,10819072
Total number of tests	139
Failed and invalid tests	4

Analyte	Detected results	Not detected results	Median Ct value
Adenovirus		135	
Bocavirus		135	
Bordetella pertussis		135	
Coronavirus 229E		135	
Coronavirus HKU1	2	133	33.5
Coronavirus NL63		135	
Coronavirus OC43	1	134	17.6
Human Metapneumovirus A+B	1	134	33.4
Influenza A		135	
Influenza A H1		135	
Influenza A H1N1 pdm09		135	
Influenza A H3		135	
Influenza B		135	
Legionella pneumophila		135	
Mycoplasma pneumoniae		135	
Parainfluenza virus 1		135	
Parainfluenza virus 2		135	
Parainfluenza virus 3	1	134	18.7
Parainfluenza virus 4		135	
Respiratory Syncytial Virus A+B		135	
Rhinovirus/Enterovirus	15	120	25.45
SARS-CoV-2	9	126	21.6

Ct values

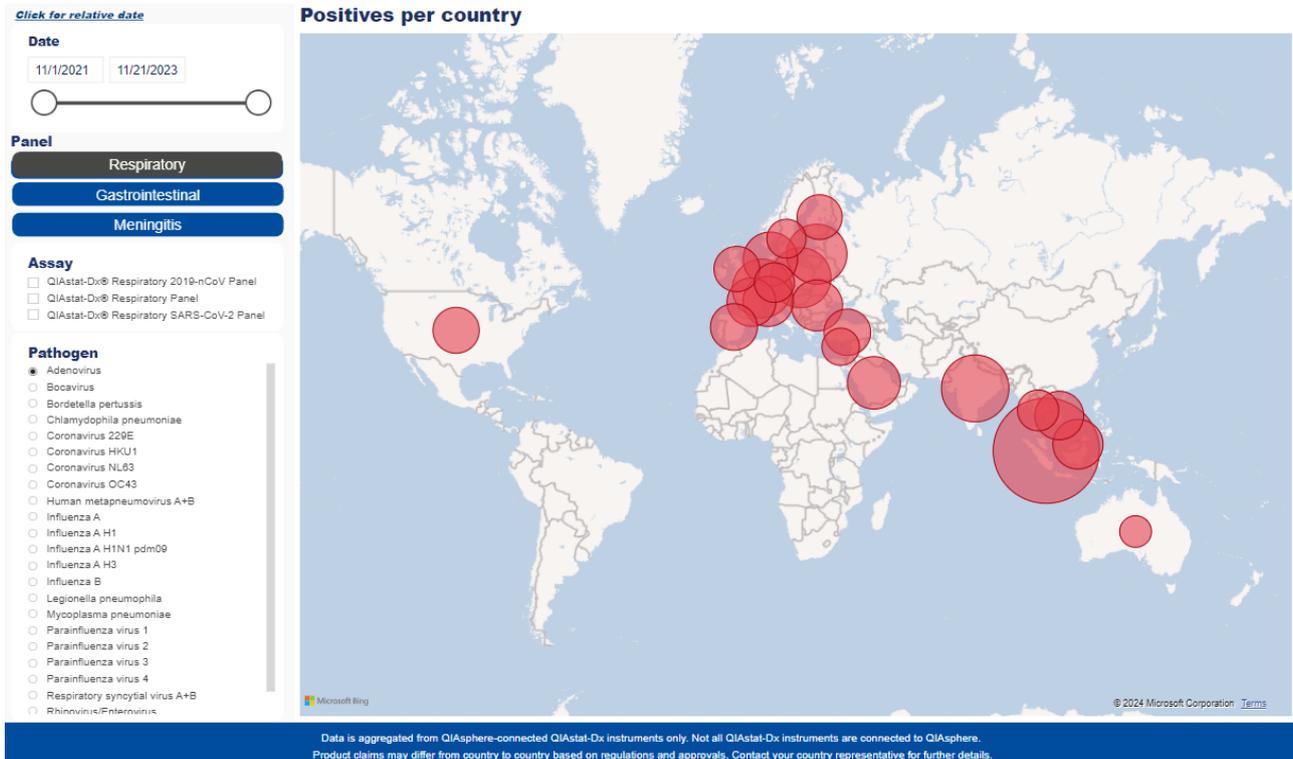
Coronavirus HKU1	Coronavirus OC43	Human Metapneumovirus A+B	Parainfluenza virus 3	Rhinovirus/Enterovirus	SARS-CoV-2
				26.5	
32.1				25	
				27.3	
			18.7		
				20.8	
				30.3	
	17.6				
					16.9
			33.4		34.5
				31.5	
				25.5	
				24.9	

Data is aggregated from QIAAsphere-connected QIAstat-Dx instruments only. Not all QIAstat-Dx instruments are connected to QIAAsphere. Product claims may differ from country to country based on regulations and approvals. Contact your country representative for further details.

4/7/2023 11:01:04 AM

11.3.5. 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 each country. From the tooltips that appear after pointing on a bubble, the user can read 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 the following: date range, panel (which changes the list of assays and pathogens available below), assay, and pathogen.

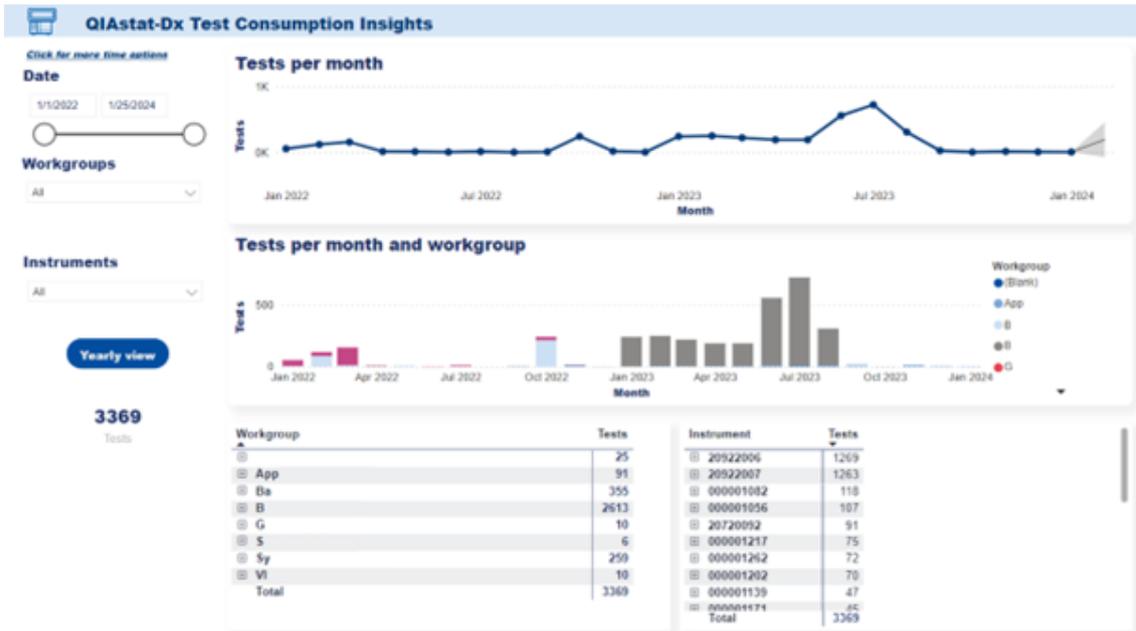


11.4. System usage

11.4.1. QIAstat-Dx Analyzer

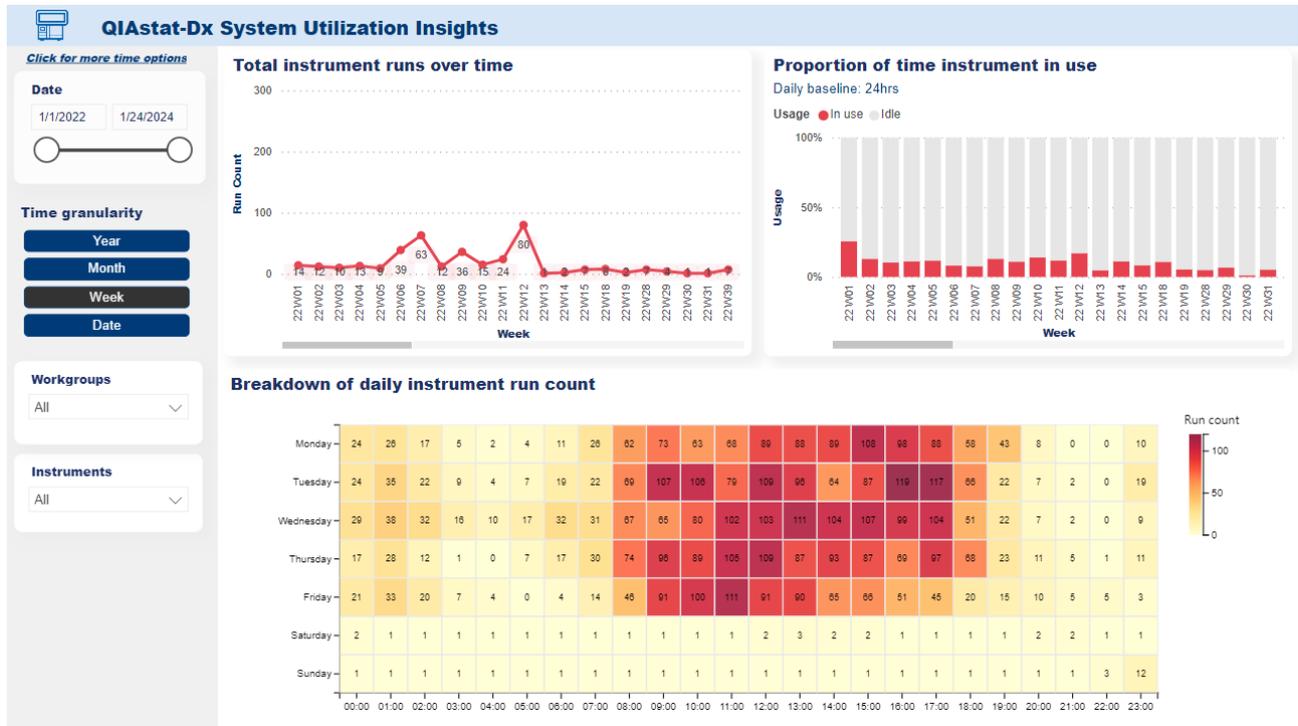
Kit consumption

This report presents a summary of test consumption for QIAstat-Dx. The featured visuals display a number of tests over time, per workgroup over time, per instrument, and per workgroup, respectively. The visuals can be filtered by date – using the slider or picking exact dates in the fields – or workgroup and instrument by selecting suitable, multichoice checkboxes. Time granularity can be changed for the two visuals displaying tests consumption over time.



Instrument usage

This report presents QIAstat-Dx instruments utilization statistics: the number of instruments' runs over time, the number of hours the instruments have been active or idle over time, and the tendencies in distribution of the tests' executions during the week. The visuals can be filtered by date, workgroup, and instrument. Their time granularity can also be switched among "Yearly", "Monthly", "Weekly", and "Daily" views.



Export results

This dashboard allows the user to generate a summary of used QIAstat-Dx consumables based on selected filters. To display the report, the user needs to fill in the five filters required: date from, date to, workgroups, instruments, and assays – with workgroups, instruments, and assays being multichoice lists. Only then does the **View report** button become active.

The screenshot shows a dashboard interface with a navigation bar (File, Home, View) and a search bar (Export, Parameters). Below the search bar are five filter dropdown menus: From Date (Required), To Date (Required), Workgroups, Instruments, and Assays. A 'View report' button is located to the right of the filters.

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 is the one with the actual data, that is the exact numbers of tests executed in the chosen date range by assay, by month, by workgroup, by OM and AM, and finally their total sum.

If the report does not fit in one page, it will be split into several pages between which the user can navigate using the arrows on the top of the page. It is also possible to hide the filter section by clicking **Parameters** or to preview the print layout by opening **View** tab and switching between **Web layout** and **Print layout**. The report can be downloaded by clicking **Export** and choosing file extension from the dropdown list or print it, entering **File** tab and choosing **Print** option.

The screenshot shows a report titled 'Monthly Cartridge Consumption'. It includes a summary table and a detailed monthly data table.

Institution	SI
Assay	QIAstat-Dx® Respiratory SARS-CoV-2 Panel
Date from	2022-07-01
Date to	2022-07-31
Workgroups	D
Total number OM	00001482, 00001483, 00019055
Total number AM	00019056, 00019057, 00019058, 00019059
Total number of tests	139

Month	Assay	Workgroup	Serial number OM	Serial number AM	Tests	
2022 July	QIAstat-Dx® Respiratory SARS-CoV-2 Panel	D	00001482	00019056	44	
				00019058	41	
				00019057	38	
				00019059	1	
				00019055	6	
					Total per assay and month	130
					Total per month	139
Total					139	

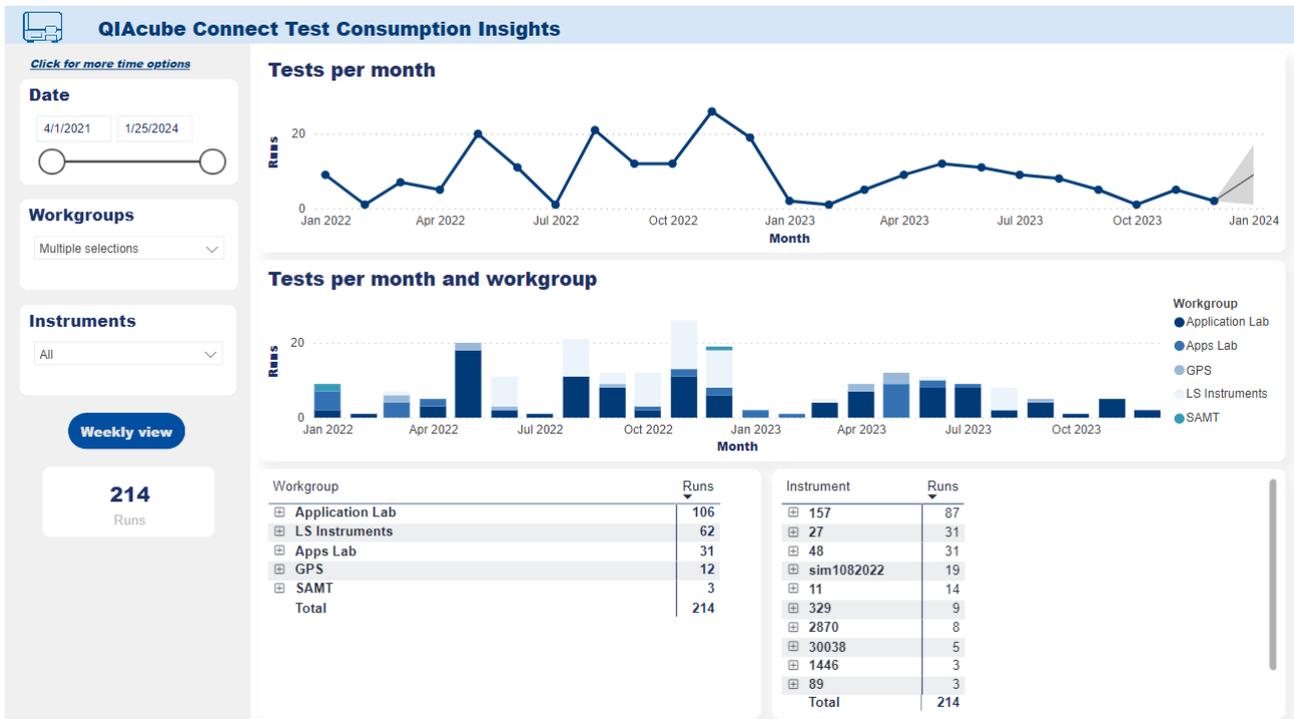
Data is aggregated from QIAstat-Dx consumables. Contact SI institutions only, not all QIAstat-Dx institutions are included in QIAstat-Dx. Product names may differ from country to country based on regulations and approvals. Contact your country representative for further details.

4/7/2022 9:56:07 AM UTC

11.4.2. QIAcube Connect

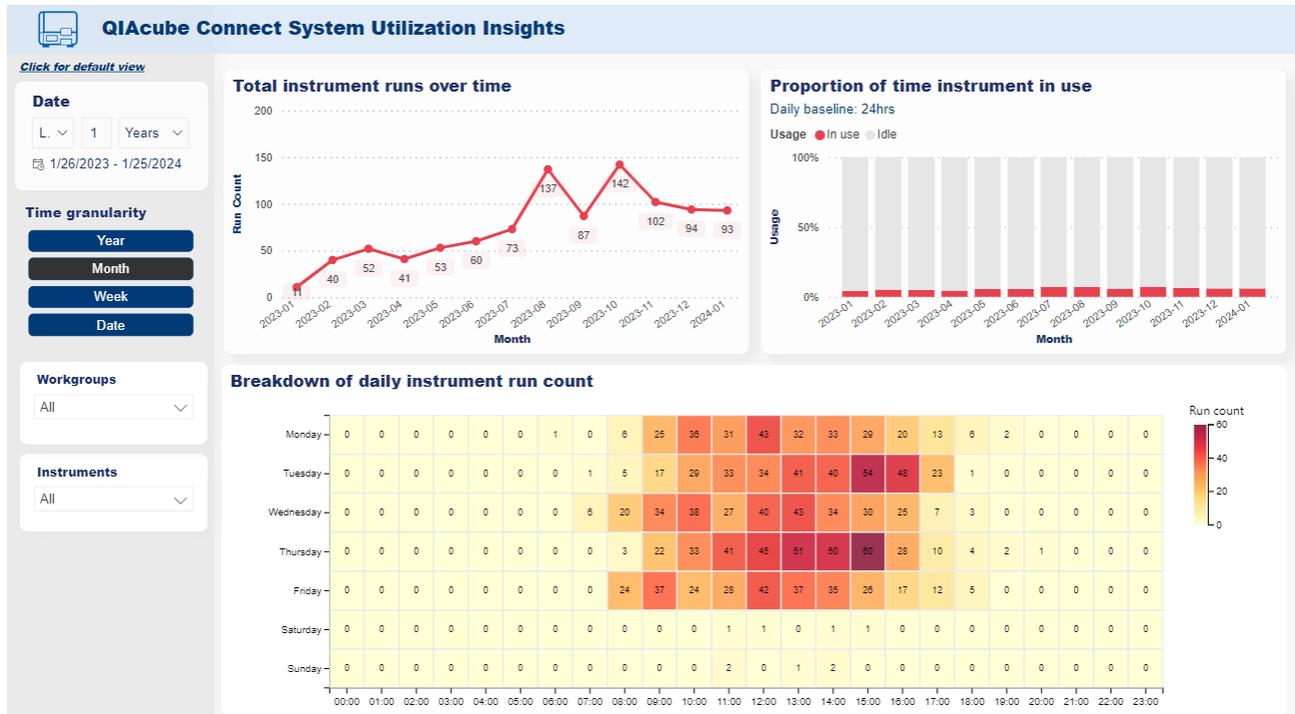
Kit usage

This report presents a summary of test consumption for QIAcube Connect. The featured visuals display a number of tests over time, per workgroup over time, per instrument, and per workgroup, respectively. The visuals can be filtered by date, workgroup, and instrument and time granularity can be changed for the two visuals displaying tests consumption over time.



Instrument usage

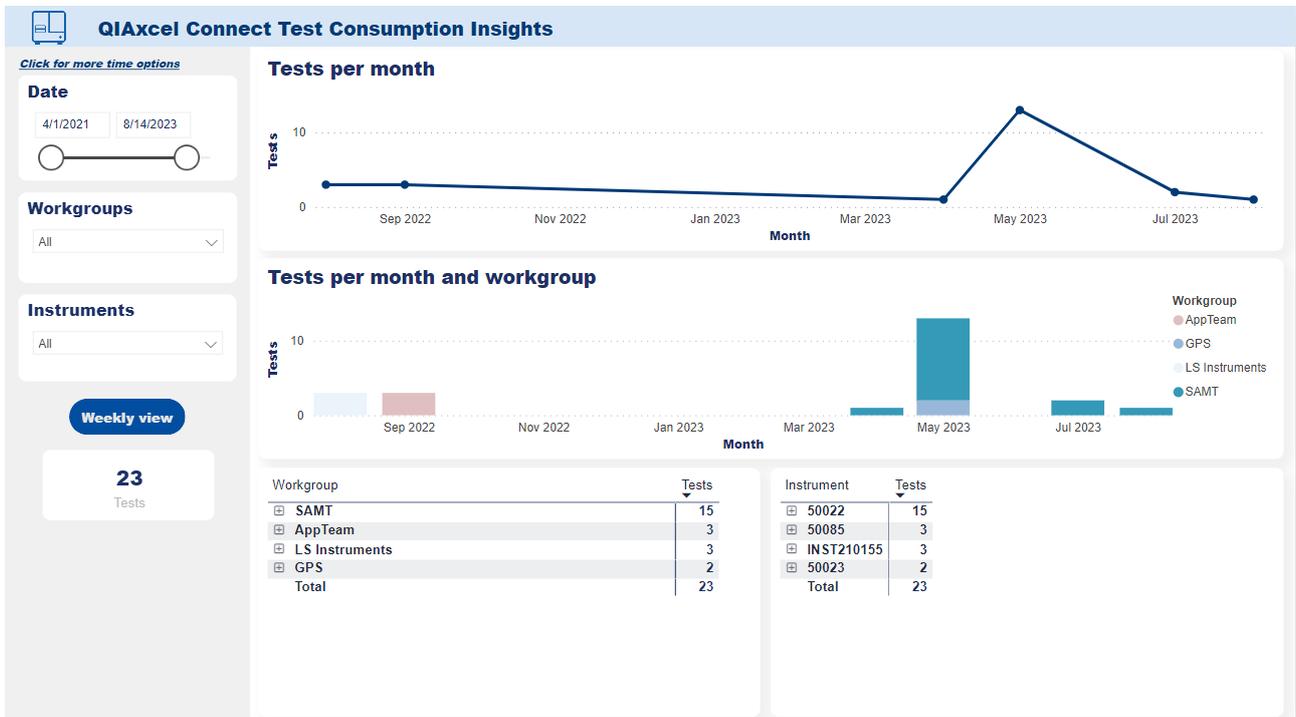
This report presents QIAcube Connect instruments utilization statistics: the number of instruments' runs over time, the number of hours the instruments have been active or idle over time, and the tendencies in distribution of the tests' executions during the week. The visuals can be filtered by date, workgroup, and instrument. Their time granularity can also be switched among "Yearly", "Monthly", "Weekly", and "Daily" views.



11.4.3. QIAxcel Connect

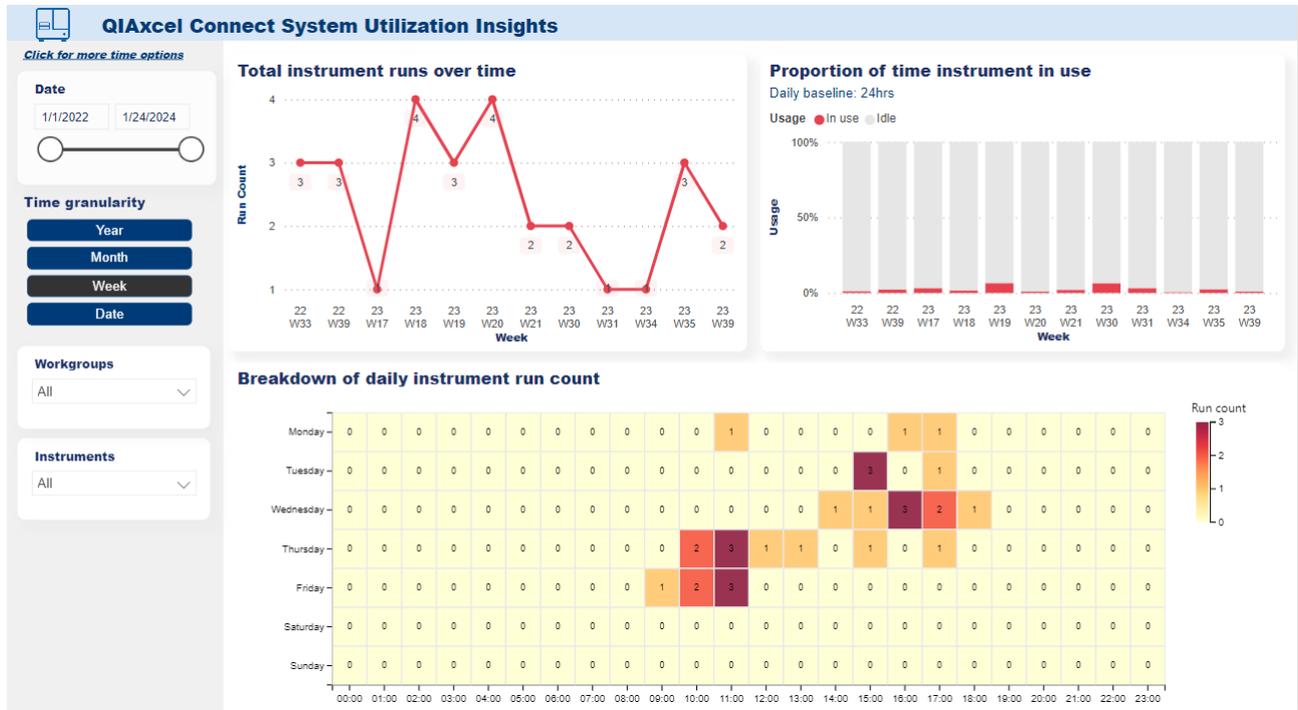
Kit usage

This report presents a summary of test consumption for QIAxcel Connect. The featured visuals display a number of tests over time, per workgroup over time, per instrument, and per workgroup, respectively. The visuals can be filtered by date, workgroup, and instrument and time granularity can be changed for the two visuals displaying tests consumption over time.



Instrument usage

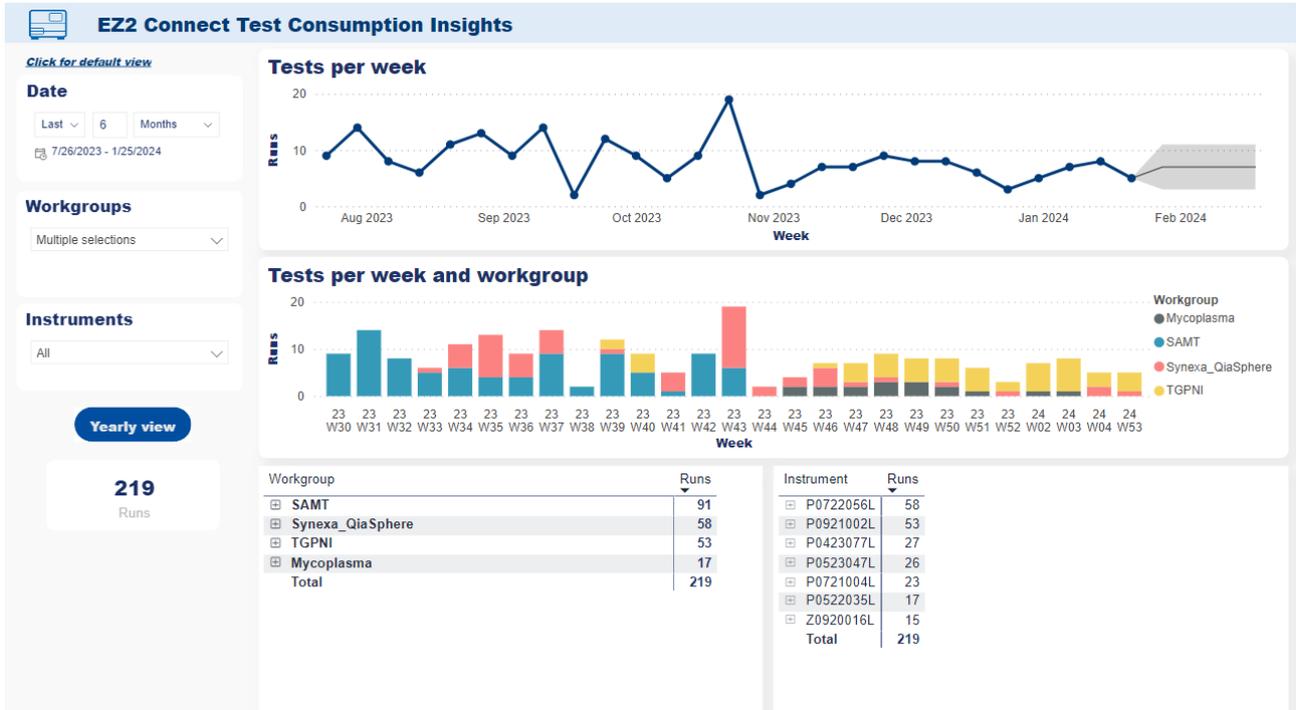
This report presents QIAXcel Connect instruments utilization statistics: the number of instruments' runs over time, the number of hours the instruments have been active or idle over time, and the tendencies in distribution of the tests' executions during the week. The visuals can be filtered by date, workgroup, and instrument. Their time granularity can also be switched among "Yearly", "Monthly", "Weekly", and "Daily" views.



11.4.4. EZ2 Connect

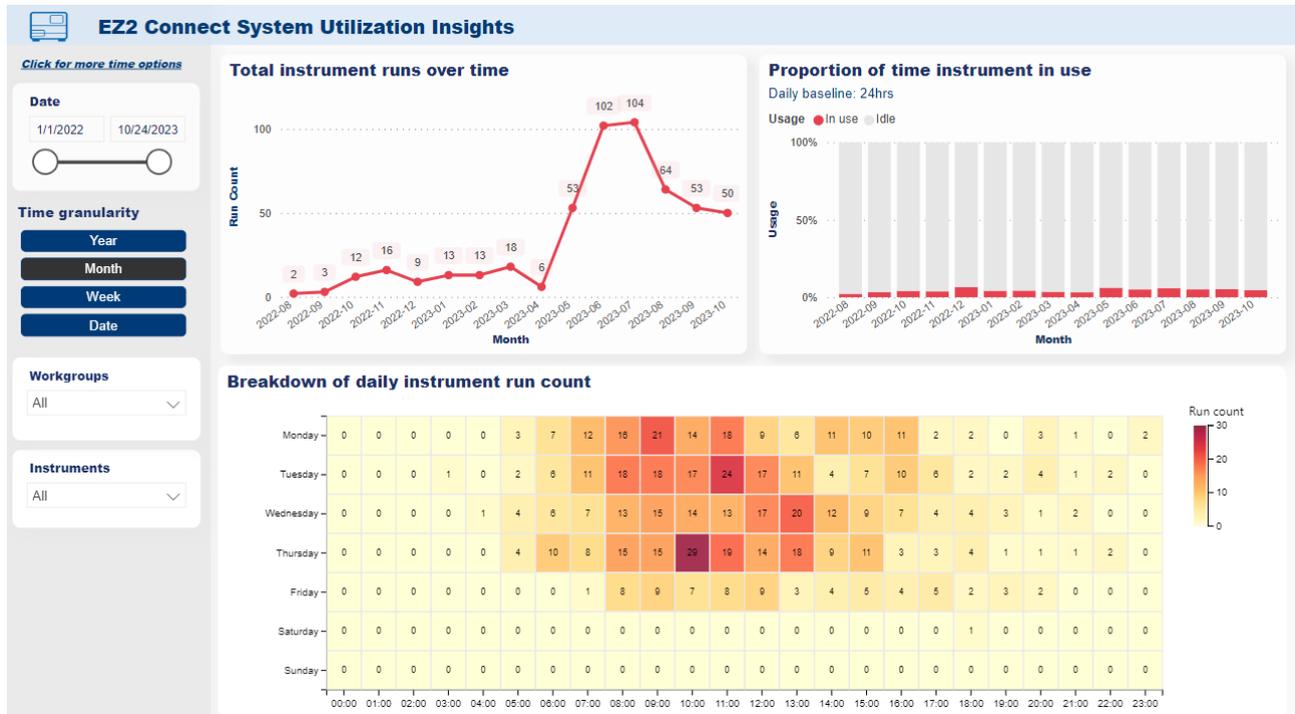
Kit usage

This report presents a summary of test consumption for EZ2 Connect. The featured visuals display a number of tests over time, per workgroup over time, per instrument, and per workgroup, respectively. The visuals can be filtered by date, workgroup, and instrument and time granularity can be changed for the two visuals displaying tests consumption over time.



Instrument usage

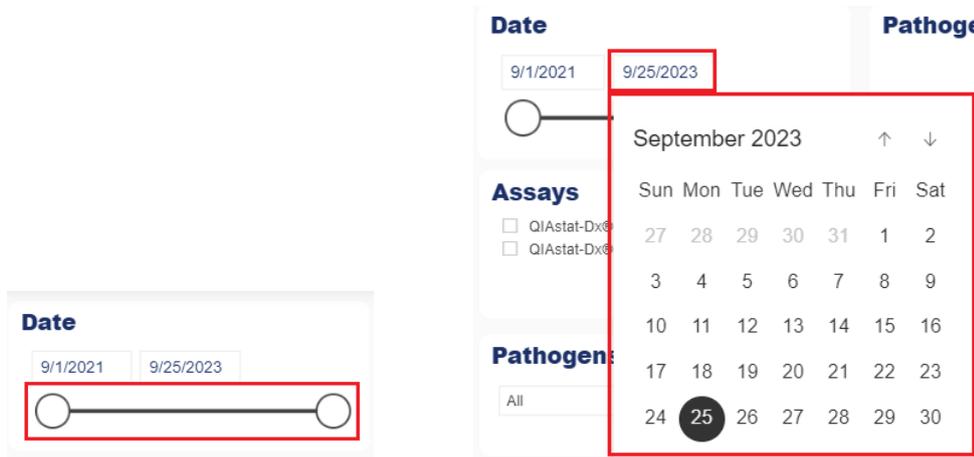
This report presents EZ2 Connect instruments utilization statistics: the number of instruments' runs over time, the number of hours the instruments have been active or idle over time, and the tendencies in distribution of the tests' executions during the week. The visuals can be filtered by date, workgroup, and instrument. Their time granularity can also be switched among "Yearly", "Monthly", "Weekly", and "Daily" views.



11.5. Useful tips

There is a number of additional options in the application allowing for a more detailed filtering or better readability of the visuals that are common to all the dashboards and are worth mentioning:

- The default date selector can be adjusted either by using the slider or picking the exact date from a dropdown calendar which appears when the date field is selected or writing the date manually inside the mentioned field.



- Click for more time options – instead of picking the exact dates, it is possible to enter the relative mode in date selector, fill in three fields: “Last / Next / This,” number of chosen time periods, and time period type. The exact dates of the selected range appear below.



- Country and Region view – radio buttons that allow the User to display the data for the whole country and region of their organization. The buttons are available in all epidemiology reports in the filter section.

View Type

- Organization
- Country
- Region

- In some visuals it is possible to mark a specific point or a bar in a chart to spotlight it, which also spotlights all the elements of the other visuals that are based on the same data.

- Every visual has a set of options that appear in its upper right corner when hovering over it. These options are:
 -  – focus mode; allows to view a zoom-in of a specific visual on a separate screen. It is possible to return to the main dashboard by clicking **Back to report**
 -  – filters on visual; displays the exact filters that apply to the visual
 -  – more options; opens a dropdown list with more options
 -  **Export data** – exports data from a visual to *.xlsx / *.csv file
 -  **Show as a table** – displays a single-visual view similar to the focus mode with an additional table presenting the data from the visual
 -  /  – switch to vertical / horizontal layout; allows to change the configuration of the visual and the table on the screen
 -  **Spotlight** – gives a spotlight to the marked visual over other visuals on the dashboard. Can be switched off by simply clicking anywhere outside the visual

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.

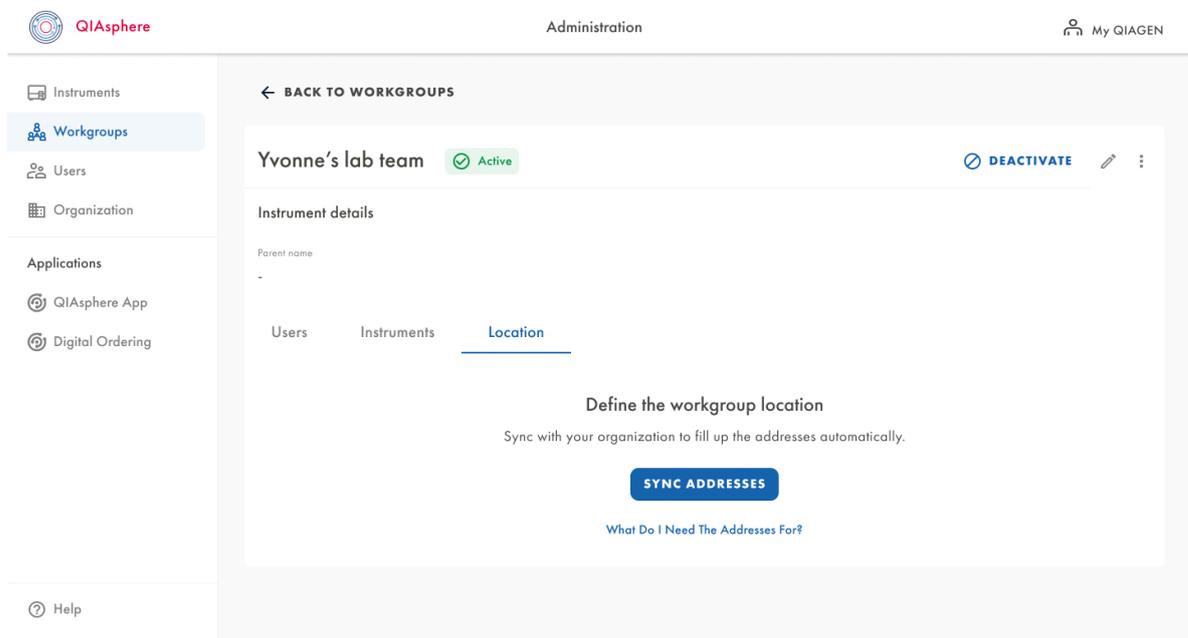
12.1. Prerequisites

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

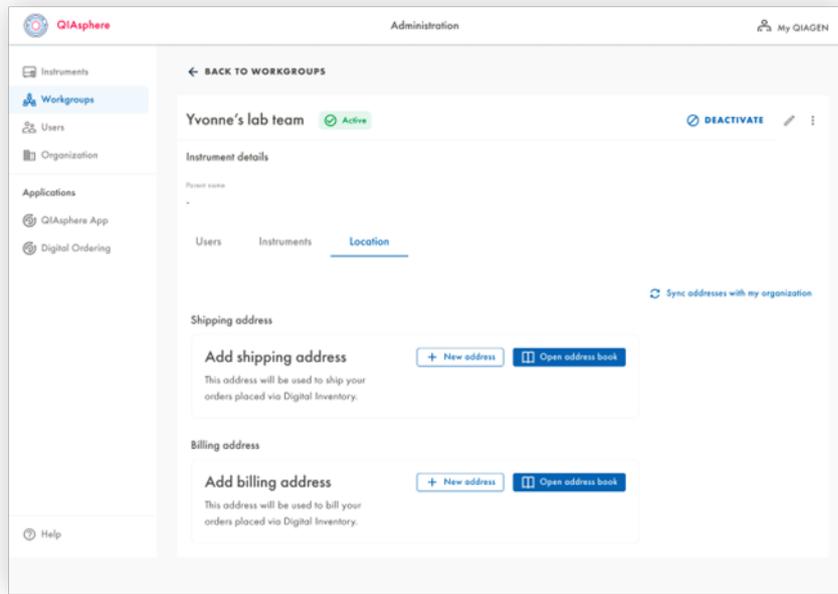
- The user needs to have a QIASphere account with an active license.
- The user needs to have the QIAstat-Dx instrument connected to QIASphere.
- The user needs to have an active quote on consumables available in Digital Inventory, that is, QIAstat-Dx kits.
- QIASphere needs to have live usage data from 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

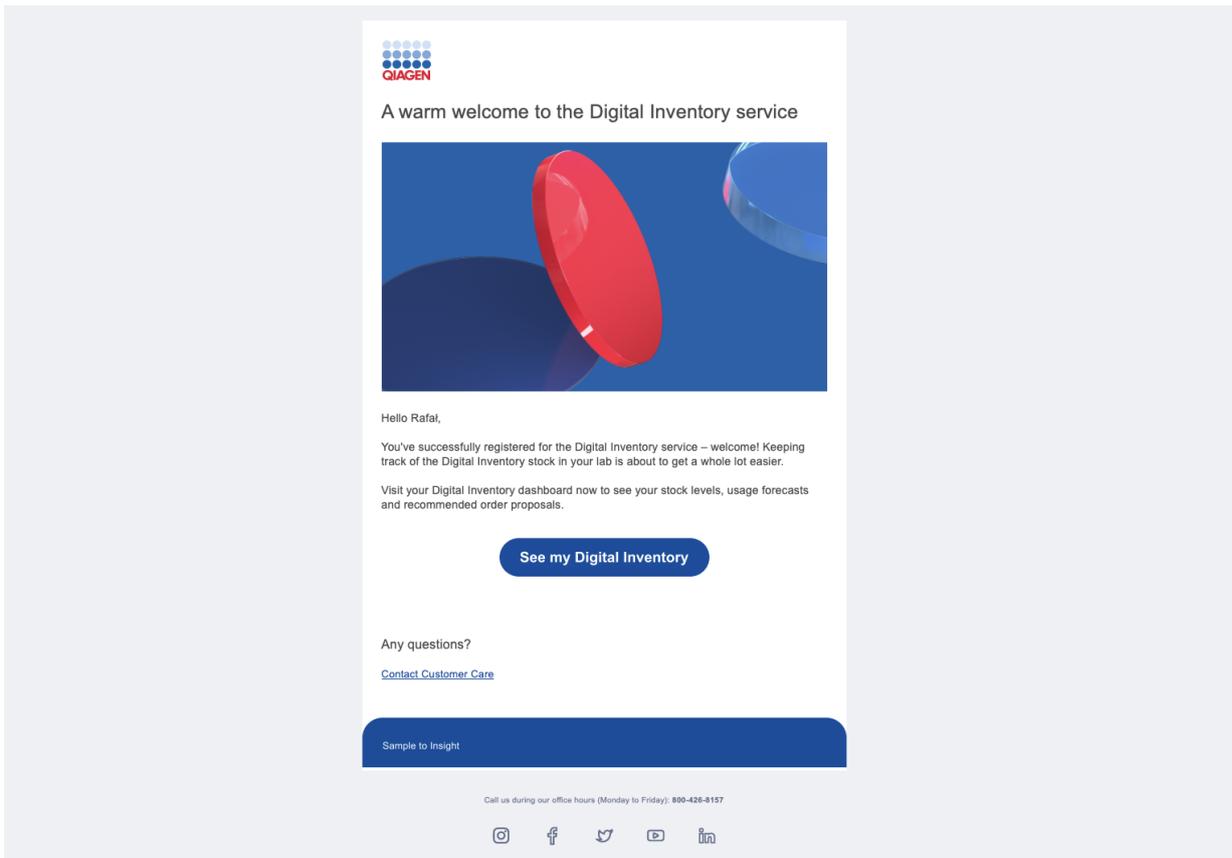
1. Setting shipping and billing addresses for a workgroup can be done with any of the following mechanisms (availability may vary):
 - a. Syncing addresses from historical orders



b. Selecting addresses from address book

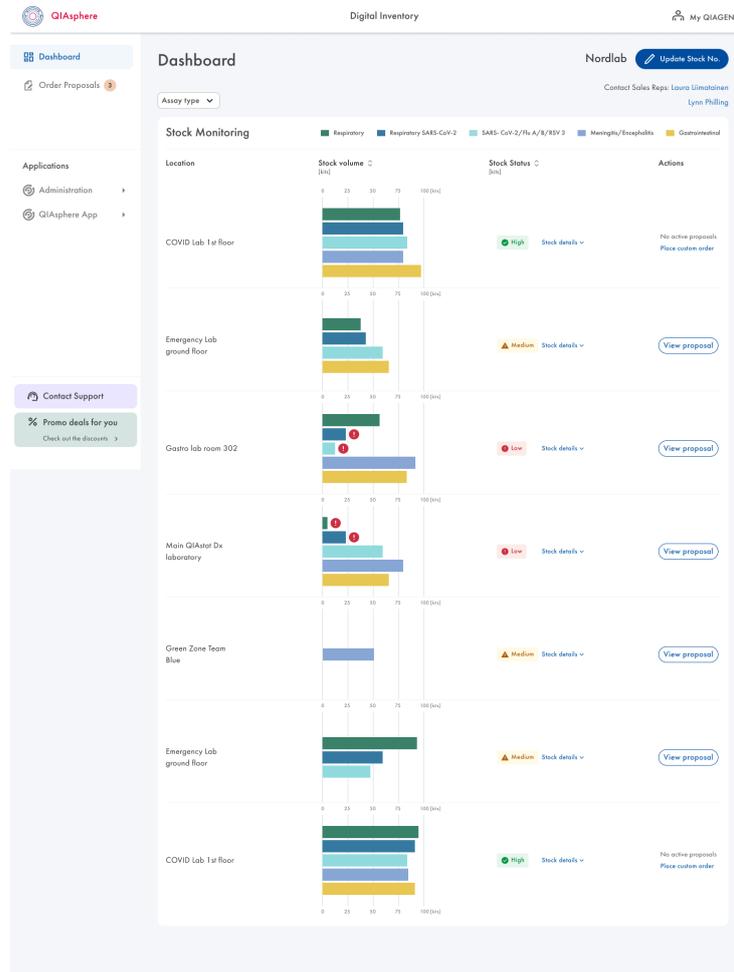


2. Once the addresses are added, all Workgroup members receive a welcoming email:

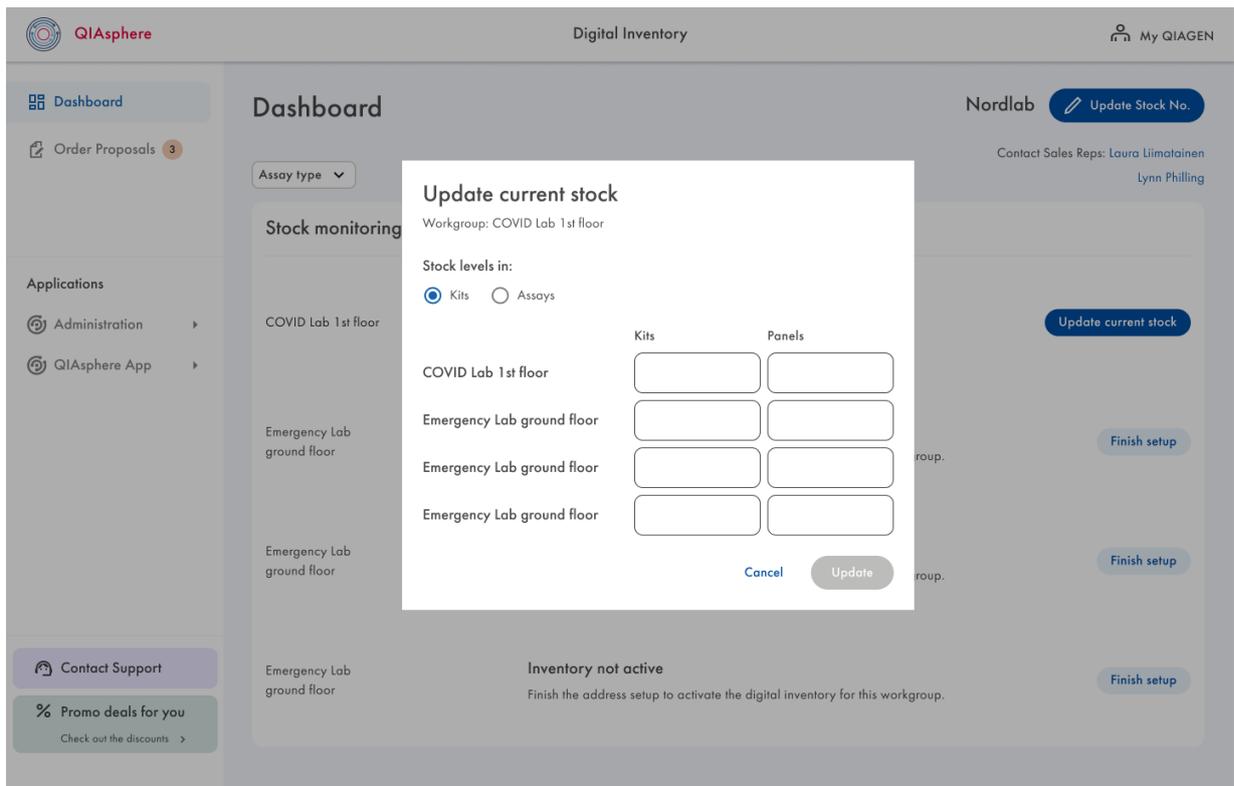


3. Updating stock levels

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



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

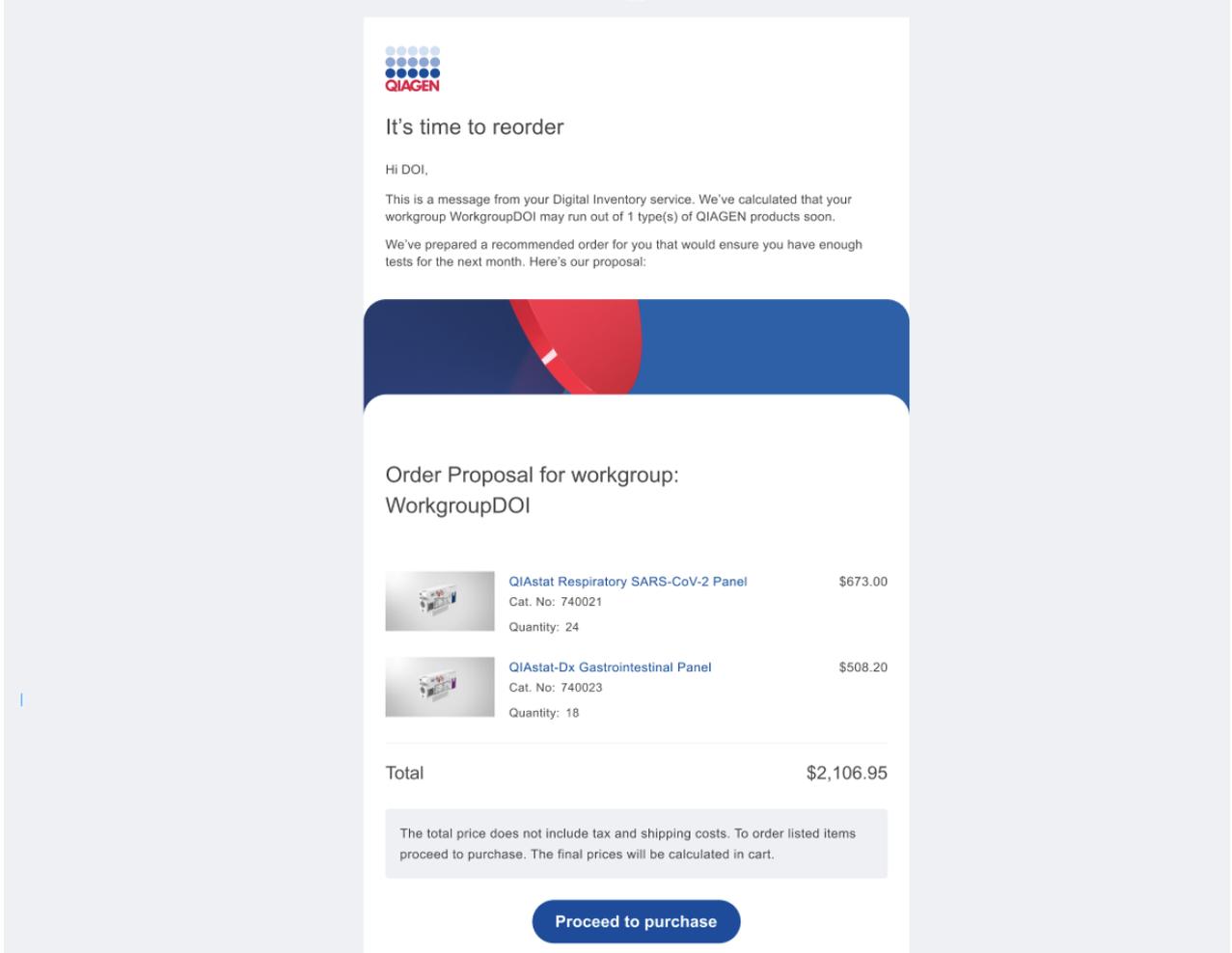


Stock levels are saved once entered and confirmed, and the application is ready to generate the first Order Proposal.

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 screenshot shows an email from QIAGEN with the following content:

It's time to reorder

Hi DOI,

This is a message from your Digital Inventory service. We've calculated that your workgroup WorkgroupDOI may run out of 1 type(s) of QIAGEN products soon.

We've prepared a recommended order for you that would ensure you have enough tests for the next month. Here's our proposal:

**Order Proposal for workgroup:
WorkgroupDOI**

	QIAstat Respiratory SARS-CoV-2 Panel Cat. No: 740021 Quantity: 24	\$673.00
	QIAstat-Dx Gastrointestinal Panel Cat. No: 740023 Quantity: 18	\$508.20
Total		\$2,106.95

The total price does not include tax and shipping costs. To order listed items proceed to purchase. The final prices will be calculated in cart.

[Proceed to purchase](#)

The Order Proposal is also available from the Application screen:

QIASphere Digital Inventory My QIAGEN

Dashboard
Order Proposals 3
Applications
Administration
QIASphere App

Order Proposals

COVID Lab 1st floor **Emergency Lab ground floor** GRANT research Team Main QIAstat Dx laboratory Go

6 order proposals in All history Search for Order Proposal No. or Quote

ACTIVE PROPOSALS

Order Proposal No.	Quote No.	Status	Creation Date
WEB CC - 10012018	126389539835	Pending	Mon, Mar 31, 7:31 PM

(42 ITEMS)

	QIAstat-Dx Respiratory SARS-CoV-2 Panel Cat. No.: 740021 Minimum Exp. Date: 07/23/2023	24x	NOK 6,195.00 NOK 6,885.00	NOK 148,680.00
	QIAstat-Dx Gastrointestinal Panel Cat. No.: 740021 Minimum Exp. Date: 08/31/2023	18x	NOK 6,393.50 NOK 6,730.00	NOK 115,083.00
Total				NOK 263,763.00

The total price does not include tax and shipping costs.
They will be calculated in one of the checkout steps.

Minimum Expiration Date.
We guarantee that the Expiration Date of ordered products will not be shorter than the presented one.

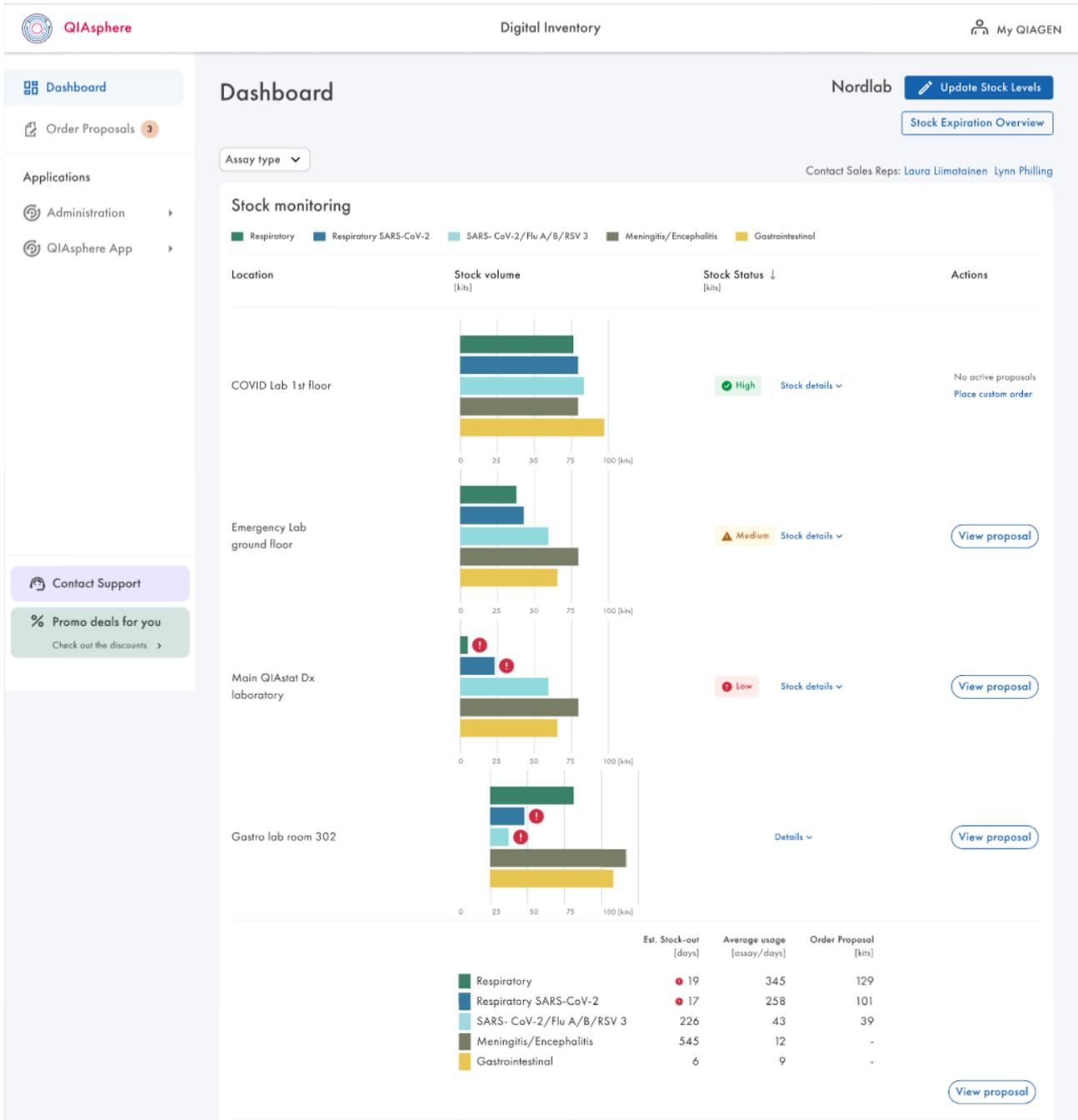
Edit Go To Checkout

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From the active Order Proposal screen, user can finalize the order by clicking **Go To Checkout** (directly going to the last step of finalizing the order) or **Edit** (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.

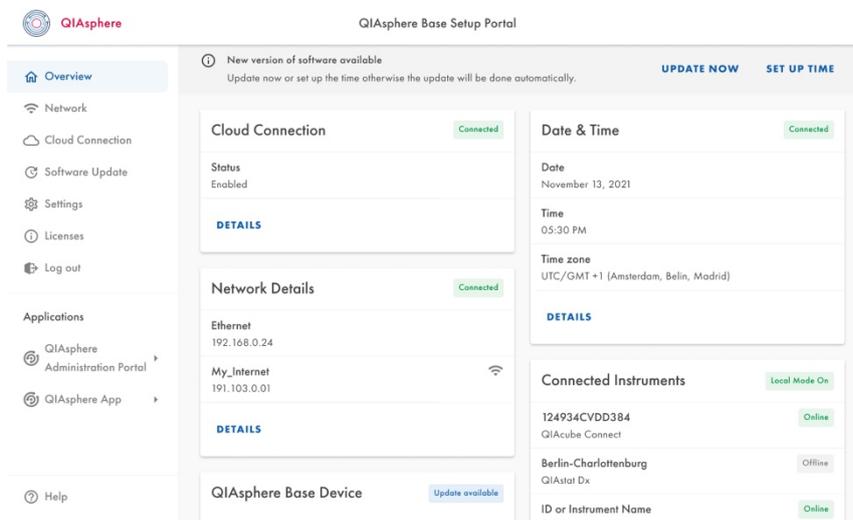
13. Administration of QIAsphere Base Setup Portal

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 the service port 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

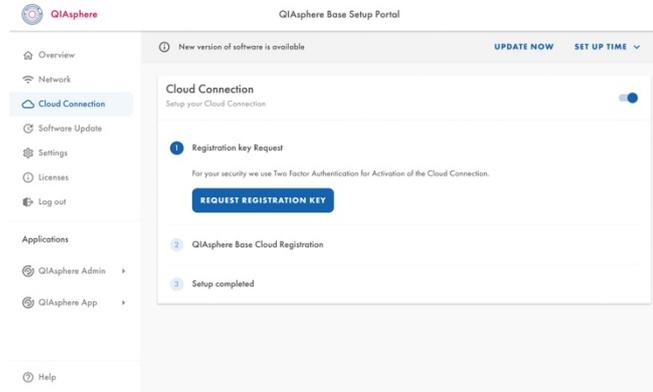


3. The QBSP home screen is displayed.

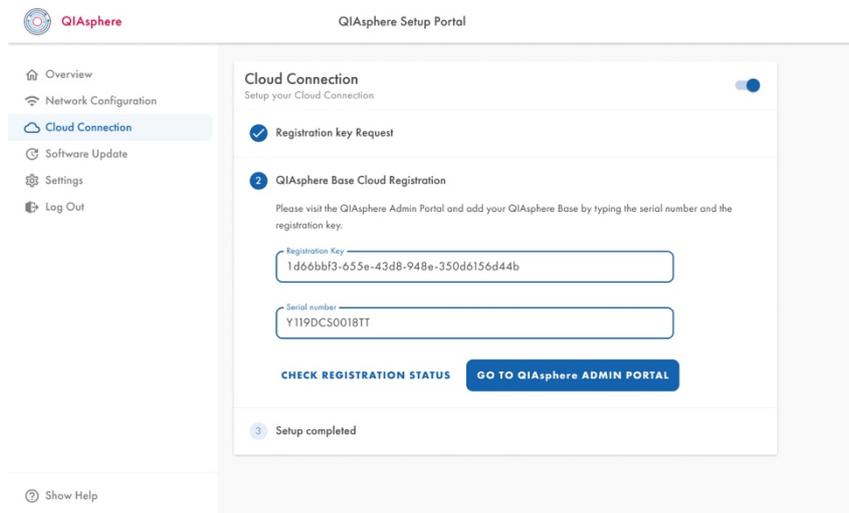
13.1. QIAsphere Base cloud connection

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

1. Go to **Cloud Connection** menu.

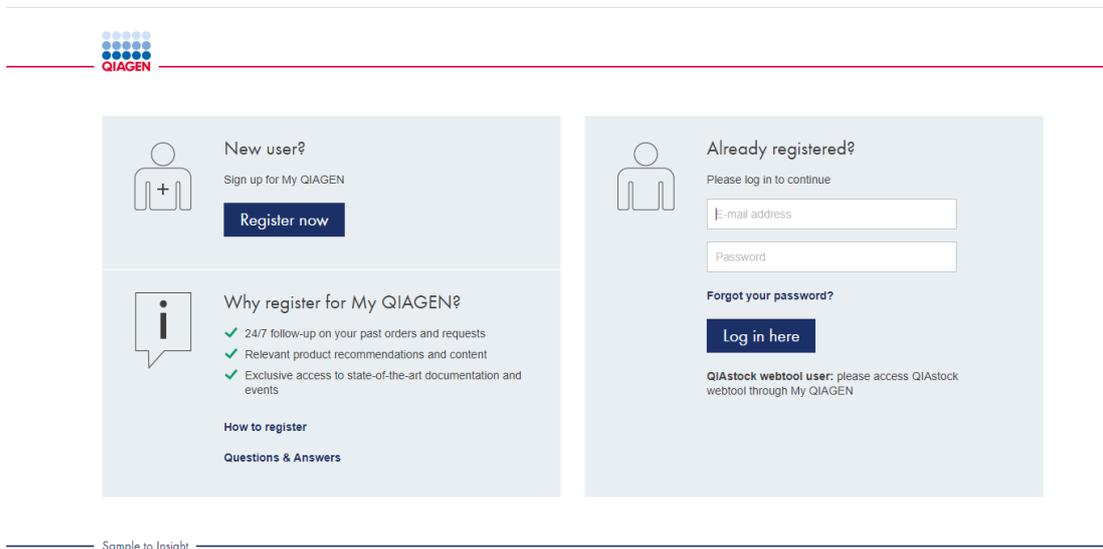


2. Wait until registration key is displayed; it may take a few seconds. You are automatically directed to step 2 of the registration process.
3. Click **GO TO QIASPHERE ADMINISTRATION**. Do not close the QBSP window in your browser.



4. My QIAGEN log in window opens. Log in using your account credentials.

Note: If the page does not open automatically, go to www.qiagen.com/myqiagen and click the **QIASphere Administration** widget.



Sample to Insight

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.

The screenshot shows a pop-up window titled 'Add QIASphere Base'. It contains two input fields: 'QIASphere Base Serial Number' with a red border and a placeholder 'e.g. Y118DCC0043', and 'Registration Key'. Below the fields is a red error message: 'Please enter QIASphere Base Serial Number.' At the bottom of the window are three buttons: 'HELP', 'CANCEL', and 'ADD'. The window title bar shows 'QIASphere Base' and 'mailto:qa-test@qiagen.com'.

7. Click **Add**.

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

Edit instrument details

Instrument name

Country

Data storage location

State

QIASphere connection

City

With QIASphere connection you can use your QIASphere app from everywhere and benefit from the full set of the QIASphere features.

Zip code

Workgroup name

Street

Street number

Additional information

Time zone

CANCEL **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.

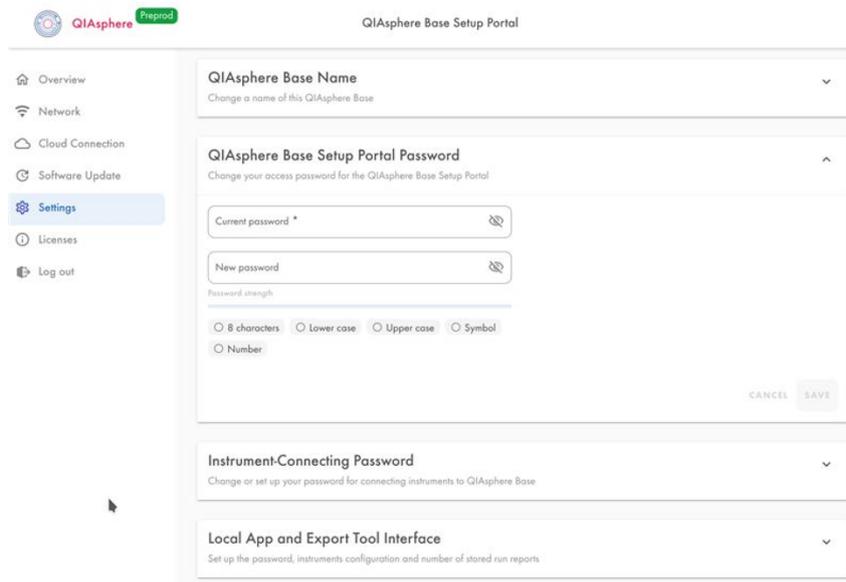
12. When the registration is successful, you will be automatically directed to step 3 of the cloud connection and receive a confirmation about the completed setup.

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.



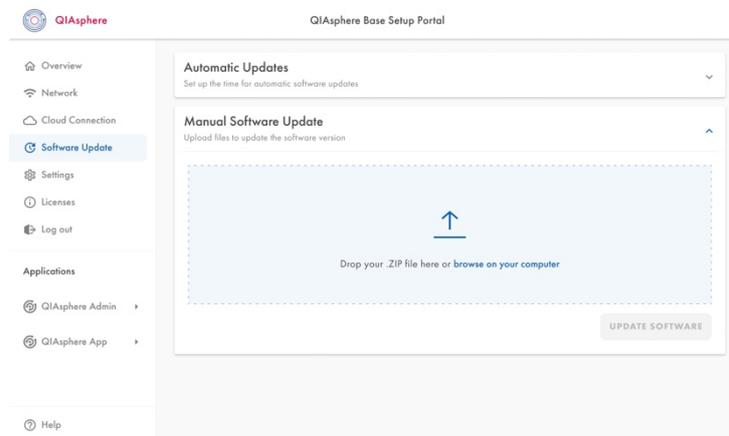
The screenshot shows the QIASphere Base Setup Portal interface. The left sidebar contains a menu with 'Settings' highlighted. The main content area is titled 'QIASphere Base Setup Portal' and contains several sections: 'QIASphere Base Name', 'QIASphere Base Setup Portal Password', 'Instrument-Connecting Password', and 'Local App and Export Tool Interface'. The 'QIASphere Base Setup Portal Password' section is expanded, showing input fields for 'Current password' and 'New password', a 'Password strength' indicator, and radio buttons for password requirements: '8 characters', 'Lower case', 'Upper case', 'Symbol', and 'Number'. 'CANCEL' and 'SAVE' buttons are visible at the bottom right of the password section.

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:

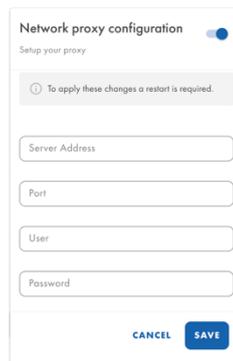
- Recommended: Select feasible 2 hour timeslot for latest software update using automatic update option.
- Manual upload: Require to download latest software on local device and upload manually in zip format.



The screenshot shows the QIASphere Base Setup Portal interface. The left sidebar contains a menu with 'Software Update' highlighted. The main content area is titled 'QIASphere Base Setup Portal' and contains several sections: 'Automatic Updates', 'Manual Software Update', and 'Applications'. The 'Manual Software Update' section is expanded, showing a large dashed box for uploading files, an upward arrow icon, and the text 'Drop your .ZIP file here or browse on your computer'. An 'UPDATE SOFTWARE' button is visible at the bottom right.

13.4. Proxy settings

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



The screenshot shows a 'Network proxy configuration' dialog box. At the top, there is a title 'Network proxy configuration' and a toggle switch that is currently turned on. Below the title, it says 'Setup your proxy'. A grey information bar contains the text 'To apply these changes a restart is required.' Below this are four input fields: 'Server Address', 'Port', 'User', and 'Password'. At the bottom of the dialog, there are two buttons: 'CANCEL' and 'SAVE'.

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.

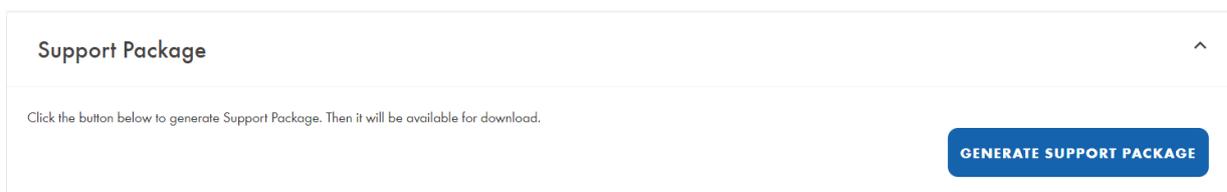
13.5. Changing instrument connection password

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.



The screenshot shows the 'Support Package' tab in the Settings menu. The title 'Support Package' is at the top left, and an upward-pointing arrow is at the top right. Below the title, there is a line of text: 'Click the button below to generate Support Package. Then it will be available for download.' At the bottom right of the tab, there is a blue button with the text 'GENERATE SUPPORT PACKAGE'.

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.

Local App and Export Tool Interface
Set up the password, instruments configuration and number of stored run reports

Enable / disable the interface

Local Mode and the QIAsphere Export Tool password
Set up Your password for retrieving instrument data from QIAsphere Base Mobile App or QIAsphere Export Tool.

New password *

Repeat new password *

CANCEL SAVE

Instrument Run Reports
Set the number of stored reports for each instrument.
This will affect the run reports viewable in the QIAsphere App and buffered for the QIAsphere Export Tool.

Number of Instrument Run Reports
35
allowed values: 1-60

CANCEL SAVE

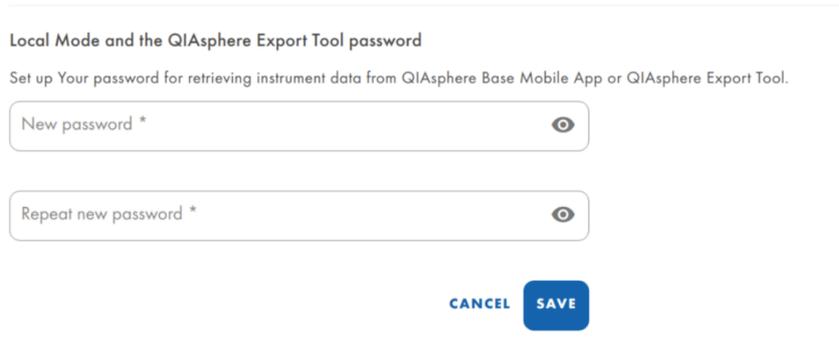
Instruments Administration
Please select here the instruments to be displayed on the mobile app in Local mode.

Type	ID	Name	Status	Enabled for app
qiacubconnect	qiacubconnect-sim0000	sim0000	OFFLINE	<input checked="" type="checkbox"/>

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.



Local Mode and the QIASphere Export Tool password

Set up Your password for retrieving instrument data from QIASphere Base Mobile App or QIASphere Export Tool.

New password *

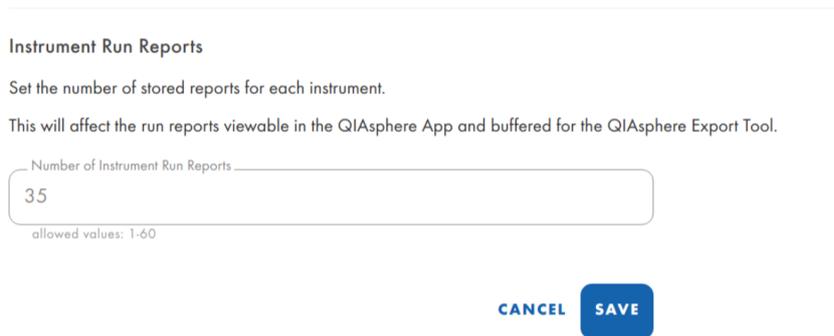
Repeat new password *

CANCEL SAVE

2. Enter the 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 **Export Tool Interface** tab.



Instrument Run Reports

Set the number of stored reports for each instrument.

This will affect the run reports viewable in the QIASphere App and buffered for the QIASphere Export Tool.

Number of Instrument Run Reports

35

allowed values: 1-60

CANCEL SAVE

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

If all QIASphere Base settings including data 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.

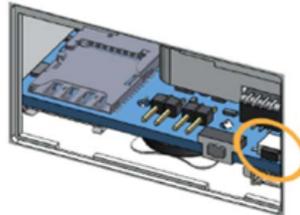
Important: Make sure no Wi-Fi dongle is attached to the Q-Base.

14.2.1. IOT-GATE-iMX8 from CompuLab

1. To turn it on, plug in the QIASphere Base power cord and press the power button.
2. Wait until status LED lights green.
3. Press and hold the power button for 3 to 5 secs.
4. Status LED lights yellow – factory reset started and is in progress.
5. Wait until status LED turns off – factory reset finished.

14.2.2. ReliaGATE 10-12 from Eurotech

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.

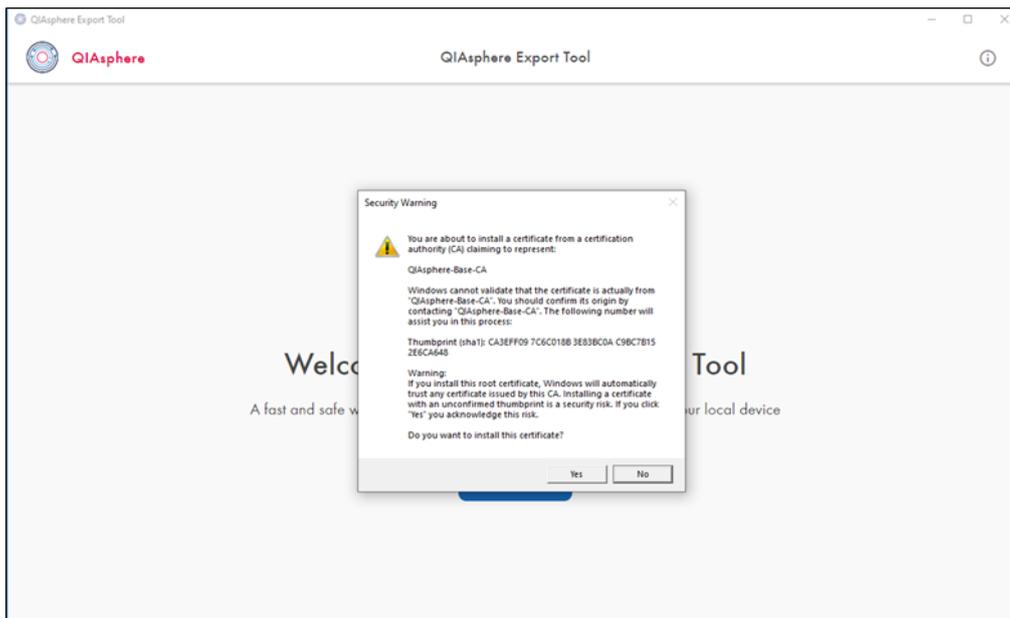
To install the QIASphere Export Tool:

1. Go to www.qiagen.com/qiasphere, and download installation package for 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.

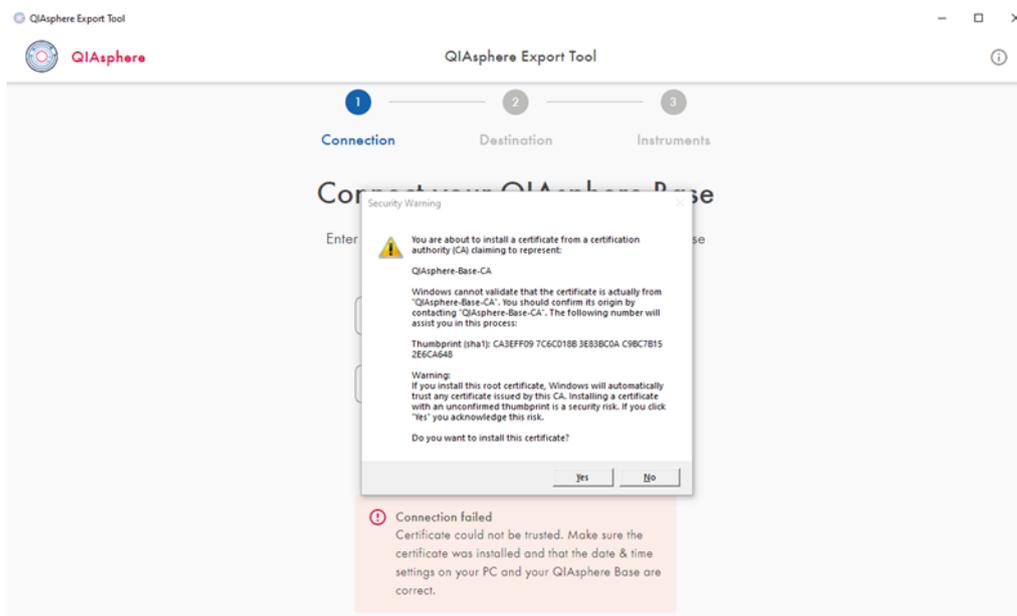
If the installation wizard of the QIASphere Export Tool is confirmed with the **Finish** button (see Section 15.1), a security warning regarding the installation of the QIASphere-Base-CA root certificate is displayed.



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.

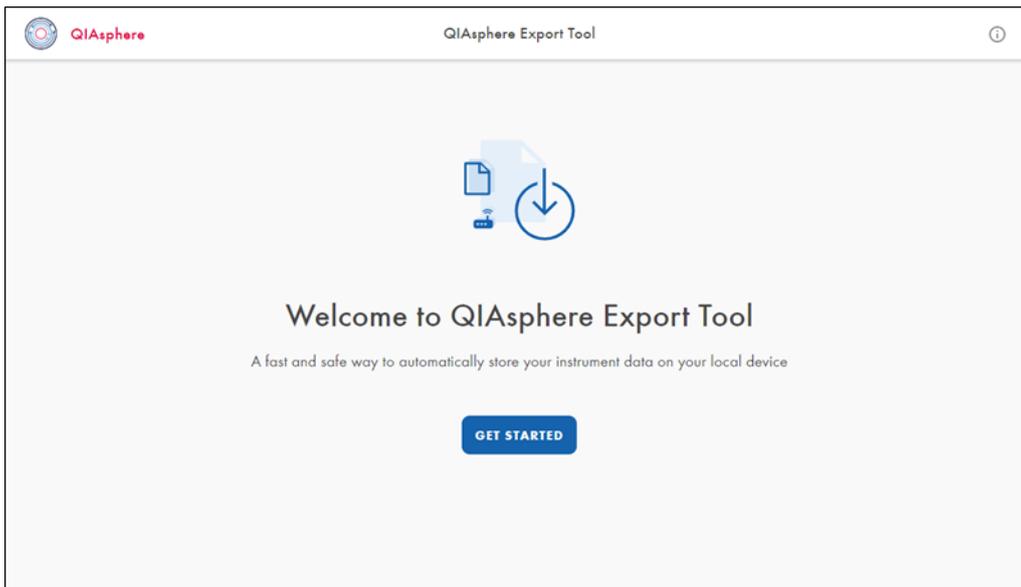
Note: Without the root certificate, the QIAsphere Export Tool cannot connect to QIAsphere Base gateway. If you skipped the certificate installation, the prompt to install the QIAsphere-Base-CA root certificate appears again when trying to connect to a QIAsphere Base.



15.3. Initial configuration settings

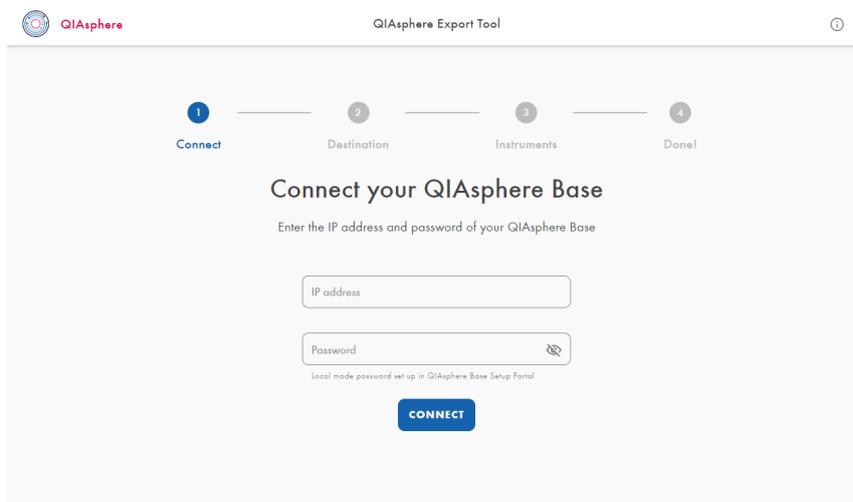
After installation, the application starts the initial setup automatically. Next, a connection to the desired QIAsphere Base gateways must be established, because experiment and run results of instruments are transferred via these gateways. Later you can customize the list of connected instruments for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



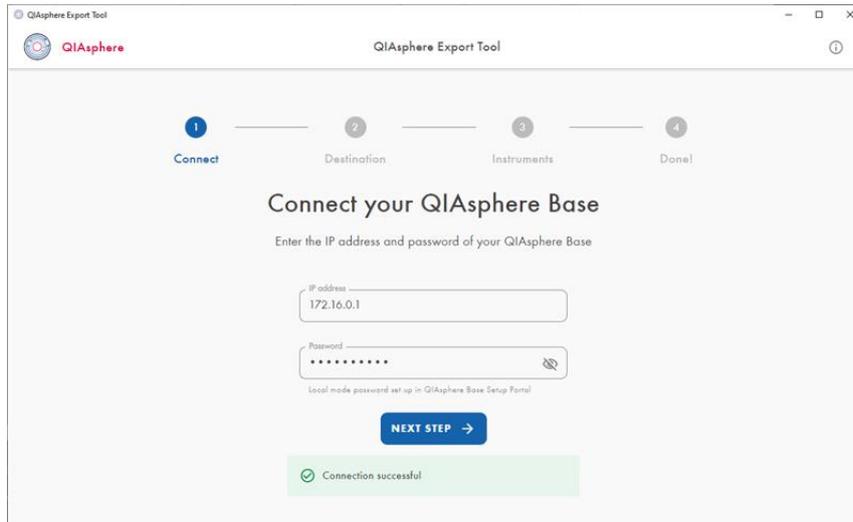
1. Enter the IP address and QIAsphere Export Tool password of the QIAsphere Base when prompted.

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**.

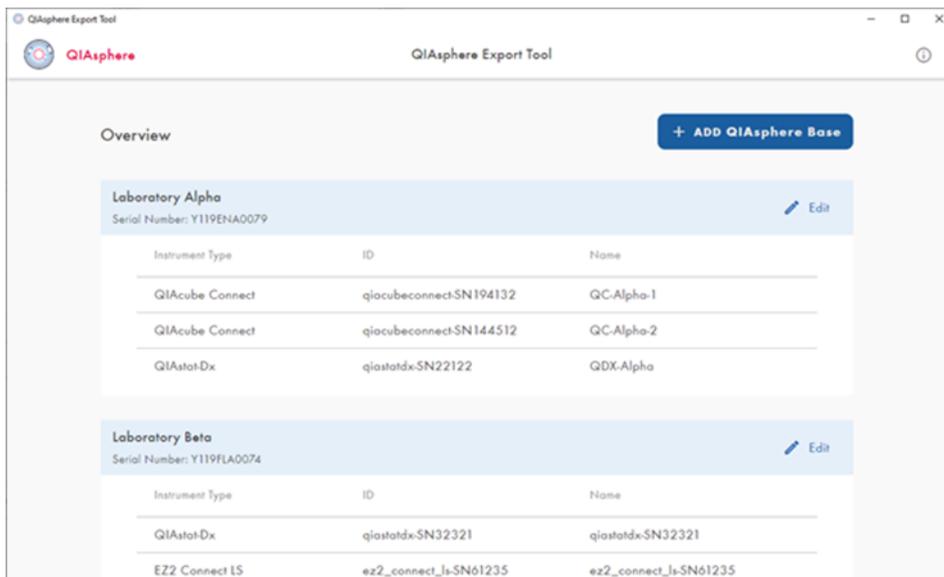
3. After successful connection to QIAsphere Base, follow the step-by-step instructions in Export tool setup to complete the process.



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 QIASphere system.

If further assistance is required, contact QIAGEN Technical Services at 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 according to the following table:

Supplier	Product	Link to website
CompuLab	IOT-GATE-IMX8	www.compulab.com/products/iot-gateways/iot-gate-imx8-industrial-arm-iot-gateway
Eurotech	ReliaGATE 10-12	www.eurotech.com/products/reliagate-10-12

Liability clause and warranty conditions

QIAGEN shall be released from all obligations under its warranty in the event repairs or modifications are made by persons other than its own personnel, except in cases where the Company has given its written consent to perform such repairs or modifications.

All materials replaced under this warranty will be warranted only for the duration of the original warranty period, and in no case beyond the original expiration date of original warranty unless authorized in writing by an officer of the Company. Read-out devices, interfacing devices and associated software will be warranted only for the period offered by the original manufacturer of these products. Representations and warranties made by any person, including representatives of QIAGEN, which are inconsistent or in conflict with the conditions in this warranty shall not be binding upon the Company unless produced in writing and approved by an officer of QIAGEN.

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.

Task	Description																					
Network connection	<p>QIASphere clients can be connected to a wireless or wired network. Consider the following prerequisites depending on the connection:</p> <ol style="list-style-type: none"> 1. Wireless – Have Wi-Fi network name and password available 2. 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	<p>Using DHCP as network protocol is recommended and configured by default. If required, static IP can be set manually.</p> <ol style="list-style-type: none"> 1. DHCP – Make sure the server has minimum one free IP address per QIASphere client available. 2. Static IP – Provide the following network parameters for each QIASphere client: IP address and Subnet mask, Default Gateway and DNS server. 																					
NTP configuration	<p>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.</p> <p>By default, it is configured to connect to 0.pool.ntp.org</p> <p>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.</p>																					
Firewall rules	<p>QIASphere clients use the following communication ports and protocols to transfer data. Set local firewall rules accordingly to allow communication on these ports:</p> <table border="1"> <thead> <tr> <th>URL</th> <th>Port</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>cs.qiasphere.qiagen.com</td> <td>Outbound TCP 443</td> <td>HTTPS</td> </tr> <tr> <td>api.qiasphere.qiagen.com</td> <td></td> <td></td> </tr> <tr> <td>global.azure-devices-provisioning.net</td> <td></td> <td></td> </tr> <tr> <td>qiaspherecloudconnector.blob.core.windows.net</td> <td></td> <td></td> </tr> <tr> <td>prdlandingzonewe.blob.core.windows.net/</td> <td></td> <td></td> </tr> <tr> <td>prd-qiasphere-iot-hub.azure-devices.net</td> <td>Outbound TCP 8883 and 433</td> <td>MQTT + HTTPS</td> </tr> </tbody> </table>	URL	Port	Protocol	cs.qiasphere.qiagen.com	Outbound TCP 443	HTTPS	api.qiasphere.qiagen.com			global.azure-devices-provisioning.net			qiaspherecloudconnector.blob.core.windows.net			prdlandingzonewe.blob.core.windows.net/			prd-qiasphere-iot-hub.azure-devices.net	Outbound TCP 8883 and 433	MQTT + HTTPS
URL	Port	Protocol																				
cs.qiasphere.qiagen.com	Outbound TCP 443	HTTPS																				
api.qiasphere.qiagen.com																						
global.azure-devices-provisioning.net																						
qiaspherecloudconnector.blob.core.windows.net																						
prdlandingzonewe.blob.core.windows.net/																						
prd-qiasphere-iot-hub.azure-devices.net	Outbound TCP 8883 and 433	MQTT + 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

Revision	Description
January 2025	Updated according to new QIASphere Base version 3.1.0 and CompuLab hardware
March 2024	Updated according to new version of QIASphere Insights
September 2023	Updated according to QIASphere Base version 3.0.0 and extended by QIASphere Insights and Digital Inventory.

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