

QIAAsymphony® Connect User Manual



For use with software version 1.0

IVD For In Vitro Diagnostic Use



REF 9003450



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1. Introduction

Thank you for choosing the QIASymphony Connect. We are confident it will become an integral part of your laboratory.

Before using the QIASymphony Connect, it is essential that you read this user manual carefully and pay attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument, and to maintain the instrument in a safe condition.

This document should be made available to new users before operating the instrument. Keep it available near the instrument for reference.

Note: The figures of the software screens and images shown in this user manual are only examples and may vary depending on the software build.

1.1. About this user manual

This user manual provides information about the QIASymphony Connect in the following sections:

- Introduction
- Safety Information
- Disposal
- General Description
- Installation Procedure
- Operating Procedure
- Maintenance
- Troubleshooting
- Technical Specifications
- Appendices

The appendices contain the following information:

- Waste Electrical and Electronic Equipment (WEEE)
- Liability clause
- Ordering information

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 Support Department 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 the QIA Symphony Connect 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 and more information, please see our Technical Support Center at support.qiagen.com or call QIAGEN Technical Service or your local distributor.

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

- QIA Symphony Connect serial number
- QIA Symphony Connect software version
- Error code (if applicable)
- Description of instrument status after error (worktable, consumables, etc.) and photos if possible
- Timepoint when the error occurred for the first time
- Protocol used
- Lot numbers of Consumables and Reagents
- Frequency of error occurrence (i.e., intermittent or persistent error)
- QIA Symphony Connect Support Package (see Section 8 Troubleshooting)

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 Service.

1.3. Intended use of the QIA Symphony Connect

The QIA Symphony Connect platform is designed to perform the automated purification of nucleic acids.

It is intended to be used only in combination with kits indicated for use with the QIA Symphony Connect for the applications described in the kit handbooks.

The system is intended for use by professional users, such as technicians and physicians trained in molecular biological techniques and the operation of the QIA Symphony Connect.

1.4. Requirements for QIAasympphony Connect Users

The table below covers the general level of competence and training necessary for transportation, installation, use, maintenance, and servicing of the QIAasympphony Connect.

Table 1. Operator Requirements

Task	Personnel	Training and experience
Delivery or Relocation	QIAGEN Field Service specialists or service technicians of an authorized agent	Trained, certified, and authorized by QIAGEN
Installation	QIAGEN Field Service specialists or service technicians of an authorized agent	Trained, certified, and authorized by QIAGEN
Routine use (running protocols)	Laboratory technicians or equivalent	Professional users, such as technicians and physicians, trained in molecular biology techniques
Routine maintenance	Laboratory technicians or equivalent	Professional users, such as technicians and physicians, trained in molecular biology techniques
Servicing and annual maintenance	QIAGEN Field Service specialists or service technicians of an authorized agent	Trained, certified, and authorized by QIAGEN

2. Safety Information

Before using the QIAAsymphony Connect, it is essential that you read this user manual carefully and pay particular attention to the safety information. The instructions and safety information in the user manual must be followed to ensure safe operation of the instrument and to maintain the instrument in a safe condition. Failure to comply may lead to personal injury, damage the instrument and/or loss of samples and will void the warranty.

The following types of safety information appear throughout the *QIAAsymphony Connect User Manual*.

WARNING



The term **WARNING** is used to inform you about situations that could result in **personal injury** to you or others.

Details about these circumstances are given in a box like this one.

CAUTION



The term **CAUTION** is used to inform you about situations that could result in **damage to an instrument** or other equipment.

Details about these circumstances are given in a box like this one.

- **Important:** The term **Important** is used to inform you about situations that could result in loss of samples or no result in downstream application.
- **Note:** The term **Note** is used to inform you about situations that could result in delayed processing.

The guidance provided in this manual is intended to supplement, not supersede, the standard safety requirements and regulations prevailing in the user's country. Follow generally accepted procedures for quality control and application development.

Please be aware that you may be required to consult your local regulations for reporting serious incidents that have occurred in relation to the device to the manufacturer and/or its authorized representative and the regulatory authority in which the user and/or the patient is established.

2.1. Operator qualification

When operating the instrument, it is essential to read and understand the relevant safety guidelines, standards, and procedures outlined in these instructions.

- Do not carry out operation and maintenance unless you have read and understood the information provided in this user manual.
- Leave installation, repair, and annual maintenance to QIAGEN Field Service specialists.
- Carefully follow the procedures specified in the instructions for operation in Section 6 Operating Procedure and Section 7 Maintenance.
- Follow laboratory best practices, especially when working with biohazardous material.

2.2. Personal protective equipment

Working without personal protective equipment could result in a risk to life or health.

When working with reagents and operating the instrument, wear appropriate personal protective equipment according to local regulations.

It is recommended to use at least:

- Eye protection
- Lab coat
- Lab gloves

Follow laboratory best practices and regularly change lab gloves to minimize the risk of infection and contamination (especially after contact with waste, such as consumables or sample material).

WARNING



Risk of personal injury

Always wear eye protection, lab coat, and lab gloves.

2.3. Electrical safety

Disconnect the power cord from the power outlet before servicing.

WARNING



Electrical hazard

Any interruption of the protective conductor (earth/ground lead) inside or outside the instrument or disconnection of the protective conductor terminal is likely to make the instrument dangerous. Intentional interruption is prohibited.

Lethal voltages inside the instrument

When the instrument is connected to power outlet, terminals may be live and opening covers or removing parts is likely to expose live parts.

WARNING



Damage to the electronics

Before powering ON the instrument make sure that the correct supply voltage is used. Incorrect use of supply voltage may cause damage to electronics. See specifications indicated on the type plate of the instrument.

WARNING



Risk of electric shock

Do not open any panels on the QIAsymphony Connect instrument.

Risk of personal injury and material damage

Only perform maintenance that is specifically described in this user manual.

To ensure satisfactory and safe operation of the QIASymphony Connect instrument, follow the advice below:

- The power cord must be connected to a power outlet that has a protective conductor (earth/ground).
- Place instrument in a location so that the power cord is accessible and can be connected/disconnected.
- Use only the power cord delivered by QIAGEN.
- Do not adjust or replace internal parts of the instrument.
- Do not operate the instrument with any covers or parts removed.
- Do not spray liquid into the instrument or in the vicinity of the instrument.
- Keep inflammable or explosive material away from the instrument.
- If liquid has spilled inside the instrument and/or beneath the drawers, switch off the instrument, disconnect it from the power outlet, and contact QIAGEN Field Service specialists.

If the QIASymphony Connect instrument becomes electrically unsafe, disconnect the electrical cord from the power supply. Prevent other personnel from operating it and contact QIAGEN Field Service specialists.

The instrument may be electrically unsafe under, but not limited to, the following conditions:

- It or the power cord appears to be damaged.
- It has been stored under unfavorable conditions for a prolonged period.
- It has been subjected to severe transport stresses.
- Liquids have come into direct contact with electrical components of the QIASymphony Connect.
- The power cord has been exchanged with an unauthorized power cord.

2.3.1. Electromagnetic safety

This equipment complies with the emission and immunity requirements from EN 61326-1:2020 and EN 61326-2-6:2020.

WARNING / CAUTION



Risk of electromagnetic emissions

The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

WARNING / CAUTION



Risk of electromagnetic immunity

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

WARNING / CAUTION



Risk of electromagnetic immunity

Electromagnetic environment should be evaluated prior to operation of the equipment. Do not use this equipment in proximity to sources of strong electromagnetic radiation (e.g., unshielded intentional RF sources), as these can interfere with proper operation.

WARNING / CAUTION**Risk of electromagnetic immunity**

Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be at least 30 cm (12 inches) away from any part of the equipment, including cables specified by the manufacturer. Otherwise, it could result to a degradation of the performance of this equipment.

WARNING / CAUTION**Risk of electromagnetic emissions and immunity**

Do not use any power cable other than the one supplied with the equipment. In case of damage or loss contact QIAGEN Field Service specialists for a replacement. Other cables might negatively affect the EMC performance of the equipment.

WARNING / CAUTION**Risk of proximity electromagnetic disturbances**

This equipment is designed for use in a Professional Healthcare Facility Environment. Locations include hospitals, clinics, diagnostic laboratories, or scientific environments. Most environments and locations in the Professional Healthcare Facility Environment are considered to have a controlled electromagnetic environment with regard to fixed electromagnetic sources. However, mobile communication devices are widely used by healthcare professionals in providing efficient patient care. For this reason, it is more difficult to control the environment for proximity electromagnetic disturbances. Examples of electromagnetic sources that might be used adjacent to IVD medical equipment are:

- high frequency surgical equipment;
- radio-frequency identification (RFID) systems;
- wireless local area networks (WLAN);
- handheld mobile radios (e.g., TETRA, two-way radio);
- paging systems;
- other wireless devices (including consumer devices).

WARNING**Strong magnetic field**

QIAsymphony Connect contains very strong permanent magnets. Magnets could affect the functioning of pacemakers and implanted heart defibrillators. Therefore, people wearing a medical magnetized implant should not use this product.

Magnets produce a far-reaching, strong magnetic field. They could damage, e.g., laptops, computer hard drives, credit cards, data storage media, mechanical watches, hearing aids or other electronic equipment. Keep magnets away from devices and objects that could be damaged by strong magnetic fields.

The magnets have a very strong attractive force. Take care during handling and avoid contact between two magnets. Unsafe handling could cause jamming of fingers or skin in between magnets. This may lead to contusions and bruises.

2.4. Environment

2.4.1. Safety instructions for operation

The QIASymphony Connect may only be operated under the environmental conditions listed in Section 5.2 Site requirements.

WARNING / CAUTION 	Risk of personal injury and material damage The QIASymphony Connect instrument must only be operated by qualified personnel who have been appropriately trained and can follow laboratory safety rules.
WARNING / CAUTION 	Risk of personal injury and material damage Improper use of QIASymphony Connect instrument may cause personal injuries or damage to the instrument.
WARNING / CAUTION 	Risk of personal injury and material damage The tip disposal bag must be placed in the waste bag holder before starting a run. The tip disposal bag must be discarded after each run. When using the QIASymphony Cabinet, check the waste bin after each run and empty it if necessary to avoid overflow.
WARNING / CAUTION 	Risk of personal injury and material damage The liquid waste container must be emptied after each run.
CAUTION 	Avoid spilling of water or chemicals Avoid spilling water or chemicals onto and into the QIASymphony Connect.
CAUTION 	Do not lean against the instrument Do not lean against the instrument or touchscreen.
WARNING 	Risk of topple over Do not overload the drawers of the instrument and cabinet. Do not lean or climb on the drawers of the instrument or cabinet.
WARNING 	Explosive atmosphere The QIASymphony Connect is not designed for use in an explosive atmosphere.
CAUTION 	Damage to the instrument Make sure to install the magnetic-head guards before starting a run on the QIASymphony Connect.
CAUTION 	Damage to the instrument Make sure to install the tip guards before starting a run on the QIASymphony Connect.

2.4.2. Safety instructions for installation

The QIAAsymphony Connect and its Cabinet is installed by QIAGEN authorized field service.

- Place the instrument in a location so that the power cord is accessible and can be connected/disconnected.
- The power cord must be connected to a power outlet that has a protective conductor (earth/ground).
- Do not place items on top of the instrument.

CAUTION



Risk of overheating

To ensure proper ventilation, maintain a minimum clearance of 5 cm (1.97 in) at the rear of the QIAAsymphony Connect.
Slits and openings that ensure the ventilation of the QIAAsymphony Connect must not be covered.
Overheating may damage the instrument.

CAUTION



Avoid direct sunlight

Direct sunlight may bleach parts of the instrument, cause damage to plastic parts, or interfere with the correct function of the load check.
The QIAAsymphony Connect instrument must be located out of direct sunlight.

CAUTION



Installation in laboratory environment

The instrument must be installed in a laboratory environment with appropriate safety level when used to analyze biological material.

WARNING / CAUTION



Explosive atmosphere

The QIAAsymphony Connect is not designed for use in an explosive atmosphere.

WARNING



Safe workplace

The responsible group or individual (e.g., laboratory manager) must take the necessary precautions to ensure that the surrounding workplace is safe and that the instrument operators are not exposed to hazardous levels of toxic substances (chemical or biological).

2.4.3. Safety instructions for storage and relocation

If the instrument is not used for an extended period of time, switch it off and unplug the power cord.

WARNING / CAUTION



Risk of personal injury and material damage

The QIAAsymphony Connect instrument is too heavy to be lifted by one person. To avoid personal injury or damage to the instrument, do not lift the instrument alone.
Contact QIAGEN Field Service specialists to relocate the instrument.

2.5. Mechanical hazards

The hood and the sample input module flap of the QIAAsymphony Connect instrument must remain closed during operation. Only open the hood when instructed to do so by the user manual or when prompted by the on-screen instructions.

WARNING**Risk of personal injury and material damage**

Do not stand on the drawers of the instrument or cabinet. Do not overload the drawers of the instrument (5 kg max) or cabinet (15 kg max). The instrument might tilt over.

2.6. Maintenance safety

To prevent inaccurate results and unsafe operation of the system, perform the maintenance as described in Section 7 Maintenance. Use only cleaning and decontamination agents described in the maintenance section.

WARNING**Risk of personal injury and material damage**

Only perform maintenance that is specifically described in this operating guide.

WARNING / CAUTION**Risk of personal injury and material damage**

The QIAsymphony Connect instrument must be serviced by a QIAGEN authorized Field Service Specialist.

WARNING**Toxic fumes**

Do not use bleach to clean or disinfect QIAsymphony Connect instruments or consumables. Bleach in contact with salts from the buffers can produce toxic fumes.

WARNING**Risk of fire**

When cleaning QIAsymphony Connect instruments with alcohol-based disinfectant, leave the instrument hoods open to allow flammable vapors to disperse.
Only clean QIAsymphony Connect instruments with alcohol-based disinfectant when worktable components have cooled down.

CAUTION**Damage to the instrument**

Do not use bleach, solvents, or reagents containing acids, alkalis, or abrasives to clean the QIAsymphony Connect instrument.

CAUTION**Damage to the instrument**

Do not use spray bottles containing alcohol or disinfectant to clean surfaces of the QIAsymphony Connect instrument. Spray bottles should be used only to clean items that have been removed from the instrument and not in the vicinity of the instrument.

CAUTION**Damage to the instrument hood(s) or side panels**

Never clean the instrument hood, side panels, and diffuser panels with alcohol or alcohol-based solutions. Alcohol will damage the hood, side panels, and diffuser panels.

CAUTION**Damage to the instrument**

After wiping the drawers, the piercing device, and lysis station with paper towels, make sure that no bits of paper towel remain. Pieces of paper towel remaining on the worktable could lead to a worktable collision.

CAUTION**Risk of personal injury**

The piercing device (perforated metal plate above the reagent cartridge) has sharp edges underneath. Take care when cleaning the piercing device.

2.7. Residual risks when using the instrument

While QIAGEN has taken measures to minimize residual risks as much as possible, certain risks persist. These include the potential for personal injury, data loss, loss of samples, incorrect results, and system inaccessibility.

It is crucial to follow all instructions for use to minimize these risks.

2.7.1. Operator injury

Handling the instrument or moving in the vicinity of the instrument may result in personal injury.

- Keep the hood closed whenever possible.
- When the hood or the drawers are open, be careful while moving in the vicinity of the instrument as the hood and drawers extend out in front of the instrument.
- Do not stand on the drawers of the instrument or the cabinet. The instrument might tilt over.
- Do not touch any parts of the instrument other than described in this manual.

2.7.2. Risk of infection

When working with biological sample material, there is a risk of infection. Always treat specimens, reagents, and waste as potentially infectious. To reduce the risk of infection as far as possible follow the following steps:

- The instrument must be operated in a laboratory with appropriate safety levels.
- Always wear eye protection, gloves, and a lab coat.
- Immediately disinfect spills on the outside and inside of the instrument with an appropriate disinfectant solution to avoid spreading contamination to laboratory personnel or equipment. Please refer to Section 7.1 Cleaning the QIA Symphony Connect for the appropriate disinfectant.
- Use, store, and dispose samples in accordance with the local safety regulations.

WARNING



Infectious agents

Samples used with this instrument may contain infectious agents. Handle such samples with the greatest of care and in accordance with the required safety regulations.

2.7.3. Incorrect results

Contaminants, bubbles, or foam in samples can cause clogging or pipetting volume shortages, leading to inaccurate results.

- Ensure that samples are free from contaminants such as fibrin or dust.
- Ensure proper sample preparation techniques to prevent the formation of foam, clots, and bubbles in all samples.

The instrument checks for correct loading before a run can be started.

- Take special care when information is provided manually (e.g., via handheld barcode scanner or on-screen keyboard).
- The buffer bottle and the Accessory Trough cannot be scanned by the instrument automatically. If applications use these positions, make sure to provide the correct content and information to the instrument.
- The tip disposal bag cannot be checked by the instrument. Make sure to install a new tip disposal bag before each run.
- Label sample and IC tubes correctly with barcodes, as described in Section 6.14.5 Loading a tube carrier. Incorrect or misaligned barcodes may lead to incorrect assignment of samples and internal controls.
- Uncap the sample, eluate, and IC labware before loading.
- Push down all tubes and racks firmly into the respective adapters until they are fully seated and flush.
- The instrument cannot check the used tube types. Verify the tube types displayed on-screen and adjust them if necessary.
- Open the buffer bottle before loading.
- To ensure detection of the tip racks during the inventory scan, make sure that the tip racks are properly seated in the tip rack slot and that none of the protrusions on the tip racks are broken.
- Position the eluate labware into the slots and adapter correctly (clicked in).
- Ensure the labware is inserted in the correct orientation into the slots and adapters.
- If eluate plates are reused for further runs, assess eluate stability to avoid degradation of nucleic acids.

The instrument can be configured for “QIAGEN recommended” use and “Custom” use.

- Use the instrument in “QIAGEN recommended” configuration for IVD applications (in vitro diagnostic applications).
- When the instrument has been used in “Custom” configuration, make sure to decontaminate the instrument and accessories and reset configuration to “QIAGEN recommended”, before using IVD applications.
- Do not share reagents and consumables between applications.

The pipetting heads of the instrument are equipped with O-rings to allow precise pipetting.

- The O-rings of the instrument must be replaced by the user at regular intervals as instructed by Section 7.16 Change tip adapter O-ring.

Contamination of the instrument, accessories, reagents, or consumables may lead to incorrect results.

- Follow the instructions for cleaning and maintenance provided in Section 7 Maintenance.
- Follow the instructions provided in the QIAsymphony kit handbook.
- If a contamination is suspected, clean the instrument and dispose all affected consumables.

2.7.4. Reagents and consumables

Take care in handling reagents and consumables as described. Incorrect handling may lead to incorrect results, personal injury and/or material damage.

- Make sure to store reagents and consumables according to specified storage conditions. Avoid exposure to heat or light for extended period of time.
- Do not shake the reagent cartridge or buffer bottle to prevent foam and bubbles. Foam may lead to incorrect liquid level detection, causing incorrect volumes of reagents to be used and potentially runs to stop.
- Do not use a reagent cartridge if spilled.
- Partially used reagent cartridges can be resealed after piercing for use in further runs. Immediately remove the reagent cartridge after a run and seal it using the reuse seal set.
- The pierced and resealed reagent cartridge can be stored upright for as long as described in the application kit handbook. The reuse seal set must be removed before loading the cartridge onto the instrument.
- The piercing lid remains on the cartridge after piercing. Do not attempt to remove the piercing lid from the reagent cartridge after piercing.
- Do not refill reagent cartridges.
- Do not mix reagents from different kit lots.
- Do not swap enzyme rack between reagent cartridges. If a partially used enzyme rack requires different storage conditions to the rest of the reagent cartridge, ensure that it is labeled in such a way to link it to the original reagent cartridge.
- Do not interchange reagent cartridges between instruments.
- Do not use reagents that have been dropped or compromised.
- Do not reuse consumables. Never move consumables from the waste drawer to the reagent and consumables drawer.
- Avoid contamination of reagent cartridge and consumables.
- Avoid direct contact with reagents, which may cause skin irritation, inflammation or burns.
- Do not refill partially used tip racks or exchange tips between tip racks.

WARNING



Risk of personal injury and material damage

The QIA Symphony Connect is intended for use with reagents and substances supplied with QIAGEN kits. Use of other reagents and substances may lead to personal injury or material damage.

CAUTION



Use of accessories

Only use accessories supplied by QIAGEN.

WARNING



Hazardous reagents

Reagents used with the QIA Symphony Connect instrument may be hazardous or may become hazardous after completion of a run.

2.7.5. Spillage

Any liquid spilled on the instrument, workdeck, or drawers may cause malfunction or damage.

- Only place samples and reagents in the intended positions.
- Do not place samples and reagents on other surfaces of the instrument.
- When removing or replacing consumables, avoid spilling any liquid on the workdeck.
- If liquid spills on the workdeck, follow the cleaning procedure described in Section 7 Maintenance and wear suitable personal protective equipment.
- Seal the unit boxes with covers when removing from the waste drawer.
- Do not overfill sample tubes.
- Residual liquid from the tip disposal chute may drip when removed from the instrument. Transport the tip disposal chute in an empty unit box.

2.7.6. Waste and disposal

Used consumables, such as sample tubes, Sample Prep Cartridges, 8-Rod Covers, disposable filter-tips, reagent tubes, and elution racks, may contain hazardous chemicals or infectious agents from the purification process. Such waste must be collected and disposed of properly according to local safety regulations.

Sample tubes, Sample Prep Cartridges, 8-Rod Covers, disposable filter-tips, reagent tubes, and elution tubes cannot be reused and must be disposed after usage.

The instrument must not be disposed of with regular waste; it must be taken to an approved treatment facility or to a designated collection point for recycling, according to local laws and regulations. For disposal of waste electrical and electronic equipment (WEEE), see "Appendix A: Waste Electrical and Electronic Equipment (WEEE)".

WARNING



Hazardous materials and infectious agents

The waste contains samples and reagents. This waste may contain toxic or infectious material and must be disposed of properly.

Refer to your local safety regulations for proper disposal procedures.

WARNING



Hazardous waste

Venting for fumes and disposal of waste must be in accordance with all national, state, and local health and safety regulations and laws.

WARNING



Do not autoclave waste

The parts of the system cannot be autoclaved.

Do not autoclave the reagent cartridge, the accessories, any instrument parts or components, the tip disposal bag, the liquid waste container or any waste from the system.

2.7.7. Sharp object or edges

Parts of the instrument and the consumables may have sharp edges.

- Labels are placed to indicate location of sharp parts.
- Take care when handling sharp parts, especially the piercing lid of the reagent cartridge and the piercing device inside the instrument.
- Wear appropriate personal protective equipment.
- Lab gloves can get pierced when handling sharp parts, leading to risk of infection.

2.7.8. Risk of burns

WARNING



Hot surface

The lysis station can reach temperatures of up to 120°C (248°F). Avoid touching it during operation.

2.7.9. Risk of crushing

The hood of the QIA Symphony Connect instrument must remain closed during operation. Only open the hood when instructed to do so by the user manual or when prompted by the on-screen instructions.

WARNING



Moving parts

To avoid contact with moving parts during operation of QIA Symphony Connect instrument, the instrument must be operated with the hood closed. The hood is locked during operation for safety reasons and a sensor detects the hood position. If the hood sensors are not functioning correctly, contact QIAGEN Field Service specialists.

Avoid contact with moving parts during operation of the QIA Symphony Connect instrument. Under no circumstances should hands be placed under the pipetting unit during movement. Do not attempt to remove any plasticware from the worktable while the instrument is operating.

2.7.10. Risk of injury due to UV radiation

The QIA Symphony Connect instrument contains UV LEDs for support of decontamination, and a laser distance sensor. Before starting the UV irradiation procedure, ensure that all removable objects like samples, reagent cartridges, consumables, and eluates have been removed from the worktable.

WARNING



Risk of personal injury

Do not expose your skin or eyes to UV-C light (254 nm) from UV LEDs. Close the hood and the sample input flap before UV decontamination.

WARNING



Risk of personal injury

The portal arm and the handheld barcode scanner use Hazard Level 2 laser light: Do not stare into the light beam.

2.7.11. Power interruption

A power failure or drop in voltage may result in loss of samples or data loss. It is recommended that you use an uninterruptible power supply (UPS).

2.7.12. Unauthorized access

Unauthorized access can lead to data loss, system damage, or limited accessibility. Make sure that only authorized persons can access the instrument.

If it is not possible to log into the QIAasympphony Connect instrument as supervisor, contact QIAGEN Technical Service for an authorized one-time access code.

2.8. Symbols on the instrument

Symbol	Location	Description
	Lysis Station	Heat hazard. Do not perform maintenance in the vicinity of this symbol before the system has cooled down.
	Work Deck Cover Extractor Piercing Device	See warnings and precautions.
	On front of waste drawer and tip disposal bag/cabinet panel	Biohazard. The tip rack slots, waste, and the worktable may be contaminated with biohazardous material and must be handled with gloves.
	Robotic arm — operator facing panel	Mechanical hazard. Avoid contact with moving parts.
	Robotic arm — operator facing panel Adjacent to the crushing hazard	This product contains UV light. Turn off the UV lamp before opening the hood or for servicing. During the decontamination, the housing must remain closed. Avoid looking directly into UV light. Do not expose your skin to UV light.
	Robotic arm — operator facing panel	This product contains a class 2 laser. Do not stare into the beam.
	Type plate on the back of the instrument	This product must not be disposed of with other waste; it must be taken to an approved treatment facility or to a designated collection point for recycling, according to local laws and regulations.
	Type plate on the back of the instrument	Manufacturer.
	Type plate on the back of the instrument	Consult instructions for use.

Symbol	Location	Description
	Inside instrument	Protective earth (Ground)
	Type plate on the back of the instrument	CE mark for Europe
	Type plate on the back of the instrument	RCM (former C-Tick) for Australia (supplier identification N17965)
	Type plate on the back of the instrument	RoHS mark for China (the restriction of the use of certain hazardous substances in electrical and electronic equipment)
	Type plate on the back of the instrument	Instrument serial number
	Type plate on the back of the instrument	IVD Mark
	Type plate on the back of the instrument	CSA mark for Canada and the USA
	Type plate on the back of the instrument	Unique Device Identifier (UDI) as a 2D barcode in Data Matrix format.
	Type plate on the back of the instrument	Global Trade Item Number.
	Type plate on the back of the instrument	Catalog number.
	Type plate on the back of the instrument	Date of manufacture
	Type plate on the back of the instrument	Fuse
	Type plate on the back of the instrument	Alternating current

3. Disposal

Used labware may contain hazardous chemicals. Such waste must be collected and disposed of properly according to local safety regulations.

For more information about how to dispose of the QlAsymphony Connect, see “Appendix A: Waste Electrical and Electronic Equipment (WEEE)”.

4. General Description

4.1. QIAasympyphony Connect principle

The QIAasympyphony Connect is designed to perform automated purification of nucleic acids. It is intended to be used only in combination with kits indicated for use with the QIAasympyphony Connect for the applications described in the kit handbooks. The system is intended for use by professional users, such as technicians and physicians trained in molecular biological techniques and the operation of the QIAasympyphony Connect.

The QIAasympyphony Connect performs fully automated purification of nucleic acids using magnetic particle technology. Samples can be processed in batches of up to 24 samples. The instrument controls integrated components including a lysis station, 4-channel pipetting system, robotic gripper, and an array of magnetic rods.

After selecting a kit-specific protocol, the required reagents and consumables are loaded onto the QIAasympyphony Connect worktable. A fully automated inventory scan helps to ensure correct loading of the worktable. The user starts the protocol, which provides all necessary commands for sample purification.

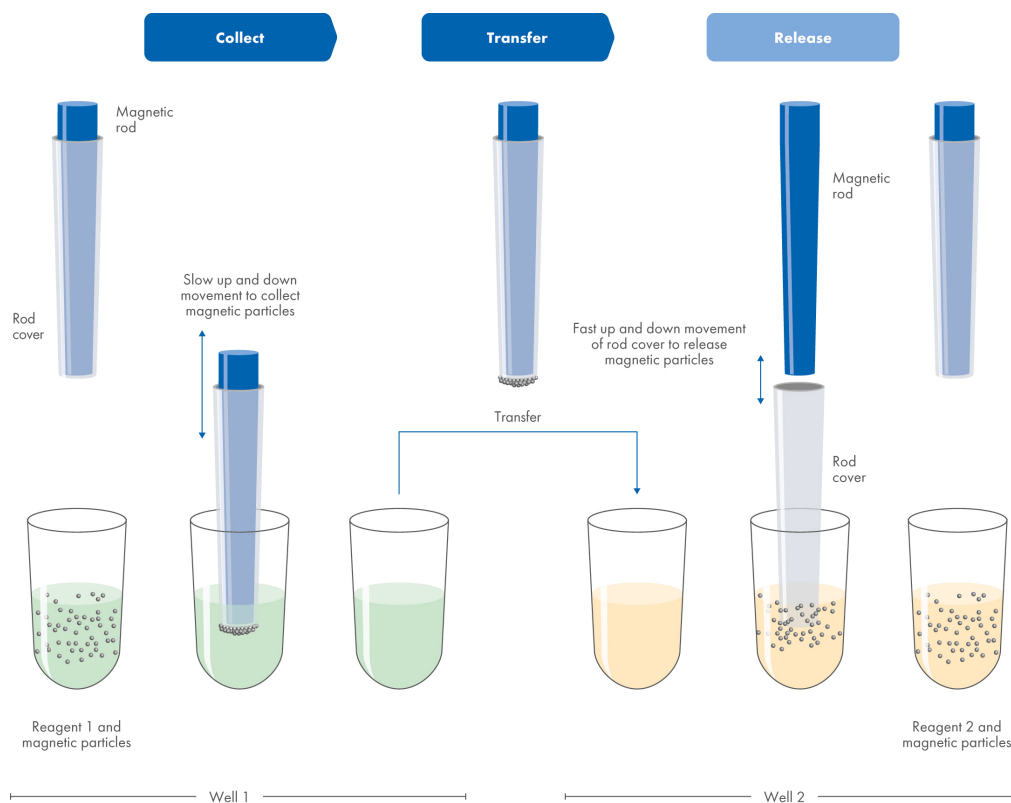
4.1.1. QIAasympyphony Connect workflow

Sample purification using the QIAasympyphony Connect usually consists of 4 main steps:

- **Lyse:** Samples are lysed in the lysis station, which can be heated and shaken if required by the protocol.
- **Bind:** Nucleic acids bind to the surface of the magnetic particles.
- **Wash:** The magnetic particles are washed to remove contaminants.
- **Elute:** Purified nucleic acid is eluted.

The QIAasympyphony Connect uses a magnetic head containing an array of 24 magnetic rods and can therefore process 24 samples simultaneously. QIAasympyphony Connect workflows use magnetic particles to process samples as follows:

1. Sample Prep Cartridges are positioned below the magnetic rod with its cover.
2. The covered magnetic rods enter the wells of the Sample Prep Cartridge.
3. The magnetic particles bound to the nucleic acids are attracted to the magnetic rod and then transferred to a new Sample Prep Cartridge containing the next reagent required for purification.
4. Steps 1 and 2 are repeated several times during sample processing.



QIASymphony Connect workflow using magnetic particles.

Attracting magnetic particles

To attract magnetic particles, the magnetic rod is fully inserted into a rod cover. Then, the magnetic rod with rod cover slowly moves up and down in the well containing the sample to ensure maximal attraction of magnetic particles.

Releasing magnetic particles

To release magnetic particles, the magnetic rod, protected by a rod cover, is moved down into a well. Then, the magnetic rod is withdrawn from the rod cover, and the rod cover is lowered into the well. The rod cover is quickly moved up and down to ensure maximal release and mixing of magnetic particles in the solution in the well.

Washing magnetic particles

The QIASymphony Connect washes magnetic particles by transferring them from one solution to another. To improve washing efficiency, the rod covers are designed so that minimal liquid is transferred along with the magnetic particles. To ensure that magnetic particles are evenly distributed in a solution during a long incubation, the QIASymphony Connect occasionally moves the rod cover (without magnetic rod) up and down in the well.

Concentrating magnetic particles

The QIASymphony Connect concentrates magnetic particles by attracting magnetic particles from a solution of large volume and releasing the particles in a solution of low volume.

4.2. External features of the QIAasymphony Connect



- | | |
|--------------------------------------|------------------------------|
| 1. Hood | 7. Power switch |
| 2. Touchscreen | 8. USB ports |
| 3. "Sample" drawer | 9. Network interface |
| 4. "Reagents and Consumables" drawer | 10. QIAasymphony status LEDs |
| 5. "Waste" drawer | 11. Handheld barcode scanner |
| 6. "Eluate" drawer | 12. Magnetic holder |

4.2.1. Hood

The QIA Symphony Connect hood (1) protects users from the moving robotic arm, potentially infectious material on the worktable, and UV radiation. The hood can be manually opened to gain access to the worktable (e.g., for cleaning). During operation of the QIA Symphony Connect, the hood of the instrument must remain closed and should only be opened when instructed to do so by the software on the touchscreen (2). During sample preparation and UV run, the hood is locked.

4.2.2. Touchscreen

The QIA Symphony Connect is controlled using a swivel-mounted touchscreen (2). The touchscreen allows the user to interact with the system, for example, to select and run protocols. The touchscreen displays all relevant information to the user. During sample purification, it provides information about each of the sample batches, including batch status.

4.2.3. Drawers

The QIA Symphony Connect contains 4 drawers:

- “Sample” drawer (3)
- “Reagents and Consumables” drawer (4)
- “Waste” drawer (5)
- “Eluate” drawer (6)

For more information about the drawers, see Section 4.3 Internal features of the QIA Symphony Connect.

4.2.4. Power switch

The power switch (7) is located at the front-right of the instrument. For switching on and off the QIA Symphony Connect see Section 6.1 Powering ON the QIA Symphony Connect and Section 6.2 Shutting down the QIA Symphony Connect.

4.2.5. USB ports

The QIA Symphony Connect has two USB-A ports (2.0) at the front-left (8a) and three USB-A (2 × 2.0; 1 × 3.0) and a USB-C port on the right side (8b) of the instrument. The ports allow connection of the QIA Symphony Connect to a supplied USB stick for file transfer, and a supplied handheld barcode scanner (11).

Important: The USB ports are only for use with the USB stick and handheld barcode scanner provided by QIAGEN. Use of unsupported devices may cause errors.

Refer to Section 6.20 File transfer for details of data handling procedures.

4.2.6. Network interface

The network interface (9) allows connection of the QIA Symphony Connect to a network via a CAT5 Ethernet network cable.

4.2.7. QIAsymphony status LEDs

Light-emitting diodes (LEDs) (10) at the front of the QIAsymphony Connect are illuminated when sample preparation is in progress.

4.2.8. Handheld scanner

The handheld barcode scanner (11) can be connected via USB connection to one of the USB ports of the QIAsymphony Connect instruments. The handheld barcode scanner is delivered with a magnetic holder (12). The magnetic holder can only be fixed to the metallic side panels of the instrument or cabinet. It is recommended to install the magnetic holder near the USB ports on the right-hand side (8b).

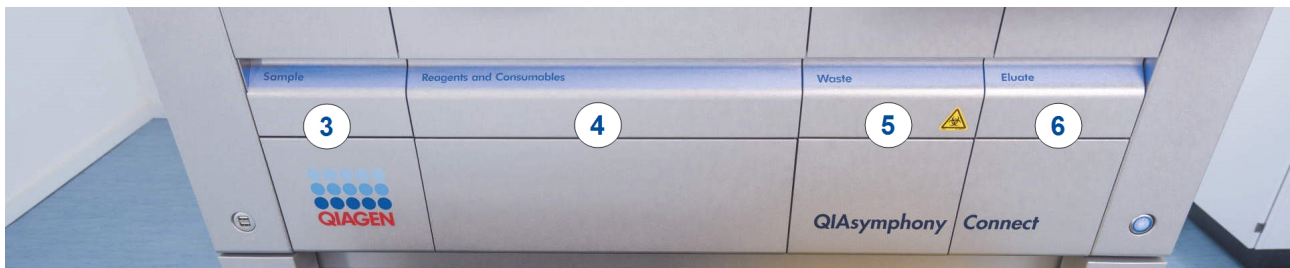


Handheld barcode scanner.

Note: For safe operation, place the handheld barcode scanner in its holder after use.

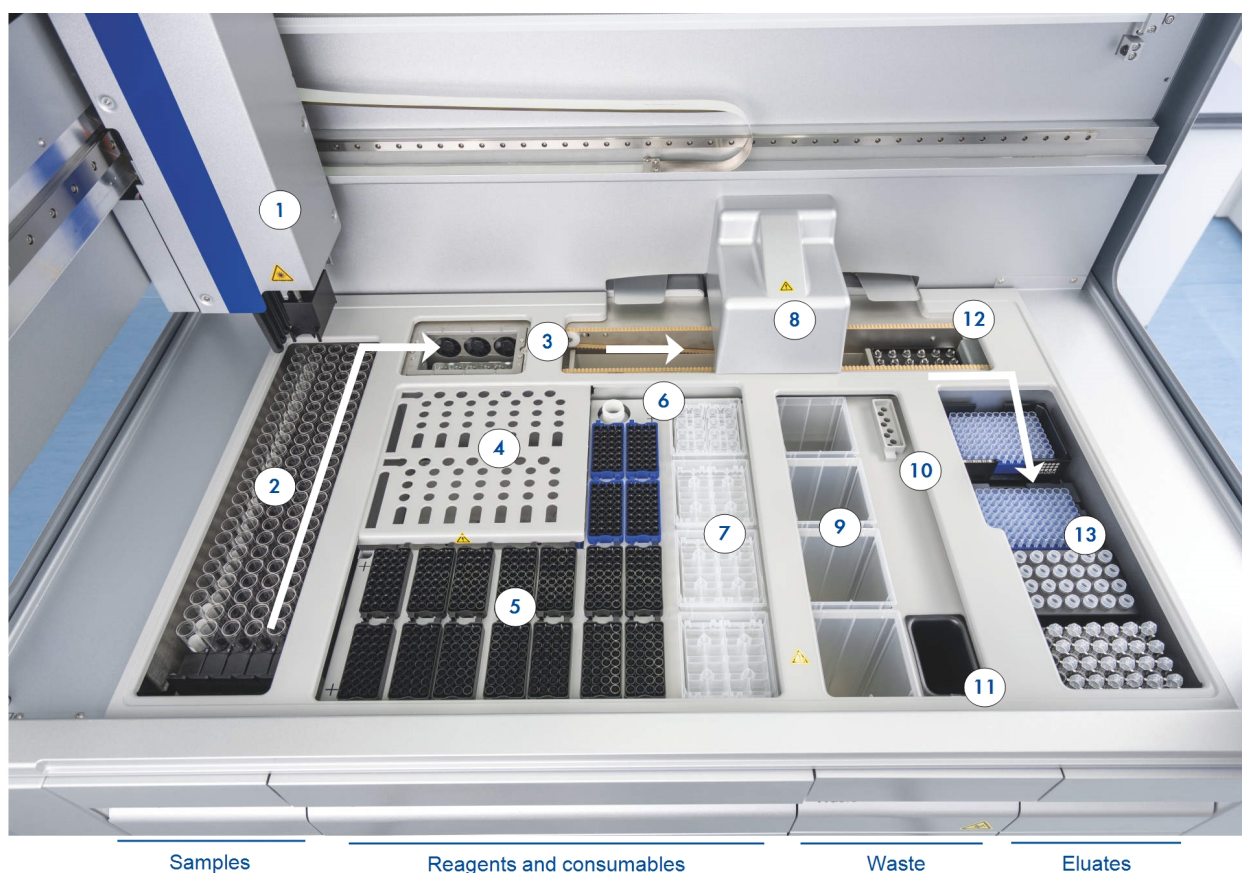
4.3. Internal features of the QIAasymphony Connect

Samples, reagents and consumables, eluates, and waste are separated in different drawers in the QIAasymphony Connect.



- "Sample" drawer (3)
- "Reagents and Consumables" drawer (4)
- "Waste" drawer (5)
- "Eluate" drawer (6)

When a drawer is opened and then closed, the user confirms via touchscreen whether anything was changed, and an inventory scan of the drawer should be performed. During operation, the QIAasymphony Connect drawers are locked.



Internal features of QIAAsymphony Connect.

- | | |
|---------------------------------|----------------------------|
| 1. Robotic arm | 8. Extractor |
| 2. Sample Input | 9. Empty unit boxes |
| 3. Lysis station | 10. Tip park station |
| 4. Slots for reagent cartridges | 11. Tip chute |
| 5. Filter-Tips | 12. Magnetic capture plate |
| 6. Slot for a buffer bottle | 13. Eluate slots 1–4 |
| 7. Unit boxes | |

4.3.1. "Sample" drawer



Interior of the "Sample" drawer.

The "Sample" drawer is located at the front-left of the QIA Symphony Connect. Samples can be loaded into the drawer using a tube carrier with either primary or secondary tubes, depending upon the chosen protocol's requirements. Some additional reagents, such as internal controls, can also be loaded in a tube carrier (see image below). Refer to the Section 6 Operating Procedure for details of where reagents should be loaded.

There are 5 slots available in the "Sample" drawer (see image above) for the tube carriers (see image below).



Tube carrier.

The tube carriers can be used with larger tubes placed directly into each position, or with dedicated inserts for smaller tubes (see next page). Refer to the corresponding kit handbook for details of the required insert for each tube type.



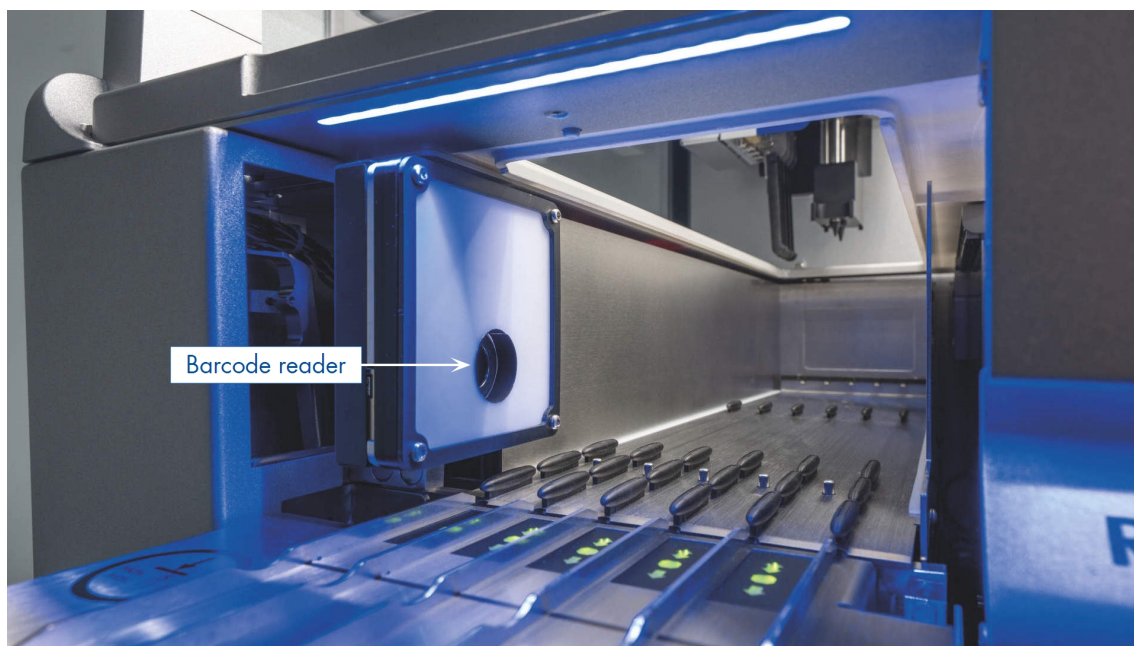
Example of insert for tube carrier.

The QIAAsymphony Connect tube carrier, in combination with suitable inserts, can accommodate up to 24 tubes with diameters of 8–16 mm:

- 14–16 mm (no insert required, indicated as '00' on the touchscreen)
- 13 mm (tube insert 1A; cat. no. 9242058)
- 11.5 mm (tube insert 2A; cat. no. 9242057)
- Insert Sarstedt® tube (2 mL) v2 (tube insert 3B; cat. no. 9242083)
- Insert snap cap tube (tube insert 5A; cat. no. 9244701)

4.3.2. Barcode camera of the “Sample” drawer

The “Sample” drawer of the QIAAsymphony Connect has an integrated barcode camera that can detect 1D and 2D barcodes on tube carriers, inserts, and sample tubes. Based on the detected insert, a default tube type (see Section 6.5.4 Default tube types) is automatically assigned. If a tube is used that is not the default tube type, the user must specify the tube type when defining a batch. See Section 6.10 Sample definition (Guided setup in Wizard – step 1) for more information.



Location of barcode reader.

Each tube position of the tube carrier has a barcode at the back. This barcode is hidden when a sample tube is loaded. If read, this barcode indicates that there is no tube present in this position.

Note: When using clear, unlabeled tubes, containing clear sample, it is possible that the back barcode is read and the presence of the tube is not recognized. If such samples are to be used, a blank label or black marker line on the affected tube helps to allow tube recognition.

For more details regarding the loading of samples with compatible sample tubes and insert, please see Section 6.10 Sample definition (Guided setup in Wizard – step 1).

For suitable barcodes see Section 9 Technical Specifications.

Important: Tubes must not have more than one barcode visible in the detection window of the tube carrier. If multiple barcodes are visible, the system may use any readable barcode as the sample identifier, which can result in an incorrect sample ID being assigned and reported.

4.3.3. “Reagents and Consumables” drawer

The “Reagents and Consumables” drawer accommodates consumables and reagents required for the protocol run. Before starting a protocol run, the drawer must be loaded with the appropriate reagents in prefilled reagent cartridges, Sample Prep Cartridges, 8-Rod Covers, and disposable filter-tips. For some protocols, an Accessory Trough and/or buffer bottle, containing additional reagents, may be required. For more information about the required reagents and consumables, refer to the corresponding kit handbook.



“Reagents and Consumables” drawer.

4.3.4. “Waste” drawer

Used consumables, like 8-Rod Covers (Section 4.4.3) and Sample Prep Cartridges (Section 4.4.2) are discarded by the robotic gripper (Section 4.3.9) into 4 empty unit boxes (Section 4.4.1) in the “Waste” drawer.



“Waste” drawer and its features.

A liquid waste container in the “Waste” drawer collects liquid waste from the sample preparation procedure. It is not possible to close the “Waste” drawer if the liquid waste container is not present.

The liquid waste container must be emptied after every run as part of the post-run maintenance as described in the Section 7 Maintenance. Not emptying the liquid waste container may cause overflowing of liquid which could cause damage to the instrument.

The tip park station is on top of the liquid waste container. It channels liquid waste from the filter-tips into the liquid waste container and also enables temporary storage of filter-tips that will be reused in a subsequent protocol step (if implemented in the protocol).

Note: It is a normal behavior for some liquid to remain in the Sample Prep Cartridges placed in the “Waste” drawer. Ensure that unit boxes in the Waste drawer are sealed after use to prevent spilling.

The tip disposal chute enables collection of used disposable filter-tips from the pipetting system. Used tips are collected in a tip disposal bag (see Section 6.16 Preparing the “Waste” drawer for mounting the tip disposal bag) or, when using the QIASymphony Cabinet, a waste bin.

4.3.5. “Eluate” drawer

Purified nucleic acids are transferred to the “Eluate” drawer. The “Eluate” drawer contains 4 slots that can be used for elution into plates or tubes.



The “Eluate” drawer.

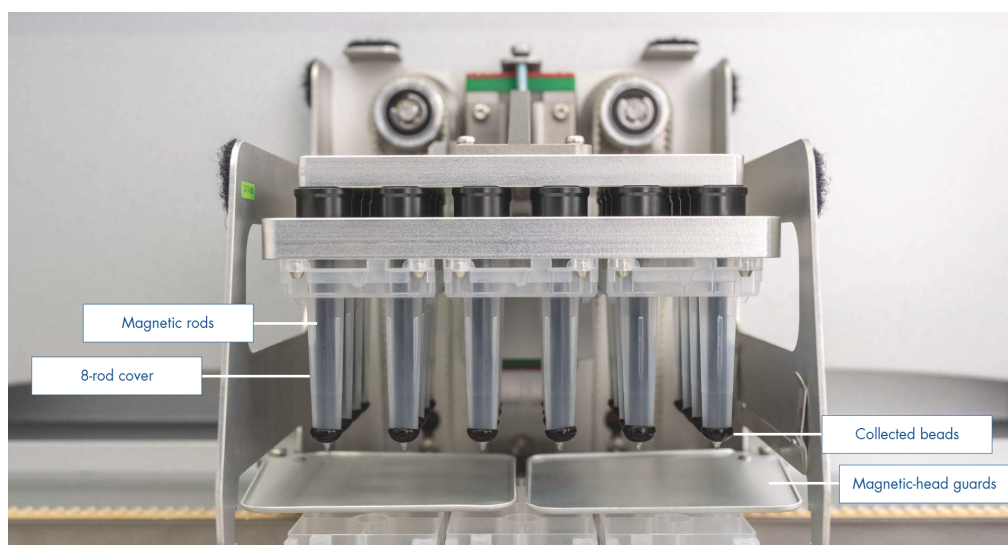
Elution slots 1–4 can accommodate plates or tubes in adapters.

- **Slot 1:** enables eluate cooling, and requires use of a cooling adapter for various plate and tube formats. Cooling parameters are defined in the protocol.
- **Slot 2:** can accommodate various plate and tube formats and is equipped with a 2D barcode reader. Refer to Section 6.17 “Performing inventory scans” for further details of the use of this reader.
- **Slot 2** and **Slot 3:** can accommodate various plate and tube formats. Tubes need to be provided in the respective non-cooling adapters.
- **Slot 4:** can accommodate 24-well plates or tubes. Tubes need to be provided in respective non-cooling adapters. 96-well racks cannot be used on this slot because the pipettor head cannot reach all positions.

Permitted labware and elution positions are listed in the application-specific labware list. Consult the handbook of the respective QIASymphony kit.

4.3.6. Extractor

The Extractor is comprised of an array of 24 magnetic rods, a conveyor, and magnetic-head guards.



Magnetic head of the QIAasympy Connect with attached rod covers. The beads are collected by the magnets.

The magnetic head comprises of a rod-cover drive for mixing samples, and a magnetic-rod drive for separation and resuspension of magnetic particles.

The magnetic head consists of an array of 24 magnetic rods, a magnetic rod cover for separation and resuspension of magnetic particles, a conveyor, and magnetic-head guards.

The conveyor moves the Sample Prep Cartridges from the start position to the processing position and, finally, to the output position.

The magnetic-head guards move underneath the magnetic head and help prevent contamination of the worktable or samples by any liquid that may drip from the rod covers.

Important: Install the magnetic-head guards before operating the QIAasympy Connect instrument. To do so, execute the “Magnetic Head Guards” maintenance procedure, which can be found under the “Maintenance Tools” in Section 6.22 Maintenance and service procedures.

4.3.7. Magnetic capture plate

The Magnetic capture plate is positioned on the right-side of the Extractor module, and allows an alternative separation of the beads with selected protocols, which can provide reduced dead volume and increased nucleic acid concentration. If implemented in the protocol workflow, the magnetic capture plate is moved up once the Sample Preparation Cartridge, containing the beads, is present on the extractor right-position. The beads get separated in star-shape pattern which allows the pipettors to aspirate the available liquid.



Magnetic capture plate.

4.3.8. Lysis station

The lysis station, a heated orbital shaker, enables automated lysis of up to 24 samples.



QIA Symphony Connect lysis station.

4.3.9. Robotic arm

The robotic arm provides accurate and precise positioning of the robotic gripper and pipettor head. The robotic arm also includes a laser, a 2D barcode camera, and UV LEDs.

Robotic Gripper

The robotic gripper transfers consumables (8-Rod Covers and Sample Prep Cartridges) to the required position on the worktable during sample preparation.

Pipettor head

The pipettor head is mounted on the robotic arm, and moves in the X, Y, and Z directions in order to reach different locations on the worktable.

The pipettor head contains 4 pipetting channels with high-precision syringe pumps that are connected to tip adapters. The tip adapters can be attached to disposable filter-tips. The syringe pumps can operate simultaneously to allow aspiration and dispensing of small volumes of liquid (20–1500 µL, application- and liquid-dependent) via the attached disposable filter-tips.

Each pipetting channel can perform two types of liquid-level detection: one, capacitive-based liquid-level detection (cLLD); and two, pressure-based liquid-level detection (pLLD). To detect the liquid level, changes in capacitance or pressure between the disposable filter-tip and the liquid are measured.

Tip guards

Each pipettor head is equipped with 4 tip guards. During a run, the tip guards are positioned below the disposable tips to catch any drops of liquid that may fall.



QIAasympphony Connect tip guards.

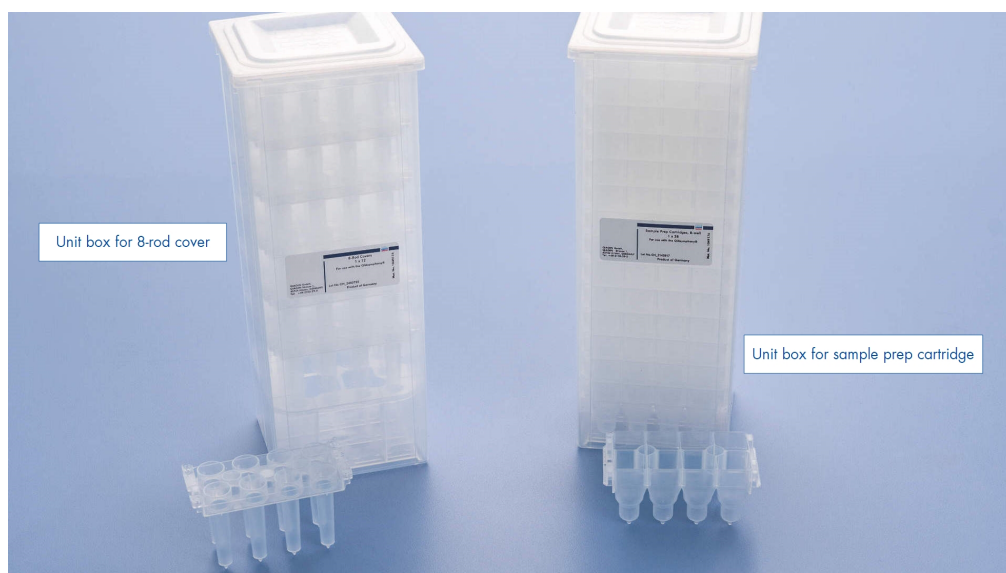
4.4. Consumables

4.4.1. Unit Boxes

Sample Prep Cartridges (Section 4.4.2) and 8-Rod Covers (Section 4.4.3) are provided in Unit Boxes, which are placed directly into the “Reagents and Consumables” drawer. Unit Boxes are designed so that they fit into the instrument drawer only in the correct orientation.

Empty unit boxes must be placed into the “Waste” drawer (Section 4.3.4) to collect used Sample Prep Cartridges and 8-Rod Covers.

Important: The spacer must be removed from the 8-Rod Covers UnitBox before using them in the “Waste” drawer. Unit boxes are provided with a lid, which must be removed before loading the Unit Boxes in any drawer. The lids can be reused to close unit boxes containing clean or used Sample Prep Cartridges or 8-Rod Covers.



Consumables and the unit boxes for sample preparation.

4.4.2. Sample Prep Cartridges

Sample Prep Cartridges are the vessels used by the QIA Symphony Connect during purification of nucleic acids. Each well of a Sample Prep Cartridge can hold up to 3 mL of liquid.

- Sample Prep Cartridges are provided inside unit boxes.
- Each unit box can hold a maximum of 28 cartridges.
- A specific pattern on the top and bottom edge of a Sample Prep Cartridge enables automatic detection by the QIA Symphony Connect during the inventory scan.



Sample Prep Cartridges for purification of nucleic acids.

4.4.3. 8-Rod Covers

An 8-Rod Cover is an array of 8 rod covers that cover the magnetic rods of the magnetic head.

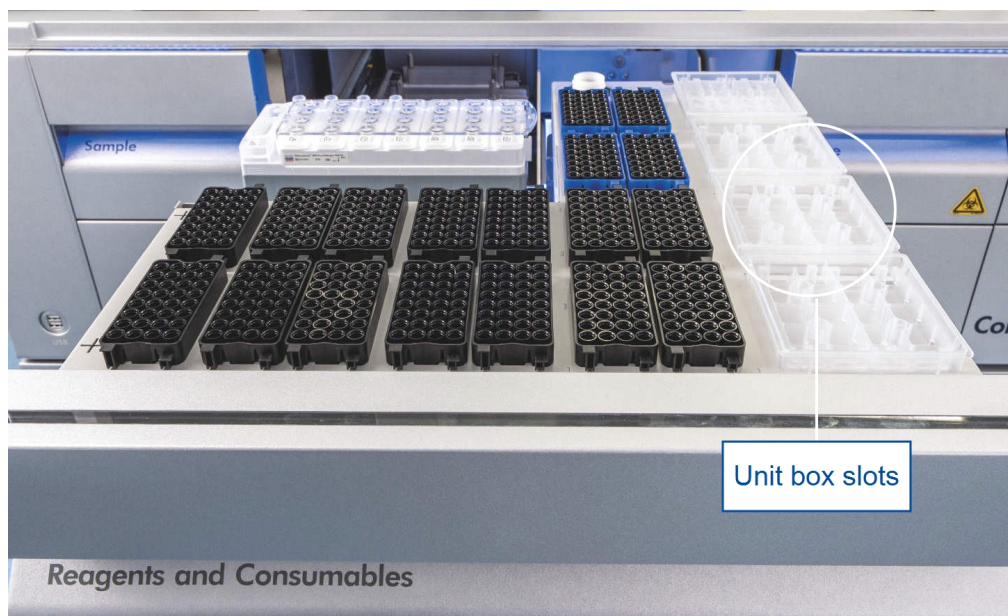
- 8-Rod Covers are provided in sealed unit boxes.
- Each unit box can hold a maximum of twelve 8-Rod Covers.
- There is a spacer between the bottom of the unit box and the last 8-Rod Cover.
- When all 8-Rod Covers have been used in runs, the spacer must be removed before the unit box can be reused as waste unit box on the waste drawer.
- A specific pattern on the top and bottom edge of an 8-Rod Cover enables automatic detection by the QIAasympyony Connect during the inventory scan.



8-Rod Covers cover the magnetic rods of the magnetic head.

4.4.4. Filter-tips

The QIAAsymphony Connect uses 1500 µL and 200 µL filter-tips. Filter-tips are provided in sealed blister packs with 4 tip racks per blister, containing 32 filter-tips per tip rack. For better differentiation, racks containing 1500 µL filter-tips are black, and racks containing 200 µL filter-tips are blue.



1500 µL filter-tips in black racks, 200 µL filter-tips in blue racks.

Note: Only use filter-tips designed for use with the QIAAsymphony instruments.

Each type of tip rack has a different pattern on the upper and lower side. This enables detection of the type of filter-tip during the inventory scan.

4.4.5. Reagent cartridges

Reagents required for the purification procedure are provided in prefilled reagent cartridges. Up to 2 reagent cartridges can be loaded into the “Reagents and Consumables” drawer.

The reagent cartridge consists of 5 parts: reagent cartridge holder (1), magnetic-particle trough (2), reagent troughs (3), enzyme rack (application dependent) (4), and piercing lid (5).



Assembled reagent cartridge.



Disassembled reagent cartridge.

Used reagent cartridges that still contain liquid can be sealed with provided reuse seal strips (see below).



Reagent cartridge sealed with reused seal strips (after usage on the instrument).

Important: Refilling of reagent cartridges is not intended.

Reagent cartridge barcodes contain information about the kit type and reagent types, reagent volumes, lot numbers, and expiry date. Additionally, some reagent cartridge barcodes contain a unique counter number to identify the specific cartridge, and track the cartridge open time. The allowed cartridge open time depends on the application used (for further cartridge open time information, refer to the respective kit handbook). The availability of this counter is kit dependent.

Depending on the instrument configuration, expired cartridges and/ or cartridges with an exceeded open time cannot be used anymore.

Furthermore, depending on the instrument configuration, cartridges can only be used on a single QIASymphony Connect instrument and cannot be shared with other QIASymphony Connect instruments.

Reagent cartridge holder

The reusable reagent cartridge holder (1), provided with the QIASymphony Connect, holds the reagent cartridge and enzyme rack in the “Reagents and Consumables” drawer. The holder has a cut-out grip for easy handling. It can accommodate one reagent cartridge containing 7 buffer troughs, 1 magnetic-particle trough, and 1 enzyme rack.

The reagent cartridge holder has slots for holding the screw-caps of enzyme tubes. This helps to prevent mix-up of caps and subsequent contamination of reagents.



Reagent cartridge holder.



Reagent cartridge holder with attached cartridge, attached piercing lid, and enzyme rack screw-caps placed in the dedicated slots.

Reagent troughs and enzyme rack

The reagent cartridge consists of troughs (3) containing buffers, magnetic particles and, depending on the QIASymphony kit, a rack containing tubes of accessory enzymes (refer to the corresponding kit handbook for more information). Reagent troughs and the magnetic-particle trough are prefilled and factory sealed.

All reagent troughs and enzyme racks (4) are labeled at the side with the name of the buffer contained in the trough. A unique 2D barcode on top of each trough enables the QIASymphony Connect to detect the reagent cartridge and the contents of each trough.

Piercing lid

The piercing lid (5) enables the buffer troughs to be automatically opened by the QIASymphony Connect during first use of the reagent cartridge. The piercing lid is placed on top of the reagent cartridge in the reagent cartridge holder. The piercing device of the QIASymphony Connect, which is integrated into the “Reagents and Consumables” drawer, presses the piercing lid into the troughs when a batch requiring those reagents is started.

WARNING / CAUTION



Risk of personal injury and material damage

Do not pierce the reagent cartridge manually.

The piercing lid has sharp edges and can damage your gloves.

Do not remove the piercing lid from the reagent cartridge after piercing.

Troughs containing the magnetic particles are opened manually. Refer to the corresponding kit handbook for preparation instructions.

Troughs of partially used reagent cartridges should be sealed immediately after use with Reuse Seal Strips (provided in the QIASymphony kit). Do not mix the Reuse Seal Strips from a reagent well to another reagent well. To avoid mixing them up, the strips are numbered consecutively.



Reagent cartridge sealed with reusable seal strips.

Important: Do not refill partially used reagent cartridges as this may lead to performance and pipetting errors.

Important: Keep the reagent cartridge open for the shortest possible time. For details on open times, refer to the corresponding kit handbook.

Buffer Bottle

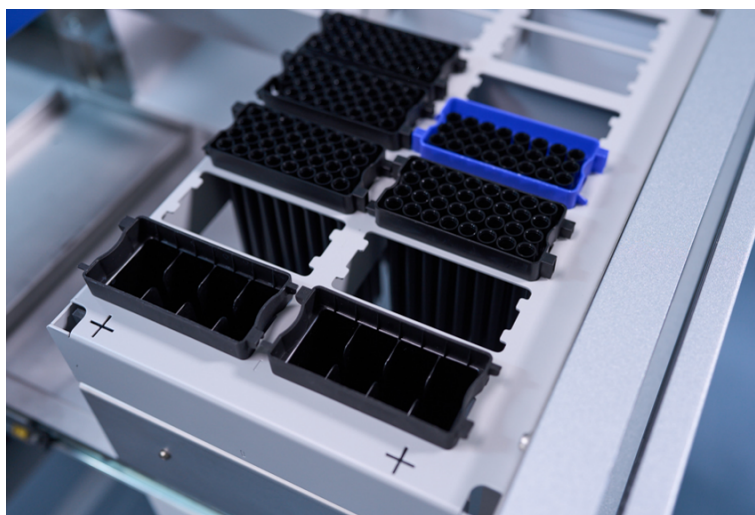
Depending on the kit protocol being used, an additional bottle of buffer may be provided. The bottle is prefilled with up to 60 mL of reagent. For more information about the provided reagent, refer to the corresponding kit handbook. For instructions on how to place the buffer bottle on the QIAasymphony Connect, refer to Section 6.15.4 Loading the buffer bottle.



Loading a buffer bottle.

Accessory Trough

If the purification procedure requires a larger volume of additional reagents, this can be provided in an Accessory Trough, which is then placed into either tip rack slot 5 or slot 12 (far-left tip rack slots) in the “Reagents and Consumables” drawer. Accessory Troughs are automatically detected during the inventory scan based on the tabs on either end of the Accessory Trough.



Tip rack slots 5 and 12 with Accessory Troughs loaded.

For more information about the additional reagents, refer to the corresponding kit handbook.

4.5. QIASymphony Cabinet (optional)

The QIASymphony Cabinet (cat. no. 9027985) is an optional accessory for the QIASymphony Connect. The QIASymphony Cabinet is specially designed for positioning the QIASymphony Connect in your laboratory.



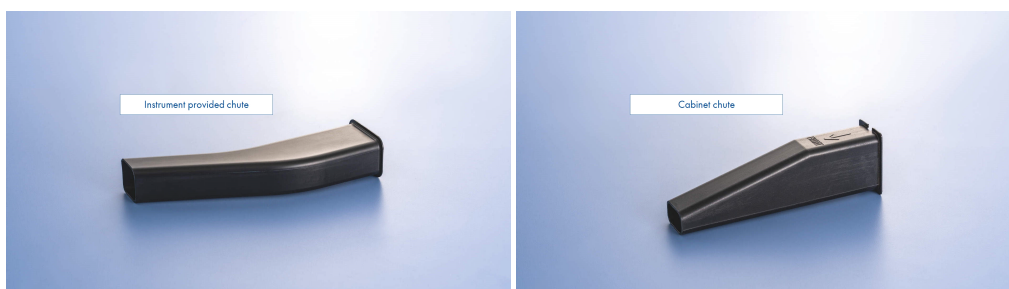
QIASymphony Cabinet: Consumable drawers (A) and “Waste” drawers (B).

Consumables drawer

The QIASymphony Connect Cabinet provides two drawers for convenient storage of various items such as consumables and accessories.

Waste drawer

The QIASymphony Connect Cabinet has a waste drawer containing a tip waste bin. This allows the collection of ejected pipette tips into a larger container than the tip disposal bags. The cabinet is provided with a tip disposal chute which guides the ejected tips into the waste container of the waste drawer. The tip chute provided with QIASymphony Connect instrument must be replaced with the tip chute provided with the cabinet before use. Failure to do so will result in the ejection of tips outside of the instrument.



QIASymphony Connect Cabinet installation

The unpacking and installation of the QIASymphony Connect Cabinet, and the installation of the instrument onto the QIASymphony Connect Cabinet, are carried out by an authorized QIAGEN Field Service specialist.

To ensure proper installation, it is advisable to maintain approximately 50 cm of clearance on both the left and right sides between the QIASymphony Connect Cabinet or QIASymphony Connect instrument and any surrounding objects, including adjacent benches.

5. Installation Procedure

5.1. System delivery and installation

The unpacking and installation of the QIASymphony Connect and the QIASymphony Connect Cabinet (recommended, ordered separately) is performed by a certified QIAGEN authorized Field Service Specialist. A person who is familiar with your laboratory and computer equipment should be present during the installation.

Important: Do not connect the instrument directly to the Internet. Operate the instrument only within an internal network that is physically or logically segmented from untrusted devices.

5.2. Site requirements

The QIASymphony Connect must be located out of direct sunlight, away from heat sources, and away from sources of vibration and electrical interference. Refer to Section 9 Technical Specifications for the operating conditions (temperature and humidity). The site of installation should be free of excessive drafts, excessive moisture, and excessive dust; and should not be subject to large temperature fluctuations.

We recommend positioning the QIASymphony Connect on the QIASymphony Connect Cabinet (cat. no. 9027985). For more information about the QIASymphony Connect Cabinet, see Section 4.5 QIASymphony Cabinet (optional). Please note that the cabinet supplied with QIASymphony SP cannot be used with the QIASymphony Connect. Please refer to Appendix B: Ordering information to purchase.

If placing the QIASymphony Connect on an alternative level workbench, ensure that its size and sturdiness sufficiently accommodates the instrument. Refer to the Section 9 Technical Specifications for the weight and dimensions of the QIASymphony Connect. Ensure that the workbench is dry, clean, vibration proof, level, and stable, and has additional space for accessories.

The QIASymphony Connect instrument is very heavy; ensure that the floor is strong enough to carry the total weight of the fully loaded instrument and table/cabinet.

To ensure proper ventilation, maintain a minimum clearance of 5 cm (1.97 inches) at the rear of the QIASymphony Connect.

To ensure sufficient accessibility and for servicing of the instrument, approximately 50 cm or 20 inches must remain clear on the right and left side of the instrument. If there is not enough space available, ensure that the area is cleared before field service can work on the QIASymphony Connect.

For further information about required specifications of the workbench, contact QIAGEN Technical Service.

WARNING



Explosive atmosphere

The QIASymphony Connect is not designed for use in an explosive atmosphere.

WARNING



Risk of overheating

To ensure proper ventilation, maintain a minimum clearance of 5 cm (1.97 in) at the rear of the QIASymphony Connect.

Slits and openings that ensure the ventilation of the QIASymphony Connect must not be covered.

5.3. Power requirements

The QlAsymphony Connect operates at: 100–240 V AC, 50/60 Hz, 400 VA

Ensure that the voltage rating of the instrument is compatible with the AC voltage available at the installation site. Mains supply voltage fluctuations are not to exceed 10% of nominal supply voltages.

For installation of the AC power cord, connect one end of the AC power cord to the socket located at the left side of the QlAsymphony Connect, and the other end to the AC power outlet.

The QlAsymphony Connect instrument shall be installed in a way that the power cord is accessible. Ensure that the distance between the socket and the AC power inlet of the instrument does not exceed the maximum length of the supplied AC power cord (2.5 m or 98.5 in.). Do not use an extension cord, and do not exchange the supplied power cord with a non-QIAGEN official power cord.

5.4. Grounding requirements

To protect operating personnel, the QlAsymphony Connect must be correctly grounded (earthed). The QlAsymphony Connect is equipped with a 3-conductor AC power cord. To preserve this protection feature, do not operate the instrument from an AC power outlet that has no ground (earth) connection.

6. Operating Procedure

This section describes how to operate the QIASymphony Connect instrument.

Before proceeding, we recommend that you familiarize yourself with the features of the instrument by referring to the Section 4.2 External features of the QIASymphony Connect and Section 4.3 Internal features of the QIASymphony Connect (and Section 4.5 QIASymphony Cabinet (optional)).

The QIASymphony Connect is intended to be used only in combination with QIAGEN kits indicated for use with the QIASymphony Connect for the applications described in the kit handbooks.

The hood of the QIASymphony Connect must remain closed and will automatically lock during operation of the instrument. Only open the hood when instructed to do so by the user manual or by the on-screen instructions. The robotic arm of the QIASymphony Connect moves during operation of the instrument. Never open the QIASymphony Connect hood while the instrument is operating.

CAUTION



Damage to the instrument

Only use QIAGEN consumables with the QIASymphony Connect. Damage caused by use of other types of consumable will void your warranty.

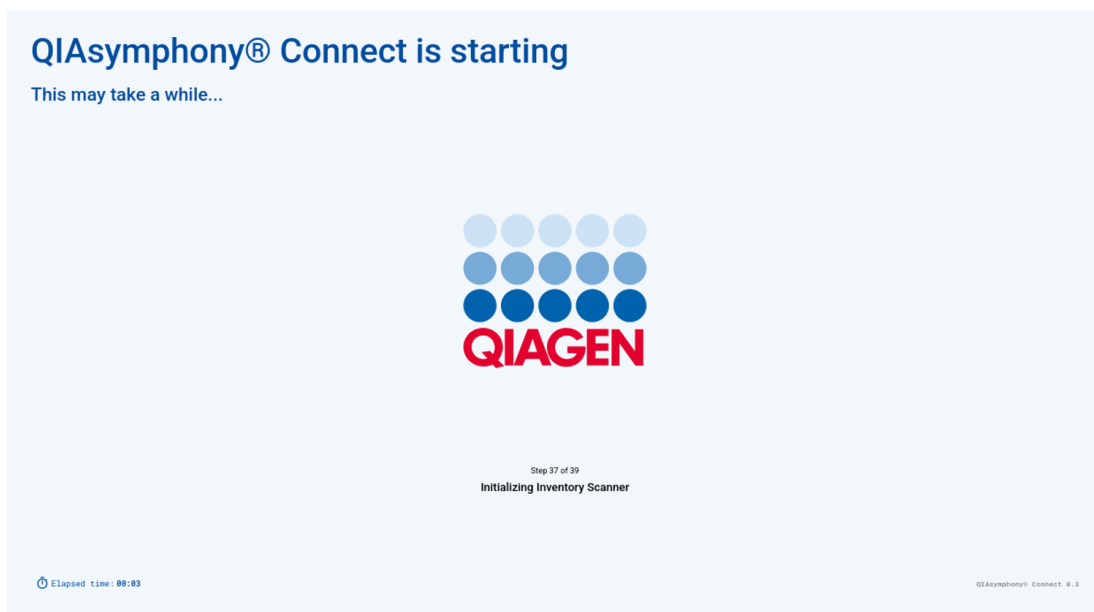
Important: The instrument touchscreen provides a visual indication when the system is processing, and user interaction is temporarily unavailable. If the touchscreen response is delayed, do not repeat the same action multiple times, as this may lead to unintended results once the user interface becomes responsive again.

6.1. Powering ON the QIASymphony Connect



Power switch of QIASymphony Connect.

1. Ensure that the drawers and hood are closed. If the drawers or the hood are open during instrument startup, the system initialization will fail.
Note: An empty unit box must be placed into slot 4. During initialization, the handler goes down into the unit box in position 4. If the unit box is not empty, the handler will crash.
2. Press the power switch located at the bottom-right corner of the QIASymphony Connect.
3. The startup screen appears. The screen displays the progress of instrument startup.



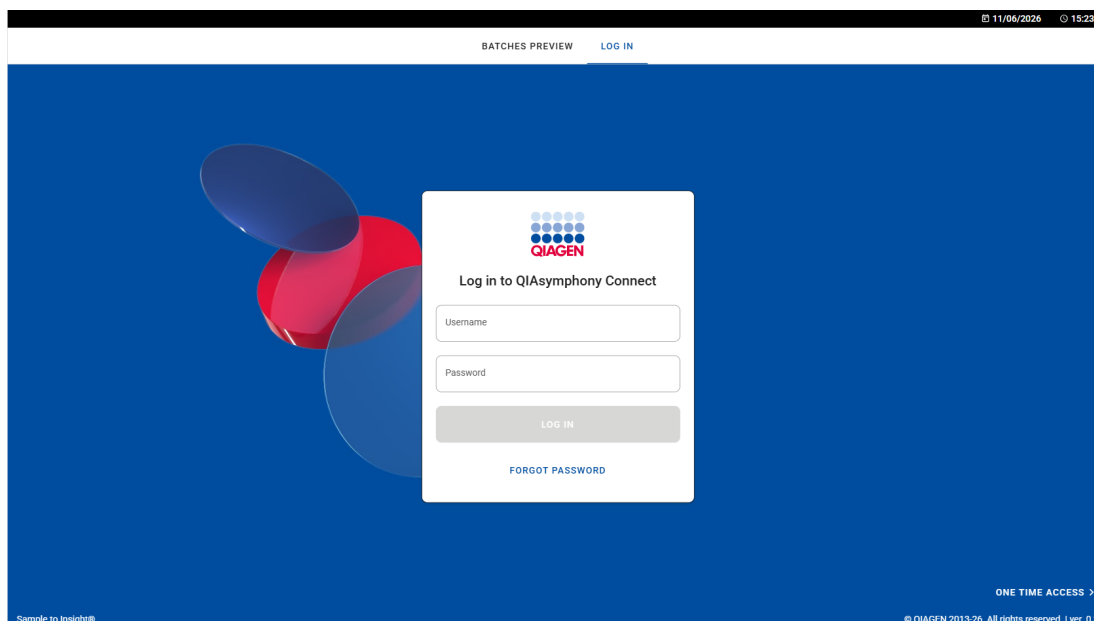
Startup screen.

4. The QIAAsymphony Connect initializes. During initialization, the instrument carries out a self-test routine to check that the electronics and mechanics are functioning properly.

During initialization, the following visible actions occur on the QIAAsymphony Connect:

- The lysis station moves down and up until it reaches its home position.
- The conveyor moves left and right until it reaches its home position.
- The magnet/rod-cover plate of the magnetic head moves down and up until it reaches its home position.
- The barcode camera and LEDs of the sample input drawer initialize.
- The robotic arm moves to the waste unit box at slot 4 in case cartridges need to be released from the handler.
- The robotic arm moves to the tip disposal chute. The channels are initialized and any tips that are attached are removed. The robotic arm moves to its home position.

5. After a successful startup, the QIAAsymphony Connect is ready for use, and the login screen appears.



Login screen.

6.1.1. First user account set up

The QIAAsymphony Connect provides user-based access to the instrument. A QIAGEN Field Service specialist performs the initial startup of the instrument at the customer site, including setup of user accounts with the Supervisor role. After the setup, users with the Supervisor role can create and manage additional user accounts.

Note: We recommend that at least two supervisor accounts are created on the instrument. If one supervisor forgets their password, the other supervisor can reset that supervisor's password.

During the first log in of a newly created user account, the system requires the new user to change their password. See more at Section 6.1.3 Changing password at login when required by the instrument.

Note: Accessing the instrument without the initial account set-up by a QIAGEN Field Service specialist is not possible.

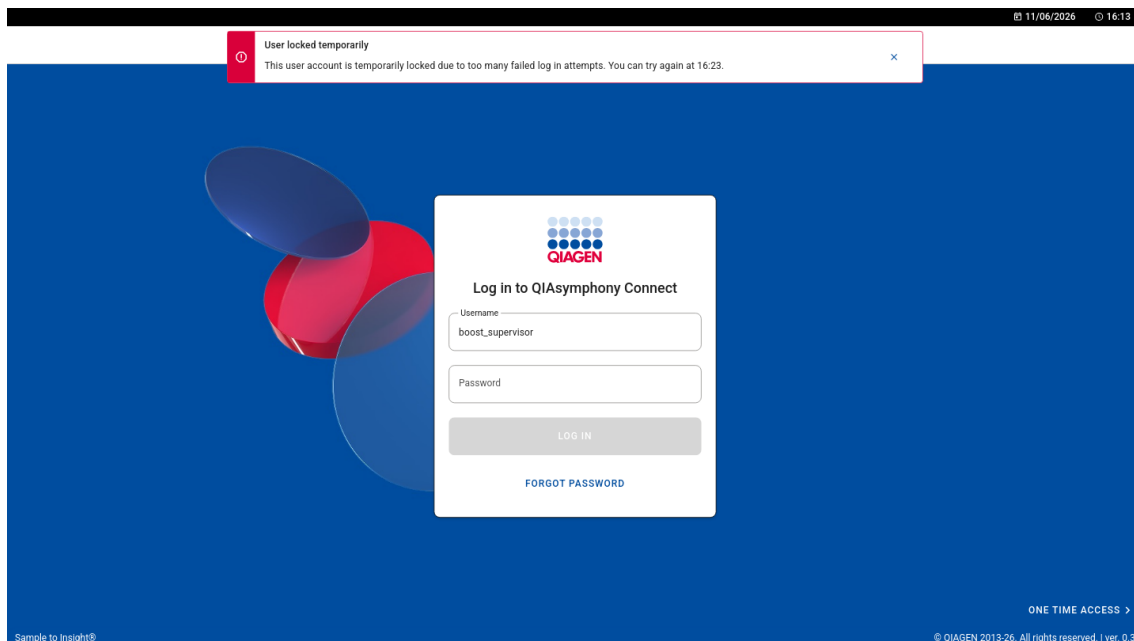
6.1.2. Logging in

Log in to operate the QIAAsymphony Connect. When the instrument is logged out, all drawers and the hood are locked. To create new users, see Section 6.6 User management.

To log in, follow the instructions below on the login screen:

1. Enter your username using the on-screen keyboard.
2. Enter your password using the on-screen keyboard. Press the eye symbol  to display the entered characters, and press the hide eye symbol  to mask them.
3. Press **LOG IN**.

Note: If you enter an incorrect password 3 times in a row, the instrument locks your account for 10 minutes. The instrument will display a notification on when you can try again. If you try to log in before the indicated time, the account remains locked and the 10-minute countdown starts again.



Notification that user is locked temporarily.

6.1.3. Changing password at login when required by the instrument

The instrument can prompt you to change your password at login. In that case, you cannot proceed until the password is changed. The instrument requires a password change in the following cases:

- The password for your account has not been changed after the account was created.
- The password for your account was changed by the Supervisor.
- The password for your account has expired; passwords expire after 90 days.

To change your password when prompted at login:

1. On the "Password change required" screen, enter your current password in the **Current password** field.
2. Enter a new password in the **New password** field. The password must meet the password requirements and must differ from the last 10 passwords you used.
3. Enter the same new password in the **Confirm new password** field, and press **CHANGE PASSWORD**.

QIASymphony Connect

Password change required

The system requires that you change your password. Make sure the hood and drawers are closed. The system will log you out once the password has been changed.

Current password *

New password *

Confirm new password *

Password requirements

Password must be between 8 and 100 characters and must include:

- At least 1 number
- At least 1 lowercase letter
- At least 1 uppercase letter
- At least 1 non-alphanumeric character, for example - ! \$ % ^ & * () _ . +
- New password can't be the same as the current password

LOG OUT CHANGE PASSWORD

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Password change required on login.

6.1.4. Changing your own password

You can change your password at any time.

To change your password:

QIASymphony Connect

DASHBOARD SAMPLE BATCHES ELUATE INVENTORY

MY ACCOUNT X MENU

CHANGE PASSWORD

LANGUAGE EN

LOG OUT

Welcome to QIASymphony Connect,

The new era of extraction - higher productivity, better connectivity, full traceability for more sensitive assays.

WIZARD
Run assistant

2D BARCODE RACK READER

TOOLS

SAMPLE
Review loaded samples and define controls

BATCHES
Define batches manually or via workflow to set up and start a run

ELUATE
Define the eluate labware and assign batches

INVENTORY
Load and review reagents and consumables required for a run

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My account menu with Change password option.

Accessing MY ACCOUNT to change password.

1. Press **MY ACCOUNT**, then **CHANGE PASSWORD**.
2. On the "Change password" screen, enter your current password in the **Current password** field.
3. Enter a new password in the **New password** field. The password must meet the password requirements and must differ from the last 10 passwords you used.
4. Enter the same new password in the **Confirm new password** field, and press **CHANGE PASSWORD**.

Change password

Make sure the hood and drawers are closed. The system will log you out once the password has been changed.

Current password *

New password *

Confirm new password *

CANCEL **CHANGE PASSWORD**

Password requirements

Password must be between 8 and 100 characters and must include:

- At least 1 number
- At least 1 lowercase letter
- At least 1 uppercase letter
- At least 1 non-alphanumeric character, for example - ! \$ % ^ & * () _ +
- New password can't be the same as the current password

"Change password" form.

Important: Do not disclose your user account password to anyone.

6.1.5. Changing the system language

To change the system language:

1. Press **MY ACCOUNT**, then **LANGUAGE**.
2. On the "Select language" dialog, choose a language from the list of available languages to change the user interface language to. The list of available languages depends on language pack files loaded to the instrument (see Section 6.20 File transfer).
3. Press **SAVE**.

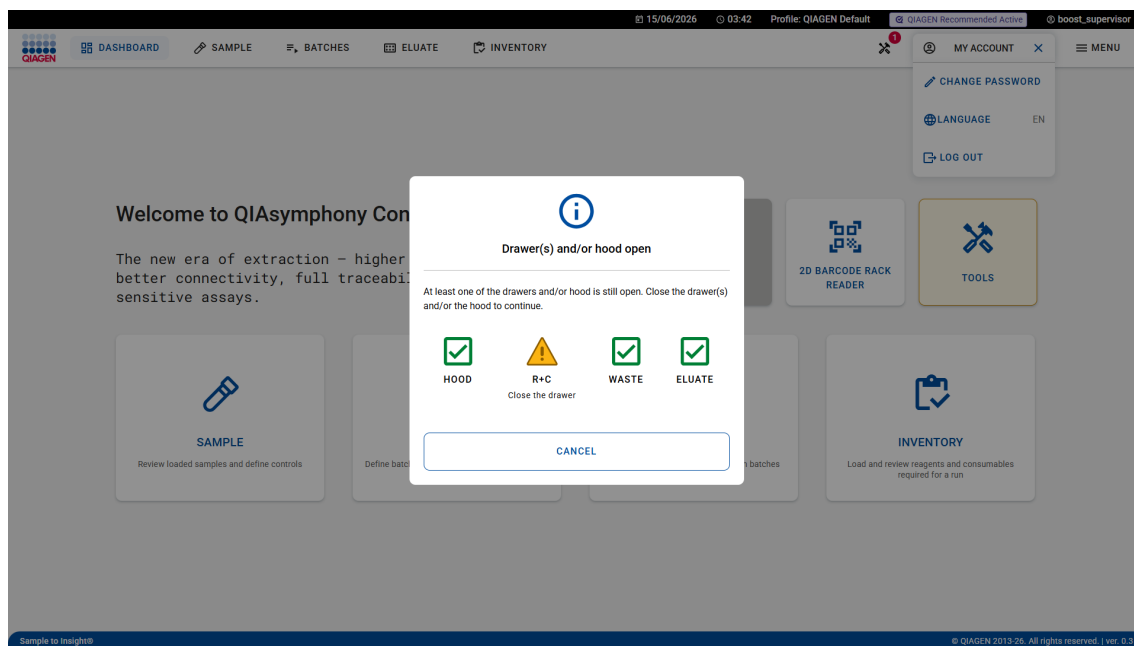
Note: Changing the system language does not change the language of generated documents.

6.1.6. Logout

To log out from the instrument, press **MY ACCOUNT**, then **LOG OUT**.

Note: LOG OUT is inactive during certain operations and processes, for example during file transfer, during eluate rack definition on the “ELUATE” screen, or during rack file creation on the “2D BARCODE RACK READER” screen. If LOG OUT is inactive, wait until the current process finishes or follow the on-screen instructions to complete the required user action.

If the hood or any of the drawers is open when you attempt to log out, a dialog appears with orange warning icons indicating which drawers are still open (see example on the next page).



Drawer open during a log out attempt.

Close all open drawers and/or the hood. The system will log you out automatically. Alternatively, press **CANCEL** to close the dialog and remain logged in.

Logging out does not interrupt the inventory scan or batch processing. It can be used to prevent unauthorized access to the instrument when left unattended during operation.

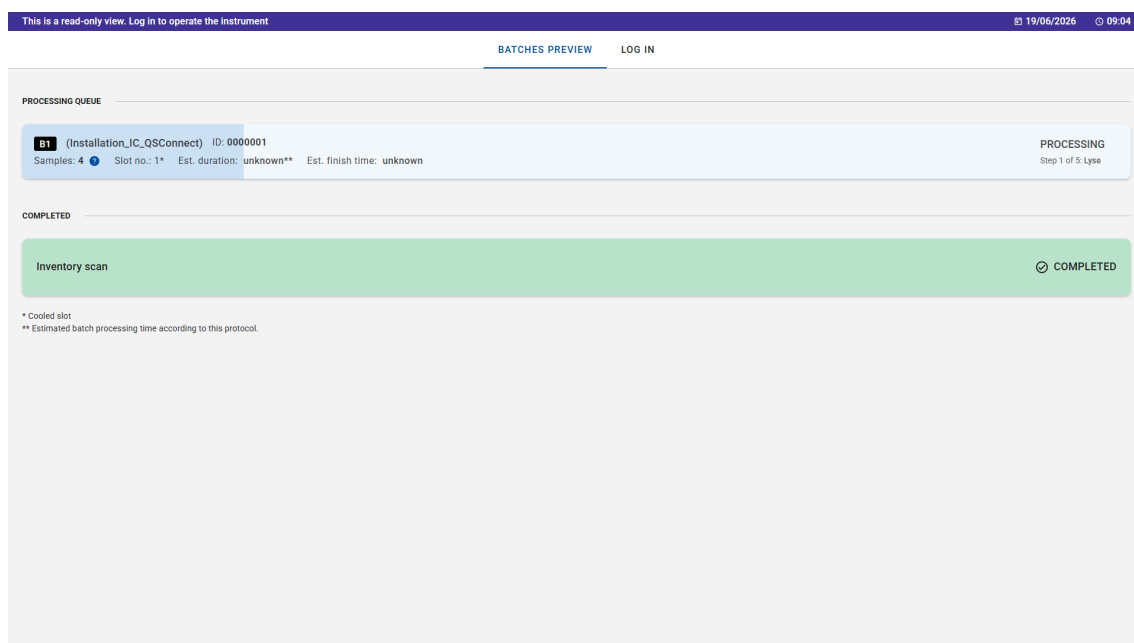
If the user does not interact with the instrument for longer than the period specified in User Management Settings, the instrument logs out the user automatically. Automatic logout occurs even if the hood or any drawer is open. However, automatic logout does not occur when manual logout is not permitted and the LOG OUT option is inactive.

6.1.7. Touchscreen view when the user is logged out

When the instrument is in a logged-out state, the touchscreen displays either the “BATCHES PREVIEW” screen or the “LOG IN” screen. You can switch between these views at any time.

The instrument defaults to the “LOG IN” screen when no batches exist on the instrument, and to the “BATCHES PREVIEW” screen when at least one batch exists in any status.

The “LOG IN” screen allows you to log in to the instrument. The “BATCHES PREVIEW” screen lets you monitor batch processing without logging in. The “BATCHES PREVIEW” screen does not allow you to add new batches, make changes or interrupt ongoing processing. To interact with the instrument, you must log in first.



“BATCHES PREVIEW” screen when the system is logged out.

When the “BATCHES PREVIEW” screen is displayed and you want to log in, press **LOG IN** to switch to the “LOG IN” screen.

6.2. Shutting down the QIAsymphony Connect

To switch off the QIAsymphony Connect, press the power switch at the front of the QIAsymphony Connect in the lower-right corner. We recommend switching off the instruments after use. Prolonged operation of the instrument without shutdown may impact its performance and ability to operate as intended.

In case of an unforeseen and/or unfortunate event, the power switch is also the emergency stop of the QIAsymphony Connect instrument.

Important: Do not switch off the instrument during operation unless you need to stop the instrument due to an emergency. You will not be able to resume the run and the samples cannot be processed further by the QIAsymphony Connect. The samples can be lost or you may have to process the samples again.

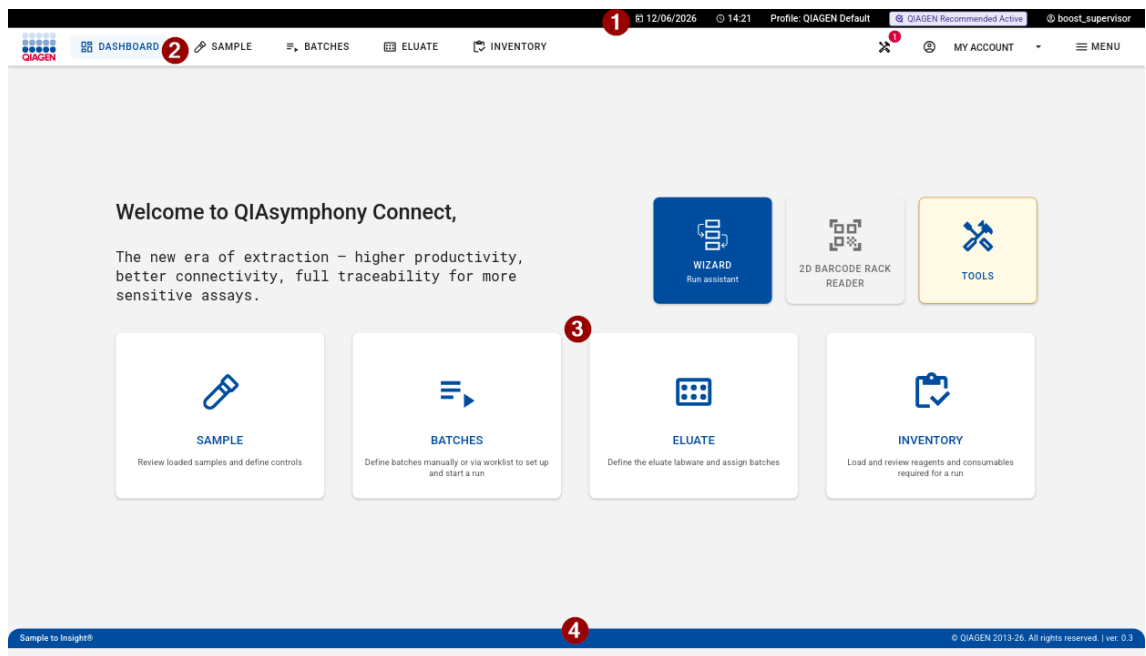
The QIAsymphony Connect instrument will lose all inventory information when the instrument is switched off.

6.3. Transfer to third party or removal from service

The QIAsymphony Connect stores various file-based and database-based information, including sensitive data such as user account data. Before transferring the QIAsymphony Connect to another customer or removing it from service, contact QIAGEN Technical Service to arrange secure removal of all customer data from the instrument. Do not transfer or remove the instrument from service until customer data has been removed.

6.4. QIAasymphony Connect user interface

Logging in to the instrument opens the instrument dashboard. The dashboard serves as the home screen of the QIAasymphony Connect.

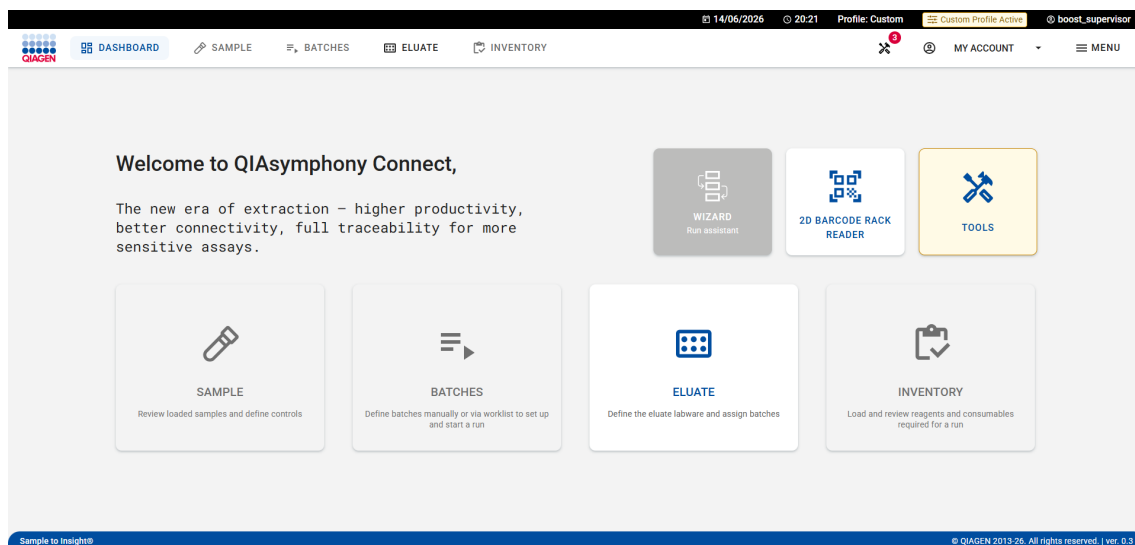


Dashboard. (1) Status bar. (2) Navigational panel. (3) Main area. (4) Footer.

Features and description are explained in the table in the next page.

Number on the picture	User interface element	Feature	Description
1	Status bar	Instrument IP address	The IP address of the instrument.
		Date and time	Displays the current date and time.
		Profile	Shows the name of the currently active process configuration profile. For more information, see Section 6.5 Configuration of the QIAsymphony Connect.
		QIAGEN recommendation label	Indicates whether the active profile is QIAGEN Recommended or custom.
		Username	Displays the username of the logged-in user.
2	Navigation panel	DASHBOARD	Navigates to the dashboard.
		SAMPLE	Navigates to the "SAMPLE" screen.
		BATCHES	Navigates to the "BATCHES" screen.
		ELUATE	Navigates to the "ELUATE" screen.
		INVENTORY	Navigates to the "INVENTORY" screen.
		TOOLS icon	Navigates to TOOLS > MAINTENANCE SCHEDULER. The number in the circle indicates the number of maintenance tasks that are overdue or due soon. Note: When the Maintenance Scheduler is disabled with the "Disable maintenance scheduler?" configuration parameter, selecting the TOOLS icon navigates to TOOLS > MAINTENANCE TOOLS.
		MY ACCOUNT	Displays the username of the logged-in user and provides the following options: - CHANGE PASSWORD (to change user own password) - LANGUAGE (with the language code of the language that is set for the graphic interface) - LOG OUT (For more information, see the Section 6.1.6 Logout)
3	Main area	MENU	Provides access to: - TOOLS - CONFIGURATION - FILE TRANSFER - USER MANAGEMENT
		WIZARD	Navigates to the WIZARD (guided run setup).
		2D BARCODE RACK READER	Navigates to the 2D BARCODE RACK READER.
		TOOLS	Provides access to: - MAINTENANCE SCHEDULER - MAINTENANCE TOOLS - SERVICE TOOLS - SUPPORT PACKAGE
		SAMPLE	Navigates to the "SAMPLE" screen.
		BATCHES	Navigates to the "BATCHES" screen.
		ELUATE	Navigates to the "ELUATE" screen.
		INVENTORY	Navigates to the "INVENTORY" screen.
4	Footer	ver	Displays the software version.

If access to the WIZARD and the “SAMPLE”, “BATCHES”, and “INVENTORY” screens is disabled on the DASHBOARD, it means that a maintenance task is overdue. For more information, see Section 6.5.2 Maintenance scheduler tab.

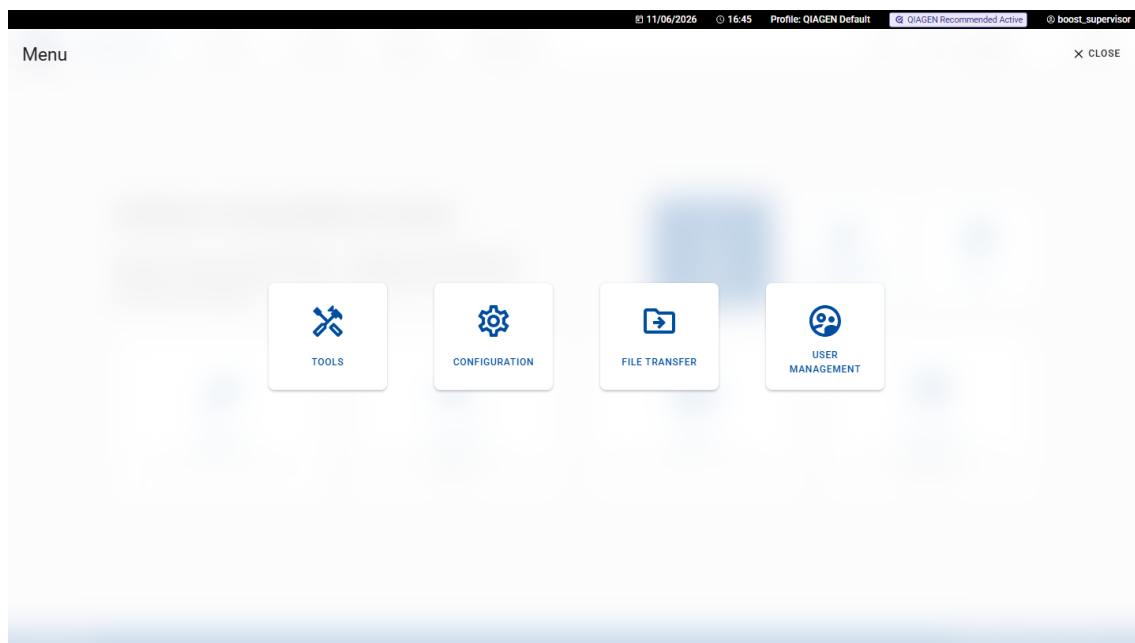


Dashboard with disabled access to the “Wizard”, “Sample”, “Batches” and “Inventory” screens.

6.5. Configuration of the QIASymphony Connect

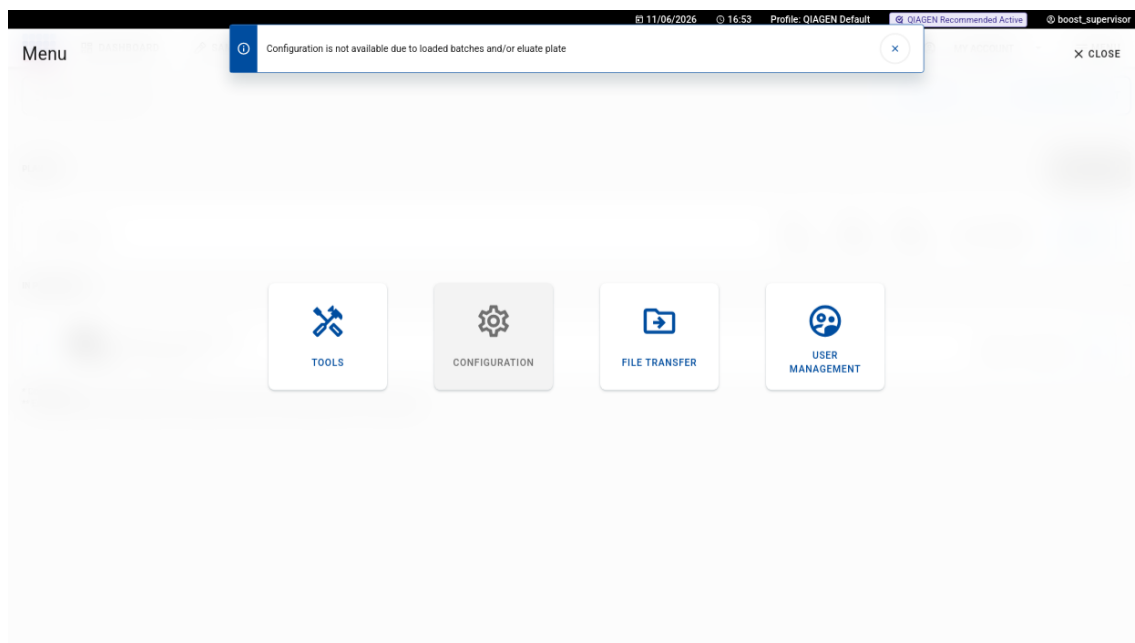
Access to configuration is user-role based. Only the Supervisor role can change configuration on the instrument.

To enter the Configuration screen, press **MENU**, then **Configuration**.



Supervisor view of Menu with allowed access to Configuration.

Note: Configuration can only be accessed when no batches exist on the instrument, and no elution rack is loaded in the “Eluate” drawer.



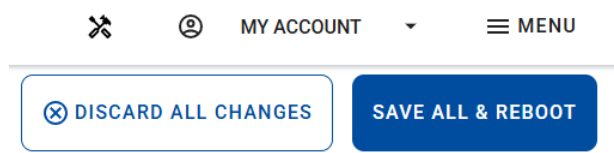
Supervisor view of Menu with inactive access to Configuration.

Saving changes

Depending on the configuration parameter, saving changes may require the instrument to reboot. If you change parameters that require a system reboot, saving will trigger a reboot.

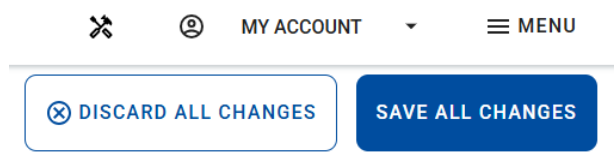
Note: You can determine whether a configuration change requires a reboot by checking the label on the “Save” button.

- If the save button shows “SAVE ALL & REBOOT”, then the system will restart upon saving.



SAVE ALL & REBOOT button.

- If the save button shows “SAVE ALL CHANGES”, then the changes will be saved without restarting the instrument.



SAVE ALL CHANGES button.

6.5.1. General tab

QIAGEN Recommended profile

Parameters on the General tab are marked with either a “QIAGEN Recommended settings” label or a “Non-QIAGEN Recommended setting” label, while other parameters have no label.

By default, the marked label present is set to “QIAGEN Recommended” as this is the default profile. If you create a new profile, and change the default value of a parameter, the label will change to “Non-QIAGEN Recommended setting”.

These labels indicate which parameters are relevant for classifying the current configuration profile, and what values to set in order to follow QIAGEN recommendation. For the profile to be classified as QIAGEN Recommended, all labeled parameters must be set to QIAGEN Recommended settings. If any labeled parameter is set to Non-QIAGEN Recommended settings, the profile is classified as Custom. Parameters without either label do not affect whether the profile is classified as QIAGEN Recommended or Custom.

The screenshot displays the QIAGEN configuration web interface. At the top, a navigation bar includes the QIAGEN logo, a dashboard icon, and tabs for DASHBOARD, SAMPLE, BATCHES, ELUATE, and INVENTORY. The current profile is 'QIAGEN Default' and the user is 'boost_supervisor'. The main section is titled 'Configuration' and has tabs for GENERAL, MAINTENANCE SCHEDULER, TIME & LANGUAGE, TUBES, and SYSTEM. The 'GENERAL' tab is active, showing a 'Reagents' section with four settings, each with a 'Non-QIAGEN Recommended settings' warning icon and a 'No'/'Yes' toggle. The 'Profiles' section on the right shows a list of profiles: 'QIAGEN Default' (Active) and 'Custom Profile' (Inactive). The 'Custom Profile' is highlighted, and buttons for 'DELETE' and 'ACTIVATE' are visible.

Parameter	Value	Label
Enable use of expired reagents?	No	Non-QIAGEN Recommended settings
Allow cartridges to be used that have an exceeded open and usable times?	No	Non-QIAGEN Recommended settings
Enable use of reagent cartridges with different lot numbers in the same batch?	No	Non-QIAGEN Recommended settings
Allow selection of 'Nothing changed' on inventory scan of R&G drawer and hood?	No	Non-QIAGEN Recommended settings

Profile	Status	Description
QIAGEN Default	Active	QIAGEN Default Profile for each device Creation date and time: 01/01/2024, 01:00 Author: QIAGEN GmbH Germany QIAGEN Recommended Profile
Custom Profile	Inactive	Profile for usage custom protocols

Configuration parameters with QIAGEN recommendation related labels.

Configuration parameters available on the General tab:

Subtab name	Parameter name	Default profile value	Has impact on QIAGEN Recommended profile?	Description
Barcodes & IDs	Allow use of sample tubes without barcodes?	Yes	No	Use this setting to define whether sample tubes without a readable barcode can be used: • Yes: When a tube carrier is inserted and a tube has no barcode or an invalid barcode, you can manually enter a sample ID for that tube or use the button to generate one automatically. • No: Only sample tubes with barcodes that are read automatically by the barcode scanner can be used.
Barcodes & IDs	Only allow use of eluate racks with barcoded tubes in rack file?	No	No	Use this setting to define whether the instrument checks, when a rack file is used for eluate definition, if enough empty 2D barcoded tubes are available to assign a batch: • Yes: When a rack file is used for eluate definition, the instrument checks whether there are enough empty 2D barcoded tubes to assign a batch. If there are not enough empty 2D barcoded tubes for the batch, the batch cannot be assigned to that rack. • No: The batch can be assigned to the rack as long as enough empty positions are available, regardless of whether they are 2D barcoded or not.
Barcodes & IDs	Automatically assign system generated IDs to samples with scanning errors or no barcodes?	No	No	Use this setting to define how the system handles samples with scanning errors or without barcodes. The setting is available in the General process settings under Barcodes & IDs: • Yes: The system automatically assigns a system-generated ID to samples with scanning errors or no barcodes when a carrier is inserted. • No: The system does not assign IDs automatically. Generate the ID manually by using the corresponding button or by entering it in the input field. Note: Automatically generated IDs are displayed on the Samples/Input screen with an icon indicating that the ID was previously edited.
Reagents	Enable use of expired reagents?	No	Yes	Use this setting to define whether expired reagents detected during inventory scan prevent starting a run, even when the expired reagents are not required for the planned batches: • Yes: The run can be started if the expired reagent is not required for processing the planned batches. • No: If inventory scan detects any reagent position past its expiry date, the run cannot be started, even if the expired reagent is not required for processing the planned batches. Expiry dates are not checked for: - Reagents in Accessory Trough(s) in the "Reagents and Consumables" drawer - Accessory reagents in tube carriers in the "Sample" drawer. The instrument checks whether a reagent cartridge is expired at the start of the run when RUN ALL button is pressed.

Subtab name	Parameter name	Default profile value	Has impact on QIAGEN Recommended profile?	Description
Reagents	Allow cartridges to be used that have an exceeded open and usable times?	No	Yes	Use this setting to define whether reagent cartridges can still be used after their allowed usage time has been exceeded: • Yes: Cartridges with exceeded or unknown open or usable times can still be used. The system indicates this on the Inventory screen and asks for confirmation before the run starts. • No: Cartridges with exceeded or unknown open or usable times cannot be used for processing. Note: Usable time is the maximum number of days a reagent cartridge may be used after it has been opened. Open time is the maximum amount of time an opened reagent cartridge may remain loaded on the instrument. The instrument checks whether a reagent cartridge is expired at the start of the run when RUN ALL button is pressed.
Reagents	Enable use of reagent cartridges with different lot numbers in the same batch?	No	Yes	Use this setting to define whether the instrument allows starting a run when reagent cartridges with the same catalogue number in the Reagents and Consumables drawer have different LOT numbers: • Yes: The run can be started even if reagent cartridges with the same catalogue number have different LOT numbers and a planned batch would require both cartridges. • No: When reagent cartridges with the same catalogue number have different LOT numbers, and any batch planned for processing would require both cartridges, you cannot start the run. However, you can start the run if only one of the cartridges will be used for processing the planned batches. Note: In the event that two reagent cartridges with the same catalog number and different LOT numbers are loaded, and one of the reagent cartridges that is in use unexpectedly runs out of reagents during processing of a batch, the instrument will use reagents from the other reagent cartridge even when the parameter is set to No.
Reagents	Allow selection of 'Nothing changed' on inventory scan of R&C drawer and hood?	No	Yes	Use this setting to define whether the Nothing changed option is available after the Reagents and Consumables drawer or the hood is opened and closed: • Yes: The Nothing changed button is available in the pop-up shown after the Reagents and Consumables drawer or the hood is opened and closed. • No: The Nothing changed button is not available in the pop-up shown after the Reagents and Consumables drawer or the hood is opened and closed.

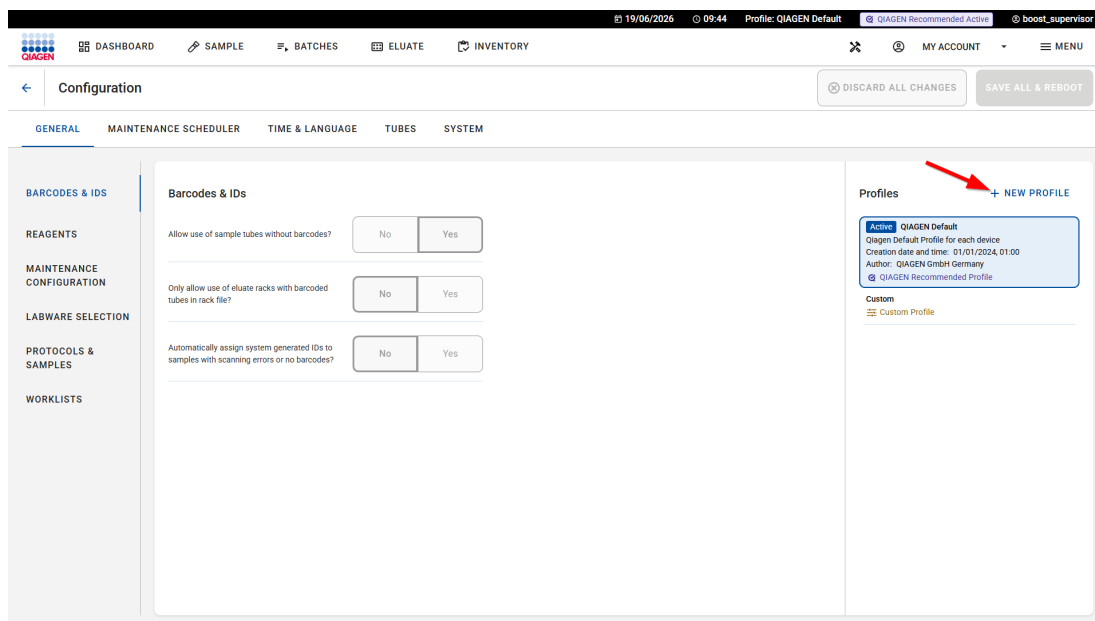
Subtab name	Parameter name	Default profile value	Has impact on QIAGEN Recommended profile?	Description
Maintenance configuration	Allow batch definition and processing when mandatory tasks are due?	No	Yes	Use this setting to define whether batch definition and processing are allowed when mandatory maintenance tasks are due: • Yes: Batch definition and processing remain available. When you start a run while mandatory maintenance tasks are overdue, the system displays a message asking whether to continue or cancel. • No: Batch definition and processing are not allowed while mandatory maintenance tasks are overdue. The system blocks access to run-related screens and informs you that maintenance must be performed first. Note: If only optional maintenance tasks are overdue, the system displays a confirmation message before the run starts.
Maintenance configuration	Disable maintenance scheduler?	No	Yes	Use this setting to define whether the maintenance scheduler is available on the instrument: • Yes: Maintenance tasks and the maintenance task list are hidden. • No: Maintenance tasks and the maintenance task list are available to the user. Note: If the maintenance scheduler is disabled for a period of time and then enabled again, the system generates the maintenance tasks that became due while the scheduler was disabled.
Labware selection	Allow not recommended labware during run definition?	Block	Yes	Use this setting to define how the system handles labware that is not recommended for the selected protocol during run definition: • Always: Not recommended labware can be used without a warning. • Warn: Not recommended labware can be used, but the system displays a warning. • Block: Not recommended labware cannot be selected or assigned during run definition. Note: Recommended labware is always compatible. Non-recommended labware may be incompatible. For IC mix tubes, compatibility is also validated during run start and when resuming a paused batch. If incompatible tubes are detected, the run is finished or resuming is stopped.
Labware selection	Allow operator to change labware from default tube type?	Yes	No	Use this setting to define whether the sample tube labware can be changed from the default tube type to another compatible tube type: • Yes: You can change the sample tube labware from the default to any other type that matches the carrier insert size at that position. • No: You cannot change the sample tube labware from the default tube type.

Subtab name	Parameter name	Default profile value	Has impact on QIAGEN Recommended profile?	Description
Protocols & samples	Allow batches that consist of samples from different carriers?	No	Yes	Use this setting to define whether batches can contain samples from different carriers: • Yes: The system allows batches to be created with samples from different carriers. • No: The system does not allow batches to be created with samples from different carriers. During manual batch definition, samples from other carriers become unavailable after samples from one carrier are selected.
Protocols & samples	Allow use of custom protocols?	No	Yes	Use this setting to define whether custom protocols can be used for batch creation: • Yes: All protocols are available on the Batches > Protocols screen, including QIAGEN Recommended and custom protocols. When batches are created from a worklist, no additional protocol-based restrictions apply. • No: Only QIAGEN Recommended protocols are available on the Batches > Protocols screen. When batches are created from a worklist, batch candidates that use other protocols are skipped. Note: If a protocol does not contain the QiagenRecommended tag, the system treats it as not QIAGEN Recommended.
Worklists	Number of days for which worklist is valid	1	No	The number of days the worklist remains valid and available for use, counted from the moment it is created. After this period, the worklist expires and cannot be used.

Parameters from all subtabs of the General tab are saved as a profile. The instrument runs by default with the QIAGEN default profile. Activating a different profile requires the system to reboot.

Creating a new profile

1. Press **+ NEW PROFILE**.



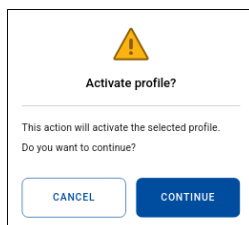
Configuration screen showing + New profile button.

2. Enter a name for the profile.
3. **Optional**: Enter a description.
4. Adjust parameter values across all subtabs of the **General** tab.
5. Press **FINISH**.
6. If the configured profile includes parameter values that are not QIAGEN recommended, a confirmation dialog is displayed before the profile is saved. Review the selected parameter values, then save the profile.

The newly created profile is not applied automatically. To apply it, activate the profile and save the changes.

Activating a profile

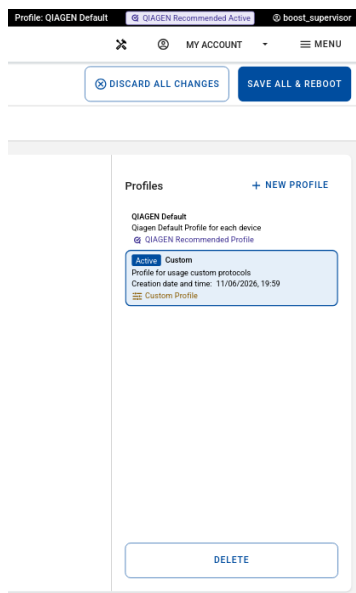
1. Select a profile from the list.
2. Press **ACTIVATE**.
3. Press **CONTINUE** on the confirmation dialog.



The new profile will be applied after configuration changes are saved. Depending on the profile configuration, changing the profile can also change workflow from QIAGEN Recommended to Custom or from Custom to QIAGEN Recommended. Whether the profile is QIAGEN Recommended is recorded in the Report File.

4. Save the changes

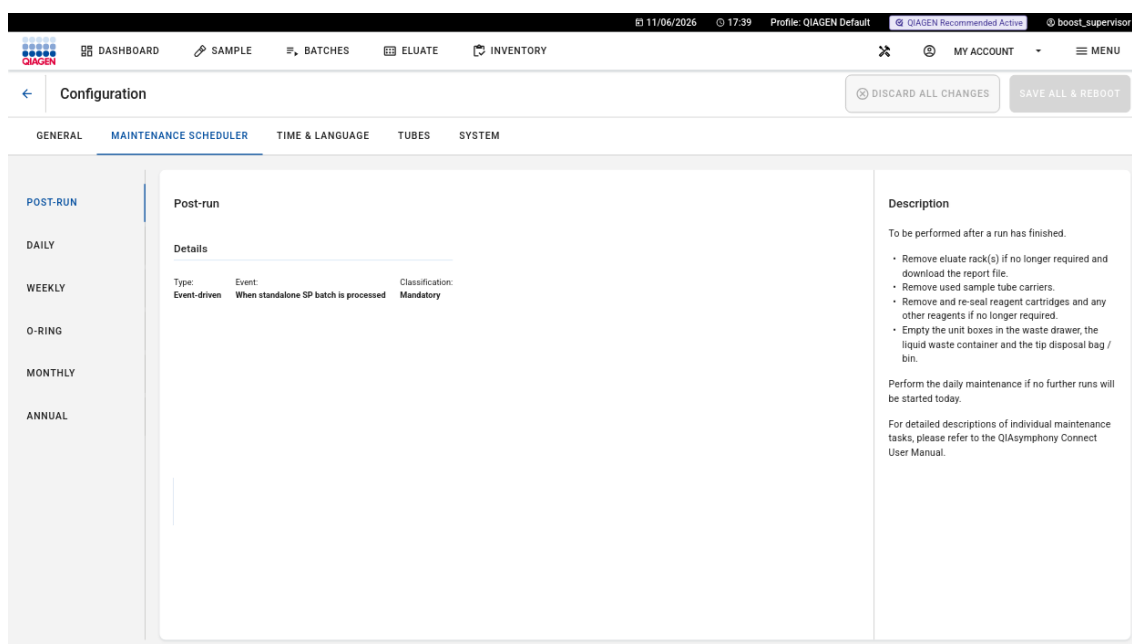
- Press **SAVE ALL & REBOOT** to save the changes and reboot the instrument, or;
- Alternatively, adjust settings on other Configuration tabs, then press **SAVE ALL & REBOOT** to apply all changes in one go and reboot the instrument only once.



Saving configuration changes.

6.5.2. Maintenance scheduler tab

On the **Maintenance Scheduler** tab, you can adjust the recurrence pattern of time-driven maintenance tasks, view task descriptions, and set warning lead time.



Maintenance Scheduler tab.

Note: When the Maintenance Scheduler is disabled using the configuration parameter “Disable maintenance scheduler?”, MAINTENANCE SCHEDULER tab will not be available.

Maintenance configuration

Allow batch definition and processing when mandatory tasks are due?

[QIAGEN Recommended settings](#)

No

Yes

Disable maintenance scheduler?

[QIAGEN Recommended settings](#)

No

Yes

“Disable maintenance scheduler?” is set to “No”.

Available configuration options depend on the maintenance task, and include the option to change:

1. **Due time:** the hour and minute when the task becomes due.
2. **Warning lead time:** how early the system alerts you before a maintenance task is due, for example 2 hours in advance.
3. **Day of week:** Monday, Tuesday, etc.
4. **Every:** the number of weeks after the task is performed before it becomes due again, e.g., every 1, 2, 3 or 4 weeks.
5. **Day of month:** ordinal day of month, from 1 to 31; if the month has fewer days than the specified day for the maintenance task, the task will be scheduled for the last day of that month.
6. **Date of service, Time of service:** the date and time of the last annual service. Annual maintenance tasks can only be performed by QIAGEN Field Service Engineers. The Field Service Engineer updates the date and time during their maintenance visit.

Each maintenance task configuration is located on a different subtab. Maintenance task details are shown in the Description section on the right.

The Supervisor user can adjust maintenance scheduler configuration as specified in the table on the next page.

Maintenance task	Type	Change due time	Change warning lead time	Change day of week	Change number of weeks	Change day of month	Change date and time of service
Post-run	Event-driven	X	X	X	X	X	X
Daily	Time-driven	✓	✓	X	X	X	X
Weekly	Time-driven	✓	✓	✓	X	X	X
O-ring	Time-driven	✓	✓	✓	✓	X	X
Monthly	Time-driven	✓	✓	X	X	✓	X
Annual	Time-driven	X	✓	X	X	X	X

6.5.3. Time & Language tab

The Time & Language tab allows you to view and change the instrument time and date settings. The tab includes the Time & Date panel, where you can set the current date and time and select the date format displayed on the touchscreen.

Configuration

DISCARD ALL CHANGES SAVE ALL & REBOOT

GENERAL MAINTENANCE SCHEDULER **TIME & LANGUAGE** TUBES SYSTEM

DATE & TIME

Time settings

Current date: Jun 11, 2026

Date format: ☐ DD/MM/YYYY ☐ MM/DD/YYYY ☐ YYYY-MM-DD

Current time: 17 : 29

Time format: ☐ 24-hour ☐ 1421

Log out warning
In order to ensure stable system operation you will be logged out after saving time and date changes.

Time & Language tab.

Note: Date format settings do not change date and time format in files generated by the instrument.

Changes are applied only after you click Save all changes and take effect without restarting the instrument. If the date or time is changed by more than 24 hours, the system displays a confirmation dialog before applying the change.

6.5.4. Default tube types

After reading the barcode of the insert on the tube carrier during the sample loading process, the QIAsymphony Connect automatically assigns a default tube type to each position. This default tube type for different tube inserts can be configured.

Configuration

DISCARD ALL CHANGES SAVE ALL & REBOOT

GENERAL MAINTENANCE SCHEDULER TIME & LANGUAGE **TUBES** SYSTEM

Tubes

Tube Insert 00
Assigned tube type: BD#352051 FalconPP 17x100

Tube Insert 1A
Assigned tube type: GR#454020 VacuetteK2 13x75

Tube Insert 2A
Assigned tube type: SAR#51167001 MunovK3 11x66

Tube Insert 3B
Assigned tube type: SAR#72.693 T2.0 Screw

Tube Insert 5A
Assigned tube type: TR#96.09329.9.01 T2.0 SnapCap

Tube Insert 00 selected
Select(ed) tube type:

☒ BD#352051 FalconPP 17x100

☐ BD#367525 VacutainerPP 16x100

☐ BD#762165 PAXgeneRNA 16x100

☐ BD#768115 PAXgene ccfDNA 16x100

☐ BD#768165 PAXgene ccfDNA 16x100

☐ COP#330c UTM 16x100

☐ DGT#OGR-500 Oragene DNA

☐ GR#455036 VacuettePP 16x100

☐ NL#CHA0002 GlassTube 16x100

Tube type selection
A default tube type must be defined for each type of insert. The tube type is automatically assigned when the insert bar code is read during sample loading. The operator can overwrite this default assignment if the system configuration allows this.

Tube Type selection screen.

To set the default tube types, proceed as follows:

1. Press the **TUBES** tab.
2. Select a tube insert from the list on the left.
3. Select a tube type from the list on the right.
4. If necessary, repeat steps 2–3 for other tube inserts.
5. Press the save button (**SAVE ALL CHANGES** or **SAVE ALL & REBOOT**).

Note: Changing the default tube type for the different tube inserts affects the default tube type for all content types, including internal controls (IC). A limited number of tube types can be used with internal controls (see the protocol sheets of the corresponding protocols for details). In some cases, Supervisor users may wish to change the default tube type to one that cannot be used with the IC. The user setting up the experiment must then manually override the default IC tube type.

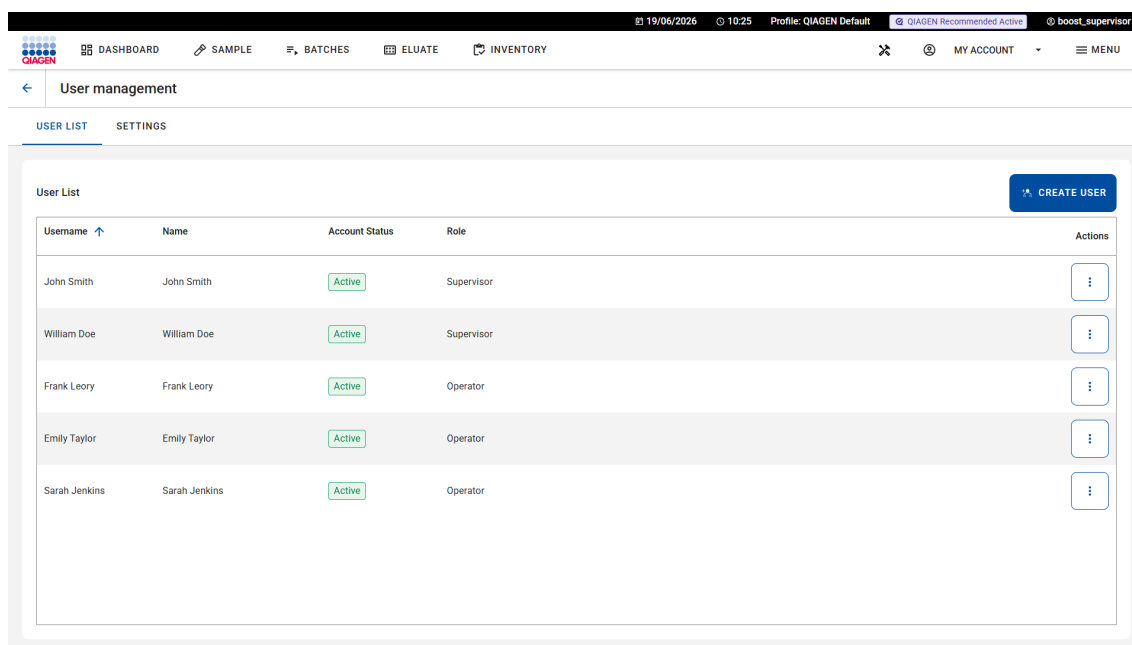
6.6. User management

User Management area is available only to users with the Supervisor user role and is divided into **USER LIST** and **SETTINGS** tabs.

6.6.1. User list tab

The User Management screen allows the “Supervisor” to:

- view the list of existing users and whether they are active or deactivated;
- create new users (Section 6.6.3);
- edit existing user data (Section 6.6.4);
- change other user passwords (Section 6.6.4); and
- activate and deactivate users (Section 6.6.5).



User management screen.

6.6.2. User roles and permissions

Access to the User Management screen and to other areas of the graphical user interface (GUI) is role based. Each user must have a user account with an appropriate role assigned to it.

FEATURE	Operator	Supervisor	Field Service Engineer
Access to CONFIGURATION	X	✓	✓
CONFIGURATION > MAINTENANCE SCHEDULER > ANNUAL: Changing Date of service	X	X	✓
CONFIGURATION > MAINTENANCE SCHEDULER: Changing other settings	X	✓	✓
Access to TOOLS	✓	✓	✓

FEATURE	Operator	Supervisor	Field Service Engineer
TOOLS > Maintenance Scheduler > Pressing MARK AS DONE for the annual maintenance task	X	X	✓
Pressing MARK AS DONE for other types of maintenance tasks	✓	✓	✓
Access to USER MANAGEMENT	X	✓	✓
Access to MENU > FILE TRANSFER*	✓	✓	✓
Access to MENU > FILE TRANSFER > DELETE FILES	X	✓	✓
Other features not listed above	✓	✓	✓

***Note:** All user roles can access **MENU > File Transfer**, but the availability of specific file operations for specific file types depends on the user role. For detailed information about the operations allowed for Operator and Supervisor for each file type, refer to Section 6.20.2. User role permissions for operations on files.

6.6.3. Creating new users

To create a new user:

1. On the dashboard, press **MENU**, then **USER MANAGEMENT**. The list of users appears.
2. On the user list, press **CREATE USER**.
3. On the New User dialog, enter:
 - a. **Username**
 - b. **First name**
 - c. **Last name**
 - d. **Password** (according to the password requirements shown on the screen)
 - e. **Confirm Password** (according to the password requirements shown on the screen)

New User

User information

Username

First name

Last name

Password

Password

Confirm Password

Password requirements

Password must be between 8 and 100 characters and must include:

- At least 1 number
- At least 1 lowercase letter
- At least 1 uppercase letter
- At least 1 non-alphanumeric character, for example - ! \$ % ^ & * () _ . +

User role

OPERATOR SUPERVISOR

* The user may need to change their password when they first log in.

CANCEL CREATE

Creating New User screen.

4. Select the user role. You can only select either "Operator" or "Supervisor" user role.
5. Press **CREATE**.

Note: The created user will be prompted to change their password on first log in.

6.6.4. Editing existing users

To edit an existing user:

1. On the dashboard, press **MENU**, then **USER MANAGEMENT**. The list of users appears.
2. On the user list, press the **ACTIONS** menu, and select **EDIT**.
3. On the Edit user dialog, change user information as required.

Note: Username is permanent and cannot be changed.

4. **SAVE CHANGES** button becomes active for the section where user data has changed. If you enter a new password, also enter the same password in the **Confirm Password** field. The **SAVE CHANGES** button becomes active for the New Password section.
5. The active **SAVE CHANGES** button only saves changes for the section where it is located. If multiple **SAVE CHANGES** buttons are active, press each one to save all entered changes.

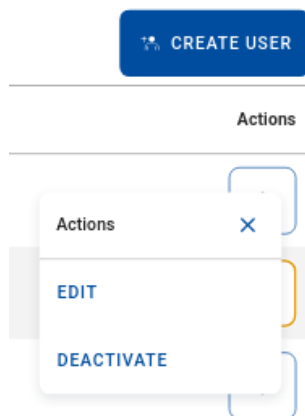
Edit user screen.

Note: If you change a user's password, the user will be prompted to change their password again at the next log in.

6.6.5. Activating and deactivating users

The options to activate or deactivate a user depend on the current user activity state displayed in the user list and can be identified by the buttons available in the **Actions** menu. The **DEACTIVATE** button is displayed only for active users, while the **ACTIVATE** button is displayed only for deactivated users.

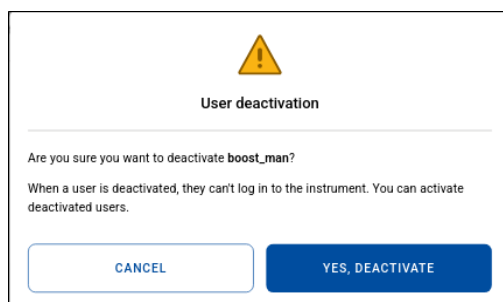
Users can be activated or deactivated manually, or they are deactivated automatically by the instrument if the user does not log in for 60 days.



Manually deactivating a user.

To activate or deactivate a user:

1. On the dashboard, press **MENU**, then **USER MANAGEMENT**. The list of users appears.
2. On the user list, press the **Actions** menu, and select **ACTIVATE** or **DEACTIVATE** as appropriate.
3. When prompted to confirm the action, press **YES, DEACTIVATE** or **YES, ACTIVATE** as appropriate.



Confirmation dialog before user deactivation.

6.6.6. Settings tab

Configuration of automated log out

The "Automated logout after minutes of inactivity" parameter specifies the period after which the instrument performs automated log out if user has not interacted with the instrument. Automated log out is always enabled and accepts a range from 3 to 600 minutes. By default, it is set to 15 minutes.

←

User management

USER LIST

SETTINGS

Settings

Automated logout after minutes of inactivity

The setting only controls automated log out on this instrument

−

Minutes14

+

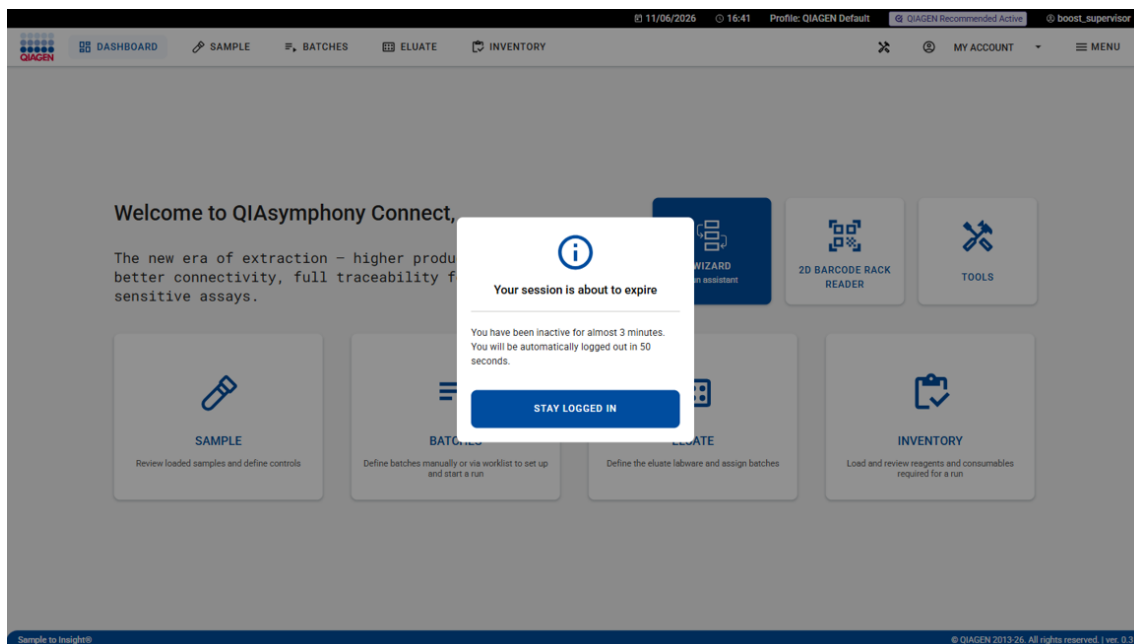
3 - 600

SAVE CHANGES

Setting duration of inactivity for automated log out.

Automated log out

Automated log out occurs after the time specified by the “Automated logout after minutes of inactivity”. One minute before log out, the instrument displays a dialog informing the user that the session is about to expire, showing the remaining time until log out and the option to stay logged in.



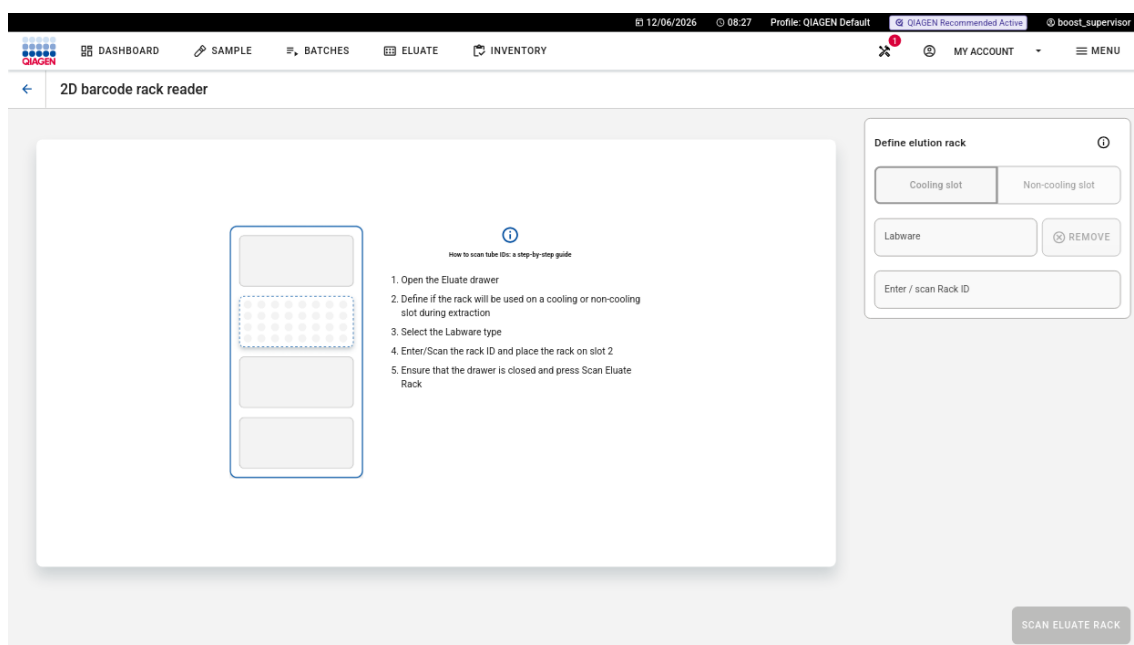
Countdown before automated log out.

Automated log out considerations:

- Automated log out can occur even if the hood or any drawer is open.
- There are circumstances in which both manual logout and automated log out are not permitted. In such cases, the instrument does not perform automated log out until the conditions no longer apply (for example, when the user leaves a sensitive screen or completes a required action). When the prohibiting conditions no longer apply, the automated log out is performed immediately, and the dialog informing the user about the session about to expire is not shown. Automated log out is not performed while the **LOG OUT** option under **MY ACCOUNT** is inactive or is unavailable.

6.7. 2D barcode rack reader

The QIAAsymphony Connect is equipped with a bottom-up scanner on slot 2, in the “Eluate” drawer. The scanner scans 2D barcode labels attached to the bottom of eluate tubes provided in a 96-, 48-, or 24-well rack format. The scanned IDs are used to create a rack file which can be used during a run to link the eluate tube barcode to the respective sample ID.



2D barcode rack reader screen.

Accessing 2D BARCODE RACK READER is not possible when:

- an eluate rack is assigned or defined on a slot in the “Eluate” drawer;
- an inventory scan that includes the “Eluate” drawer is in progress;
- a protocol run is in progress; or
- a protocol run is paused.

Checking which eluate racks support 2D eluate tube barcode scan

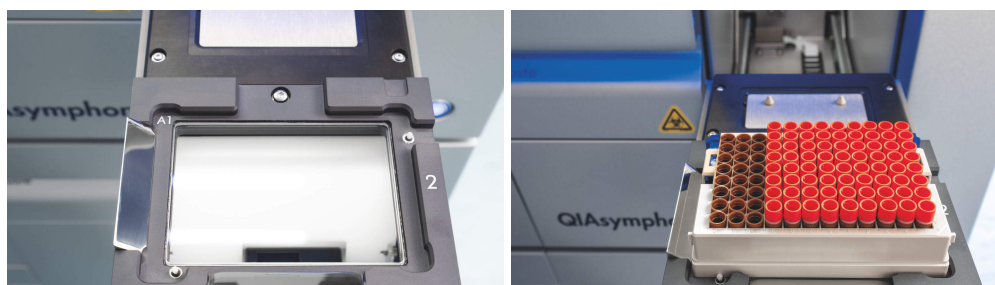
1. On the dashboard, press **2D BARCODE RACK READER**.
2. Open the “Eluate” drawer.

3. Select the **Cooling** slot or a **Non-cooling** slot.
4. Press **Labware** to display the list of the supported eluate labware.

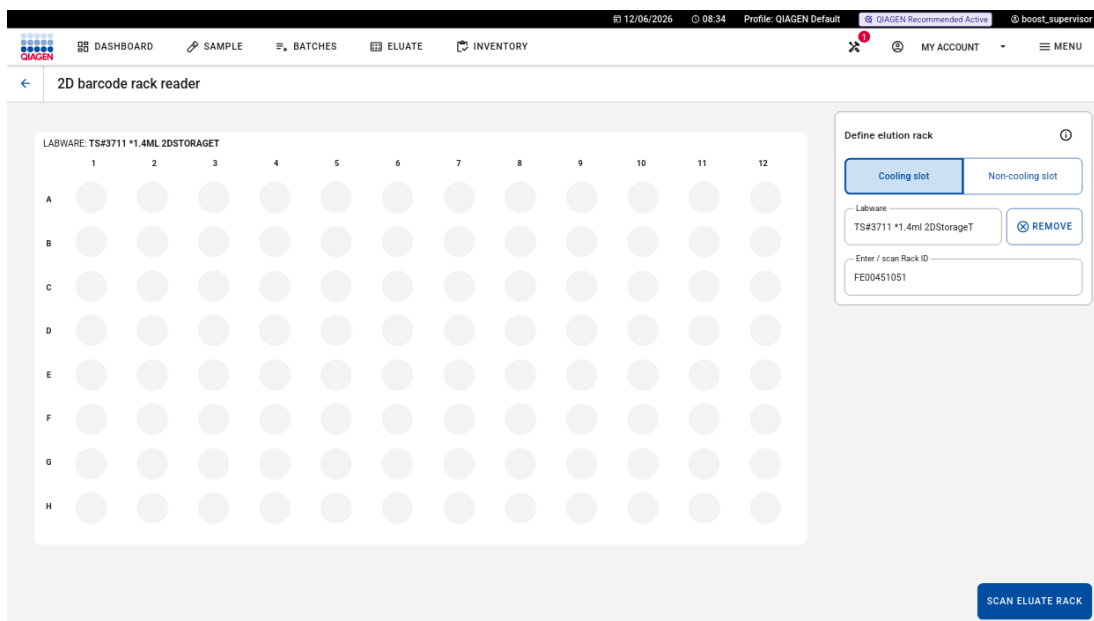
Scanning eluate tube IDs to a rack file

To scan eluate tube barcodes:

1. Prepare the eluate rack for scanning. Ensure that:
 - a. the tubes with 2D barcode labels attached to the bottom of eluate tubes, with the barcode facing down are placed in the racks provided by the tube manufacturer.
 - b. there are no empty spaces or gaps in the tube placement.
 - c. barcodes on the bottom of the rack and the glass surface of the scanner are clean and free of debris or other obstructions.
2. On the dashboard, press **2D BARCODE RACK READER**.
3. Open the “Eluate” drawer.
4. Select whether the rack will be used in the **Cooling** slot (slot 1) or in the **Non-cooling** slot (slot 2–4) during the subsequent run.
5. Press **Labware** to display the list of supported eluate labware.
6. Select the applicable labware type and press **ASSIGN**.
7. Press **Enter/Scan Rack ID**.
8. Scan the eluate rack barcode using the handheld scanner. Alternatively, enter the eluate rack ID manually using the onscreen keyboard, and press **Enter**.
9. Load the eluate rack into slot 2 (left) of the “Eluate” drawer. See loaded slot example below (right).



10. Close the “Eluate” drawer.
11. Press **SCAN ELUATE RACK**.



Eluate rack set up for 2D barcode scan.

12. If the entered rack ID does not match the scanned ID, the field with the rack ID turns red and a relevant message is displayed, along with the “USE SCANNED ID” button. Press **USE SCANNED ID**.
13. If a rack file exists for the scanned eluate rack ID, stating that there are eluates on the eluate rack, open the “Eluate” drawer and use a different rack.

2D barcode reading results cannot overwrite the contents of an existing, non-empty eluate rack.

14. Review the scan results to ensure that all positions containing a tube were successfully read. If any reading errors occur, check the barcode of the affected position to ensure it is not damaged or obscured. Press **SCAN ELUATE RACK** to repeat the scan.

Note: The rack file generated by this workflow will only include eluate tube IDs for positions scanned without issues. If any eluate tube barcode reading issue occurs during the scan, the impacted positions are flagged as unavailable. On the “ELUATE” screen, unavailable positions are displayed as locked and cannot be assigned to any batch.

Note: If the eluate rack could not be read correctly by the eluate barcode reader, verify the rack, reload it, and scan again. It is recommended to use full racks for 2D barcode reading only.

15. When the eluate rack has been successfully scanned and no issues occurred, press **SAVE RACK FILE**.

From this point, the rack file with scanned eluate tube IDs will be available for selection on the “ELUATE” screen.

DASHBOARD

Rack file was saved. Please remove the rack and assign it in the Eluate screen.

MY ACCOUNT

MENU

2D barcode rack reader

LABWARE: TS#3734 *0.5ML 2D VBSTORAGE T

	1	2	3	4	5	6	7	8	9	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Define eluate rack

Cooling slot
Non-cooling slot

Labware
TS#3734 *0.5ml 2D VBSTorageT
REMOVE

Enter / scan Rack ID
FE00451051

SAVED

Successful save of rack file.

WARNING



Risk of incorrect results

Do not change tube positions on a scanned eluate rack. This can lead to incorrect results as sample IDs are linked to eluate tube IDs scanned in a specific rack position. After an eluate tube is moved to a different position on the rack, the sample ID remains linked to the original, scanned eluate tube ID. The sample extraction result is no longer aligned with the eluate tube ID written to the electronic records.

WARNING / CAUTION



Minimize barcode reading errors

Check the plate and the rack for correct insertion. Avoid direct sunlight as it may interfere with the reader. Check the glass plate and the barcodes for condensation, ice, dust or other damages.
If the glass plate is damaged, call QIAGEN Field Service specialists.

6.8. QIAGEN Recommended mode

QIAGEN Recommended identifies a run that has been defined and processed in accordance with the QIAGEN-recommended setup. This is achieved by batch definition while a process profile that meets QIAGEN Recommended criteria is active. If the required conditions are fulfilled, the run is marked as "QIAGEN Recommended" in the Report File. Some settings are not part of the QIAGEN Recommended criteria and can be adjusted without affecting QIAGEN Recommended mode.

6.8.1. Suitability of QIAGEN Recommended mode

QIAGEN Recommended mode is intended for laboratories that follow a standardized, repeatable process, and want batch setup to remain aligned with the QIAGEN-recommended procedure. It is particularly suitable for environments in which consistency across runs is essential and users are expected to remain within the defined process.

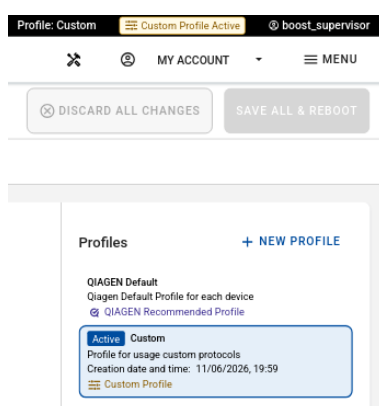
6.8.2. Reasons to use QIAGEN Recommended mode

- To keep batch setup aligned with the QIAGEN-recommended procedure
- To ensure the use of labware recommended for the selected protocol
- To support consistent and standardized setup decisions across runs that prevent user-driven deviations

6.8.3. Suitability of Custom mode

Custom mode is intended for laboratories that need flexibility to work outside the QIAGEN-recommended procedure. It is particularly suitable for environments in which alternative labware, less restrictive process settings, or laboratory-specific workflow choices must be used. In these cases, processing can still be performed, but the batch is not considered QIAGEN Recommended.

Note: When using this mode, users are responsible to validate their workflow.



Selected Custom profile.

6.8.4. Reasons to use Custom mode

- To have more flexibility in run setup than by fully following the QIAGEN-recommended combination of settings and labware;
- To follow and track instrument maintenance task execution in external, laboratory-specific tools; or
- To use custom biological processing protocols.

The use of a QIAGEN Recommended profile blocks certain user actions on the graphic user interface or the start of the run, for example when reagents are expired, as their use is not recommended by QIAGEN. Therefore, when a QIAGEN Recommended configuration profile is active, all protocol runs are marked as QIAGEN Recommended in the Report File, and the user cannot process samples other than in full accordance with QIAGEN recommendations.

Note: Switching between QIAGEN Recommended and Custom modes is only possible by changing the active process profile, which requires an instrument reboot.

For more information about process profiles, refer to the instructions provided in Section 6.5.1 General tab.

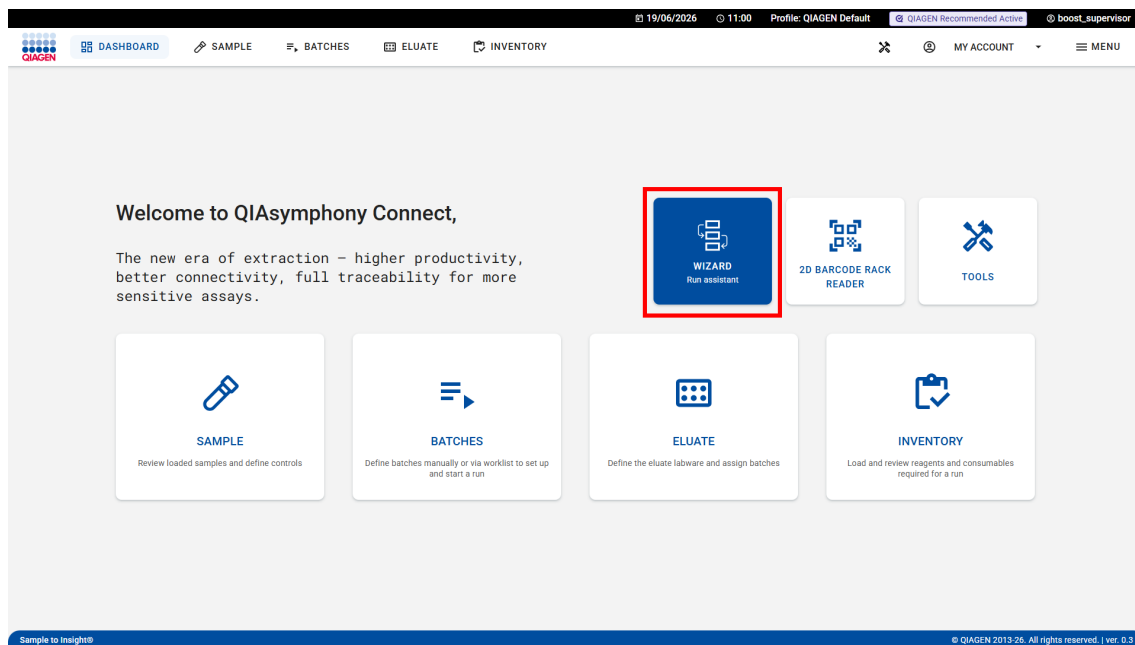
6.9. Setting up a protocol run

A protocol run is the processing session that begins when **RUN ALL** is pressed, during which one or more planned batches, each consisting of up to 24 selected samples or extraction controls, are processed from tube carriers to eluate racks using loaded reagents and consumables.

There are two ways to set up a run on the QIAsymphony Connect: Guided setup or Flexible setup.

Guided setup

The Guided setup uses the Wizard to guide the operator through all necessary steps to load samples, create batches, load reagents and consumable, and define elution settings. This setup method is recommended when step-by-step guidance is preferred to ensure all configuration steps are completed correctly.



Accessing Wizard Run assistant.

On the dashboard, press **WIZARD** to start a protocol run setup in guided mode. The instrument guides you through the following definition steps:

- Sample definition
- Batch definition
- Eluate definition
- Inventory preparation

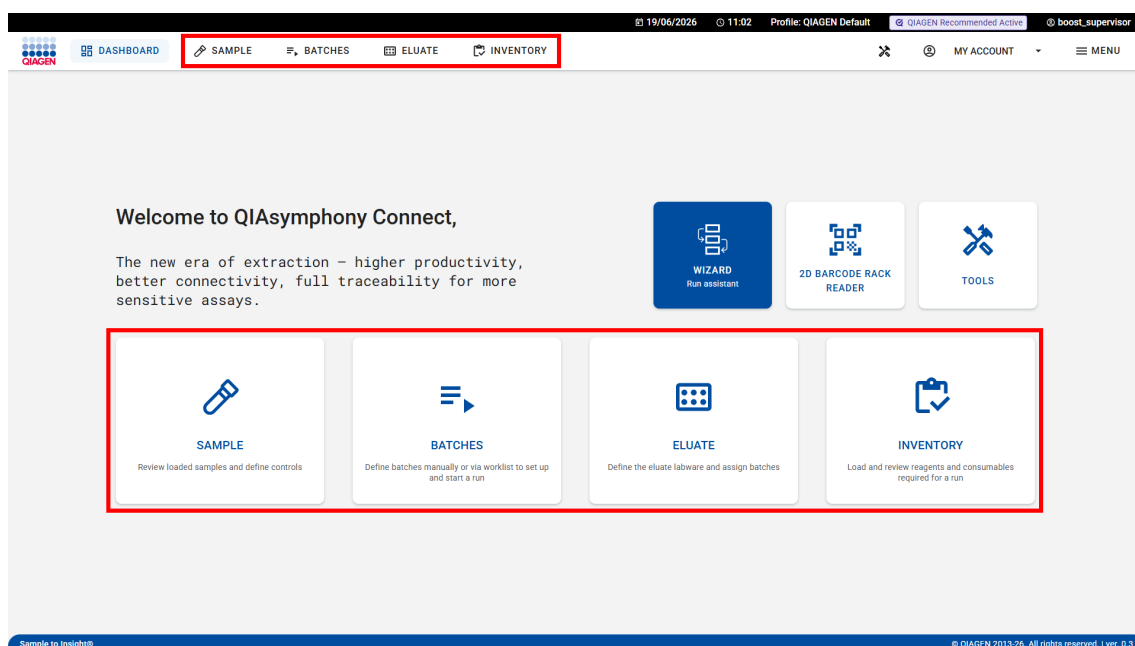
The steps are displayed at the top of the screen. The currently active step is visually highlighted.

The "NEXT >" button becomes active when all criteria required to proceed to the next step are fulfilled.

The "< BACK" button allows navigation to the previous screen.

Flexible setup

The Flexible setup allows the operator to perform the same setup as in the Wizard; however, each step is independent, and the steps can be executed in the order of your choosing. This setup method is recommended for users of the QIAsymphony Connect who intend to adapt the workflow to their individual working style.



Navigation to “SAMPLE”, “BATCHES”, “ELUATE”, and “INVENTORY” screens in the Flexible setup.

On the dashboard, press **SAMPLE**, **BATCHES**, **ELUATE**, or **INVENTORY** to start or adjust run setup in the flexible mode. Some natural limitations apply to run setup in flexible mode:

- Batches cannot be created if there are no samples or positive or negative extraction controls in the “Sample” drawer.
- Batches cannot be assigned to an eluate rack if there are no batches in the “READY TO ASSIGN” status.
- Missing inventory elements required for processing a protocol run cannot be listed if no batches are assigned to an eluate rack.

The definition of samples, batches, and eluates or inventory preparation is otherwise the same as in the Wizard, however, the steps are not connected.

For more information about the “BATCHES” screen, see Section 6.18 “BATCHES” screen and inventory reservation.

For more information about the “SAMPLE”, “ELUATE”, and “INVENTORY” screens, see the following sections that describe these screens in the Wizard:

- Section 6.10 Sample definition (Guided setup in Wizard – step 1)
- Section 6.11 Batch definition (Guided setup in Wizard – step 2)
- Section 6.12 Eluate definition (Guided setup in Wizard – step 3)
- Section 6.13 Inventory preparation (Guided setup in Wizard – step 4)

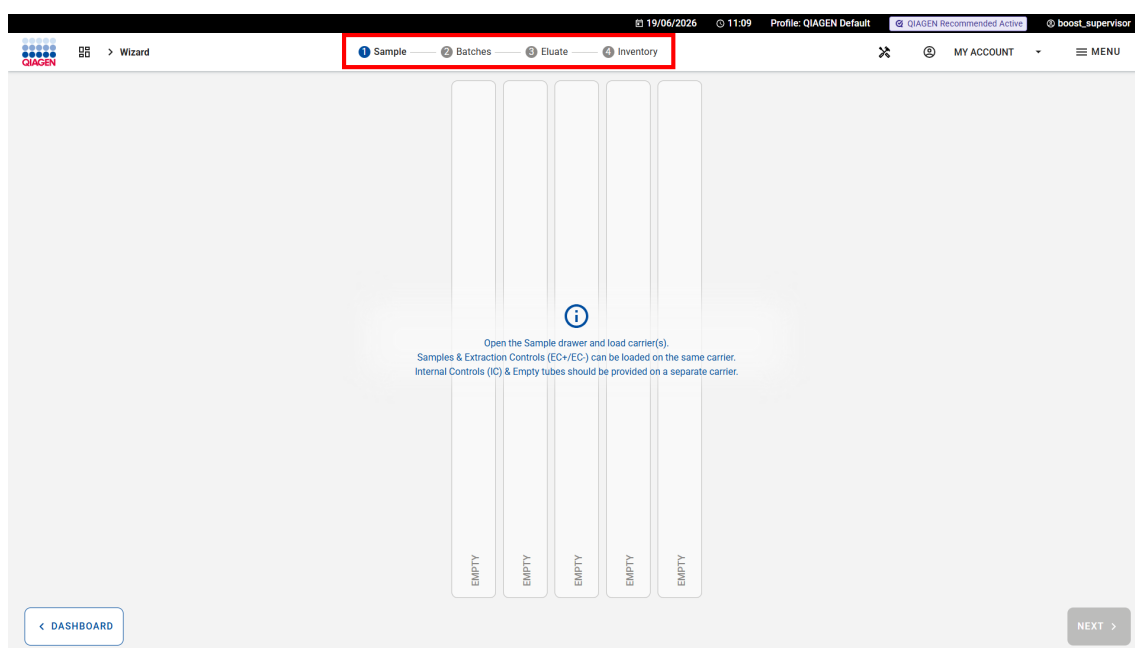
6.9.1. Guided protocol run setup using Wizard

Guided setup can be started from the dashboard by opening the Wizard.

The operator is guided through four setup steps:

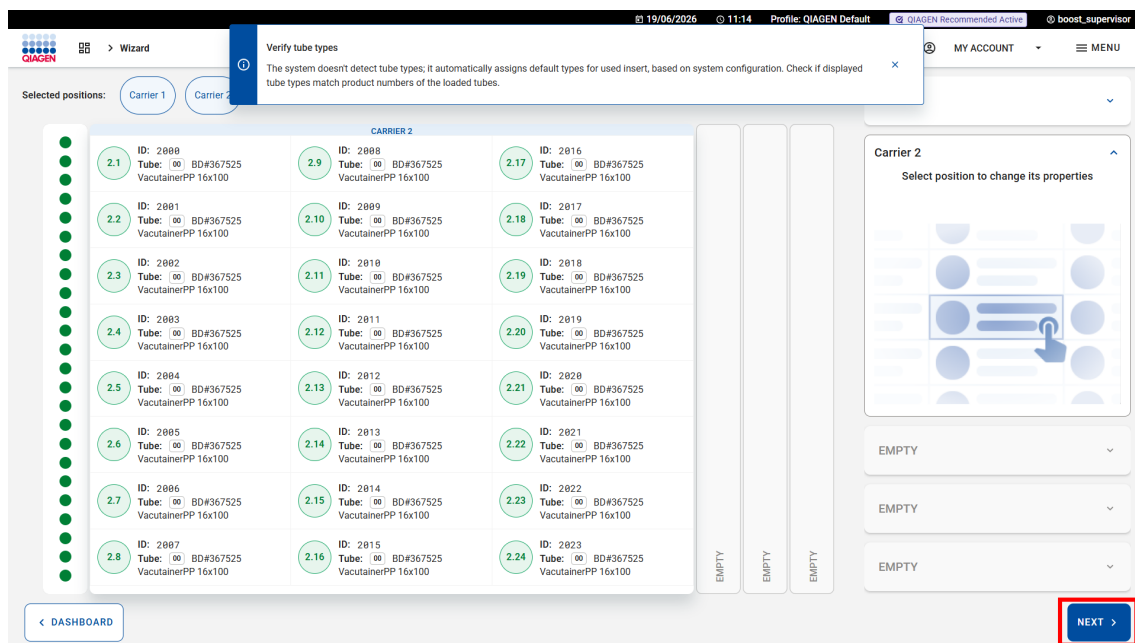
1. Sample loading (also loading of tubes with other content types)
2. Batch creation
3. Eluate definition
4. Inventory loading

The four workflow steps are displayed at the top of the screen. The currently active step is visually highlighted.



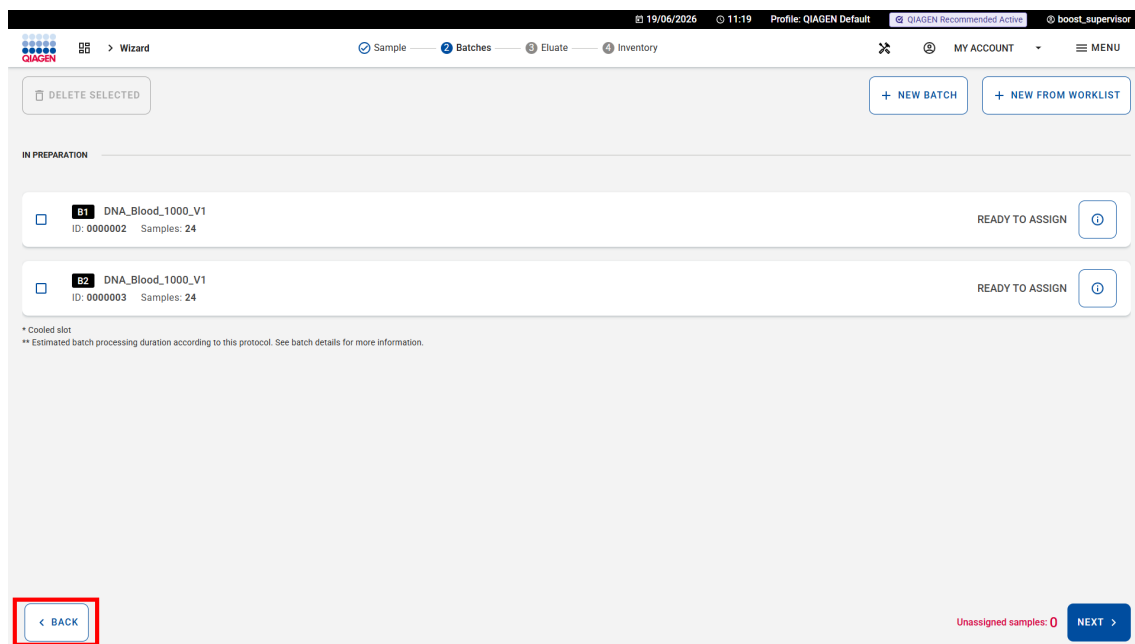
Four workflow steps in the Wizard.

The "NEXT >" button becomes active once the current step has been completed and will guide the operator to the next step.



"NEXT >" button in the Wizard.

The "< BACK" button allows navigation to the previous screen.



"< BACK" button in Wizard.

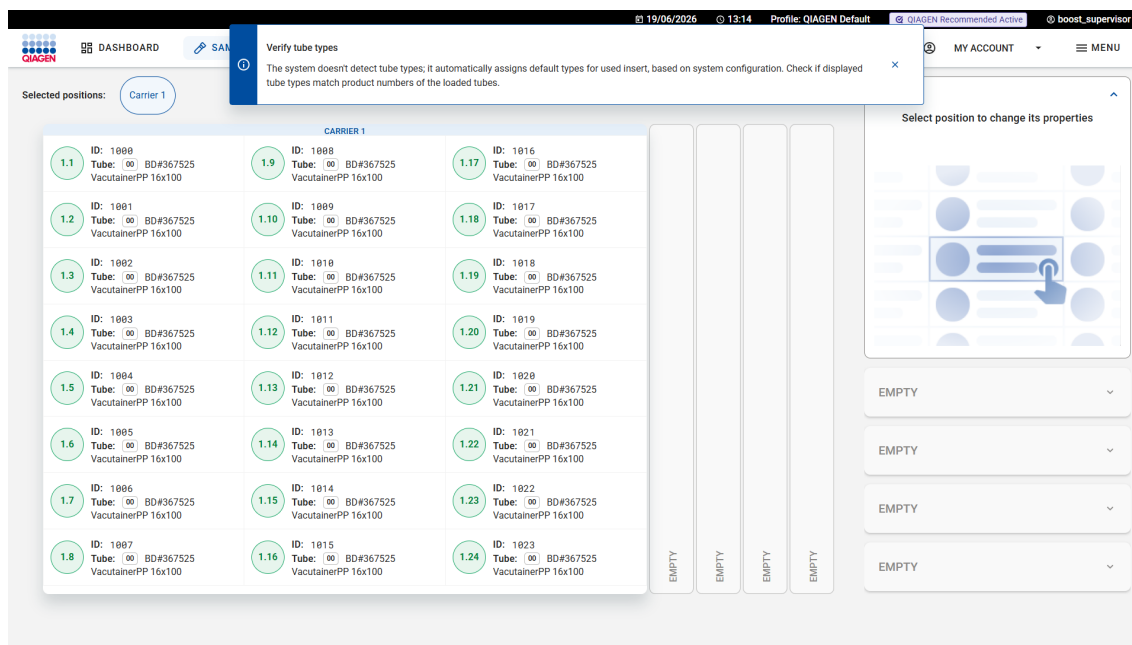
To exit the wizard, press **Dashboard**, which is located in the top navigation bar. All settings will be saved upon exit. However, restarting the wizard will begin again at step 1.

Each step is described in detail in the following Sections 6.8 Sample loading (Guided setup in Wizard – step 1) to 6.11 Inventory preparation (Guided setup in Wizard – step 4).

6.9.2. Flexible protocol run setup

In Flexible Setup, the individual steps (Sample Loading, Batch Creation, Eluate Definition, and Inventory Loading) can be accessed independently via dedicated buttons on the dashboard.

In this mode, there are no “< BACK” or “NEXT >” buttons. Instead, operators can freely navigate between the four steps using the top navigation bar, in any order that suits their specific workflow in the lab.



“SAMPLE” screen in the Flexible setup.

The screen content in Flexible Setup is identical to that of the wizard.

Each step is described in detail in the following subsections.

6.10. Sample definition (Guided setup in Wizard – step 1)

Important: The sample IDs provided to the QIAAsymphony may be used by QIAGEN during the investigation of customer reported errors. For data protection reasons, ensure that all sample IDs are de-identified (pseudonymized) by using alphanumerical codes that cannot reasonably be linked to any individual.

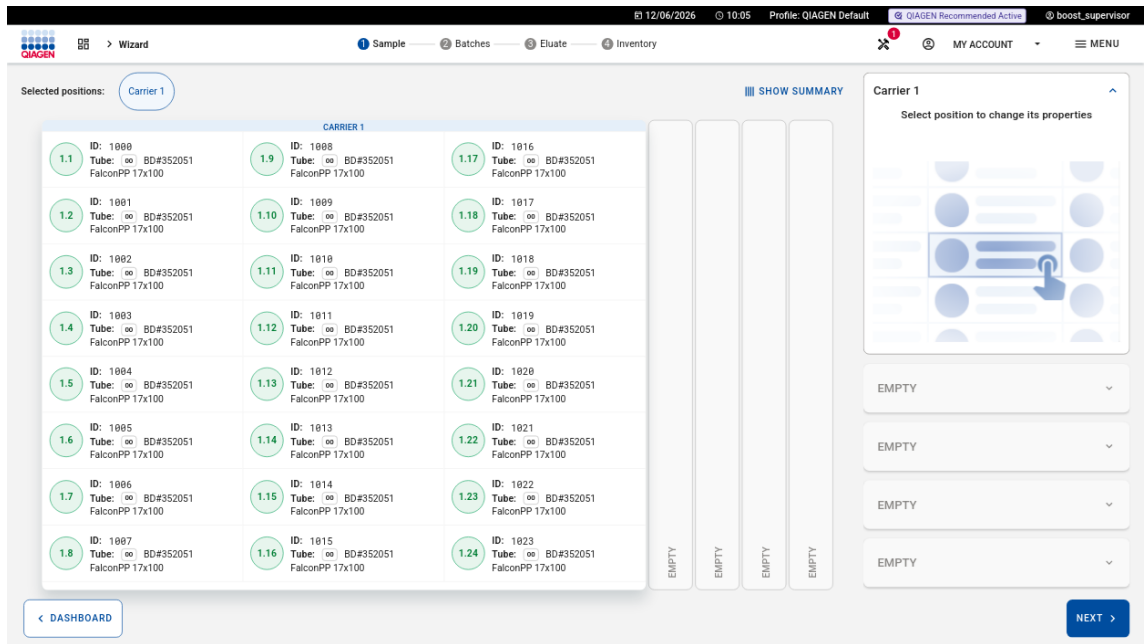
To define samples:

1. Load tube carriers with samples and negative or positive external controls if required into the “Sample” drawer. For more information, see Section 6.14.5 Loading a tube carrier. A detailed view of the inserted carrier opens.
2. Press the graphic of the tube carrier you are interested in on the “SAMPLE” screen, to open the detailed view. For more information, see the Section 6.14.5 Loading a tube carrier, and refer to “Detailed view of the “Sample” drawer”.
3. Visually inspect that the displayed tube labware detected by the instrument matches tubes seated in the tube carriers.
4. Check whether all tube barcodes have been detected. In case of reading errors, see Section 6.10.2 Fixing barcode reading errors.

- Change tube content type where required. For more information, see Section 6.10.3 Changing tube content from sample to extraction control and Section 6.10.4 Changing tube content from sample to internal control.
- Press **Next >**.

6.10.1. Overview of the “SAMPLE” screen

When you open the **WIZARD**, the “SAMPLE” screen opens in the DETAILED VIEW of the last inserted tube carrier.



“SAMPLE” screen in Wizard.

Summary view of the “Sample” drawer

All tubes inserted into the “Sample” drawer are by default assigned sample content unless the barcode on the tube is automatically recognized as an internal control or an empty tube. The inserted carriers are shown on the screen.

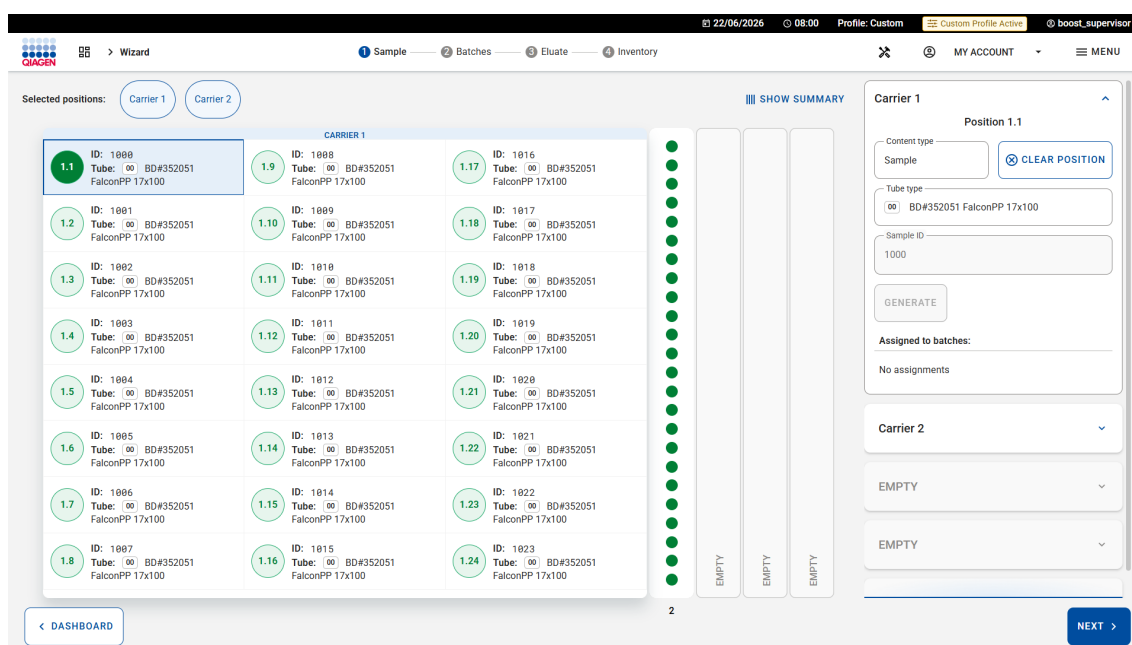
Icons displayed for positions on tube carriers depend on the content type, and the results from reading insert and tube barcodes.

Icon	Description
	Sample insert barcode and sample tube barcode were read correctly. Also displayed for positive and negative external controls when no barcode reading issues occur.
	A warning for the position. Sample insert barcode or sample tube barcode was read incorrectly. These issues can be fixed using the graphical user interface (GUI).
	An error for the position. Issues occurred that cannot be fixed using the graphical user interface (GUI), for example: - Both sample insert barcode and sample tube barcode were read incorrectly. - Tube insert ID missing in the barcode and sample tube barcode was read incorrectly. - No tube insert labware file matches the detected insert type barcode. - More than one sample or positive or negative extraction control has the same sample ID. Also displayed for internal controls if barcode reading issues occur.

Icon	Description
	Internal control: - Insert barcode and tube barcode were read correctly - Does not have internal control mix assigned yet.
	Internal control: - Insert barcode and tube barcode were read correctly - Has internal control mix assigned
	Internal control: - Insert barcode and tube barcode were read correctly - Has internal control mix assigned - Has been scanned by the inventory scan
	Empty tube for master mix preparation, automatically detected by the instrument based on the barcode.

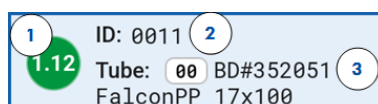
Detailed view of the “Sample” drawer

Press **SHOW DETAILS** or the graphic of the tube carrier you are interested in to open the detailed view of the “Sample” drawer.



Detailed view of “SAMPLE” screen.

In the detailed view, the following information about the tube is available:



Tube details. (1) Barcode reading status and content type. (2) ID or IC name. (3) Tube insert type and labware.

Number	Information	Text/icon	Description
1	Barcode reading status denoted by the circle fill color.		Green: sample insert barcode and sample tube barcode were read correctly.
			Orange (warning): sample insert barcode or sample tube barcode is missing or read incorrectly. These issues can be fixed using the graphical user Interface (GUI).
			Red (error): issues that cannot be fixed using the graphical user Interface (GUI), for example: - Both sample insert barcode and sample tube barcode were read incorrectly. - Tube insert ID missing in the barcode and sample tube barcode was read incorrectly. - No tube insert labware file matches the detected insert type barcode. - More than one sample or positive or negative extraction control has the same sample ID.
	Content type denoted by letters and numbers inside the circle.		Sample: shows tube carrier lane numbers and position of the tube on the carrier, for example 2.11: - The number before the period, 2 in this scenario, means that the sample is located on tube carrier loaded to the lane number 2 - The number after the period, 11 in this scenario, means that it is position 11 on the carrier
			Positive extraction control: shows EC+ abbreviation without indication of the position. The position in the "Sample" drawer can be determined from the graphic representation of the carrier on the screen.
			Negative extraction control: shows EC- abbreviation without indication of the position. The position in the "Sample" drawer can be determined from the graphic representation of the carrier on the screen.
			Intern control with unspecified internal control mix before inventory scan.
			Internal control with specified internal control mix before inventory scan or unconfirmed by the inventory scan.
			Internal control with specified internal control mix confirmed by the inventory scan.
			Empty tube for master mix preparation, automatically detected by the instrument based on the barcode.
	Sample ID or internal control name	ID/IC	When tube carrier has samples or positive or negative extraction controls, then sample ID is displayed in this place.
			When tube carrier has internal controls, the name of internal control assigned to the internal control mix is displayed in this place.
3	Tube insert type		An identification of the insert type that the tube is seated in or that no tube insert is used. For more information about tube inserts, see Section 4.3.1 "Sample" drawer.
	Tube labware	Example: BD#352051 FalconPP 17x100	Name of the tube labware in that position on the tube carrier. The instrument sets the default tube type according to default tube type configuration. For more information, see Section 6.5.4 Default tube types.

6.10.2. Fixing barcode reading errors

When there is a warning or an error at any position, you cannot proceed to the next workflow step in the Wizard.

Fixing barcode reading errors for occupied tube carrier positions

When there is an error at a position on a carrier loaded into the “Sample” drawer, remove the carrier and reinsert it. If the instrument continues to detect errors at the same positions, remove the carrier again and inspect the tube and insert barcodes to identify the issue.

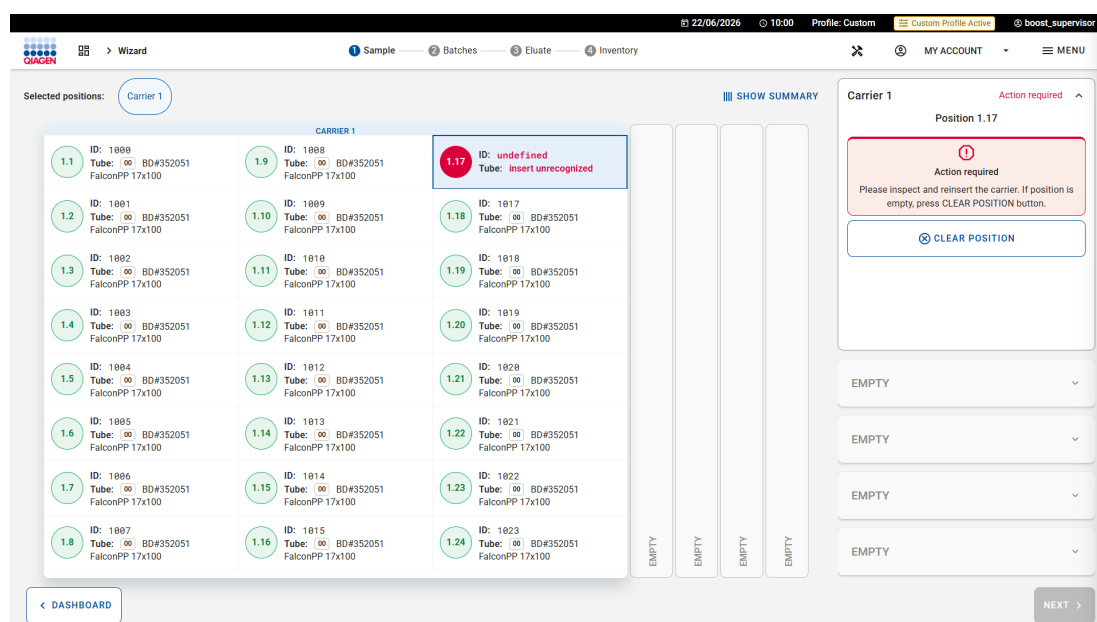
For more information, see Section 6.14.5 Loading a tube carrier.

Fixing barcode reading errors for unoccupied tube carrier positions

When there is an error at a position that is not occupied by any, even an empty tube, then you clear this barcode reading error by clearing the position.

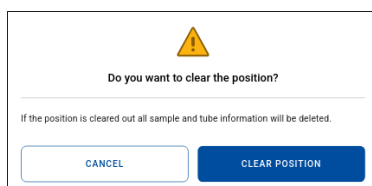
To clear a position that is not occupied on the tube carrier:

1. Press **SHOW DETAILS** to show the tube carrier’s detailed view.
2. Select unoccupied positions from one or more tube carriers.



Clearing misread tube carrier positions.

3. Confirm visually that the selected positions are correct and that the count of selected positions matches the number of positions to be cleared.
4. Press located on the right side of the screen.
5. A confirmation dialog will appear. Press **CLEAR POSITION**.



Fixing positions with tube: Undefined

A warning is displayed at a position when a tube barcode or tube insert barcode is missing or misread.

To fix a position with a missing or misread tube insert:

1. Press **SHOW DETAILS** to display the tube carrier's detailed view.
2. Press the tube carrier with the warning indicator.
3. Select all positions where tubes of one type are placed in the same insert type and tube is displayed as "undefined".
4. Press **Tube type** to the right, to expand the list of tube types.
5. Select the tube type that matches the tube.

Fixing positions with ID: Undefined

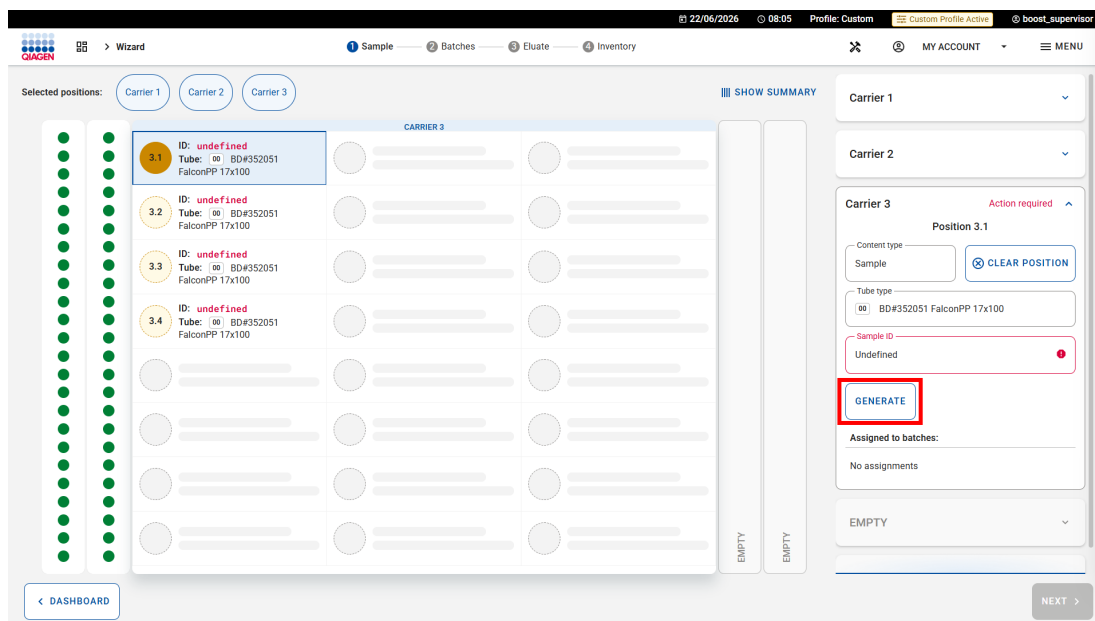
You can fix a position with a missing or misread tube barcode if the process configuration profile that you are using has the "Allow use of sample tubes without barcodes?" configuration parameter set to **YES**; if the parameter is set to **NO**, then the **GENERATE** (missing IDs) button is inactive. For more information, see Section 6.5.1 General tab.



To fix a position with a missing or misread tube barcode:

1. Press **SHOW DETAILS** to display the tube carrier's detailed view.
2. Press the tube carrier with the warning indicator.
3. Select a single position where ID is displayed as "undefined".
4. Press **Sample ID** on the right side of the screen to open the on-screen keyboard. Manually enter the ID or press **GENERATE** to have the system automatically generate an ID.

Note: Do not include personally identifiable information (PII), such as a name, surname, or government-issued personal identification number in sample IDs.



Generating IDs for tubes without barcodes.

- Alternatively, select all positions where ID is displayed as “undefined”.
- Press **GENERATE MISSING IDS** to have the system generate IDs automatically for all selected positions in one step.

6.10.3. Changing tube content from sample to extraction control

You can change the tube content on either the “SAMPLE” screen or on the “INVENTORY” screen.

To change content type of a loaded tube from sample to positive or negative extraction control:

Changing tube content type.

- Press **SHOW DETAILS** to display the tube carrier’s detailed view.
- Select positions of the same type from one or more tube carriers.

All selected positions will be updated to a single content type in one step. To assign both positive and negative extraction controls, complete the process for one type first, then repeat it for the other.

3. Confirm visually that the selected positions are correct and that the count of selected positions matches the number of positions to be changed to extraction controls.
4. Press **Content type** to the right to expand the list of available options.
5. Select **EC+** for positive extraction control, or **EC-** for negative extraction control; then press **ASSIGN**.

EC-	ID: 1022
Tube: 00	BD#352051
FalconPP 17x100	
EC+	ID: 1023
Tube: 00	BD#352051
FalconPP 17x100	

6.10.4. Changing tube content from sample to internal control

Internal controls cannot be placed in the same tube carrier as samples or extraction controls. The system only allows to change content type from sample to internal control when all positions on the tube carrier are selected. Internal controls can be placed on the same tube carrier as empty tubes.

You can change tube content on the "SAMPLE" screen or on the "INVENTORY" screen.

To change content type of a loaded tube from sample or extraction control to internal control:

1. Press **SHOW DETAILS** to display the tube carrier's detailed view.
2. Select all positions on a tube carrier.
3. Press **Content type** to the right to expand the list of available options.

Select content type

☐ Sample
☒ Internal Control
☐ EC+
☐ EC-

Content types allowed on individual carrier:

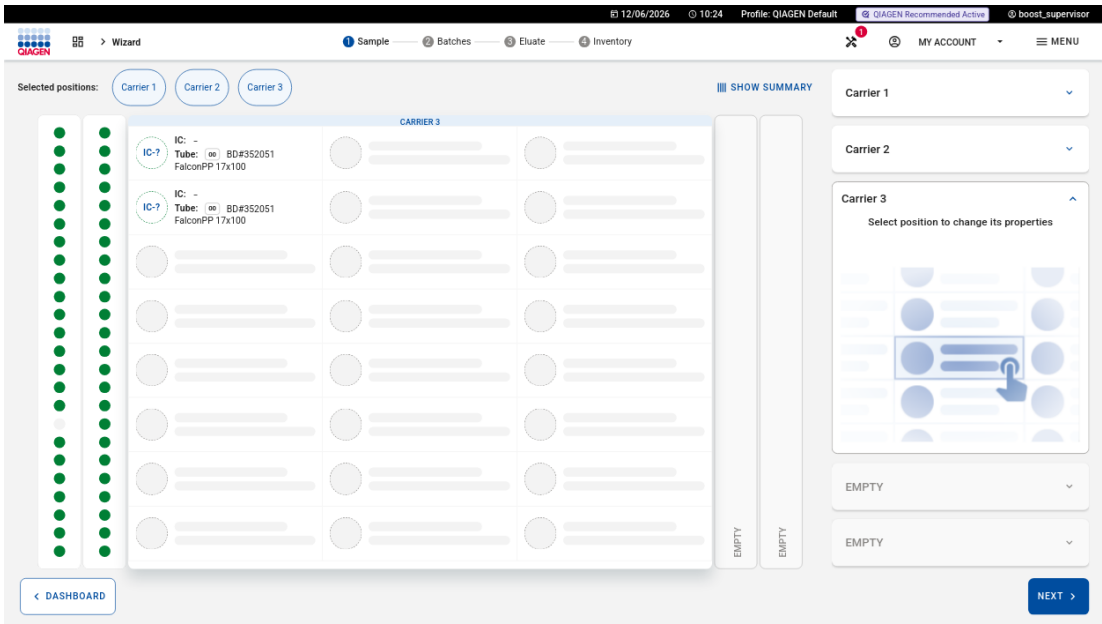
- Samples & Extraction Controls or
- Internal Controls & Empty tubes

Samples & EC can't be loaded on the same carrier as IC & Empty tubes.

Changing content type to Internal Control.

4. Select Internal Control, then **ASSIGN**.
5. A confirmation dialog will appear. Press **CHANGE**.

Tube type is now changed to internal control but internal control mixes are not assigned yet. You have to assign internal control mixes to internal control positions. For more information, see Section 6.10.5 Assigning internal control mix to internal control positions.



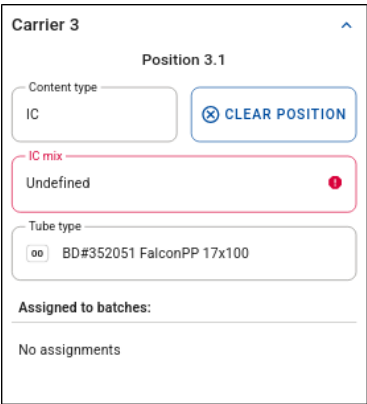
Tubes with undefined internal control mixes.

6.10.5. Assigning internal control mix to internal control positions

Internal controls can be assigned to tube carrier positions on the “SAMPLE” screen or on the “INVENTORY” screen. We recommend assigning internal control mixes on the “INVENTORY” screen when batches are already created. On the “SAMPLE” screen, you must select an internal control mix from the list of all internal control mixes available on the instrument. On the “INVENTORY” screen, the list of internal controls is filtered based on the protocols assigned to the batches.

To assign an internal control mix to internal control positions:

- 1. Change the tube content from sample to internal control. See Section 6.10.4 Changing tube content from sample to internal control.



Tube content set to Internal Control with Undefined Internal Control mix.

- 2. Select all internal control positions to which you want to assign the same internal control mix.

3. Press **IC mix** on the right to expand the list of available options.

Select Internal Control

Required

☒ Installation IC

☐ Installation IC V2

Other

CANCEL SELECT IC MIX

List of internal control mixes.

4. Select an internal control mix and press **SELECT IC MIX**.

CARRIER 3					
IC	IC: Installation IC Tube: ∞ BD#352051 FalconPP 17x100				
IC	IC: Installation IC V2 Tube: ∞ BD#352051 FalconPP 17x100				

Tubes with defined internal control mixes.

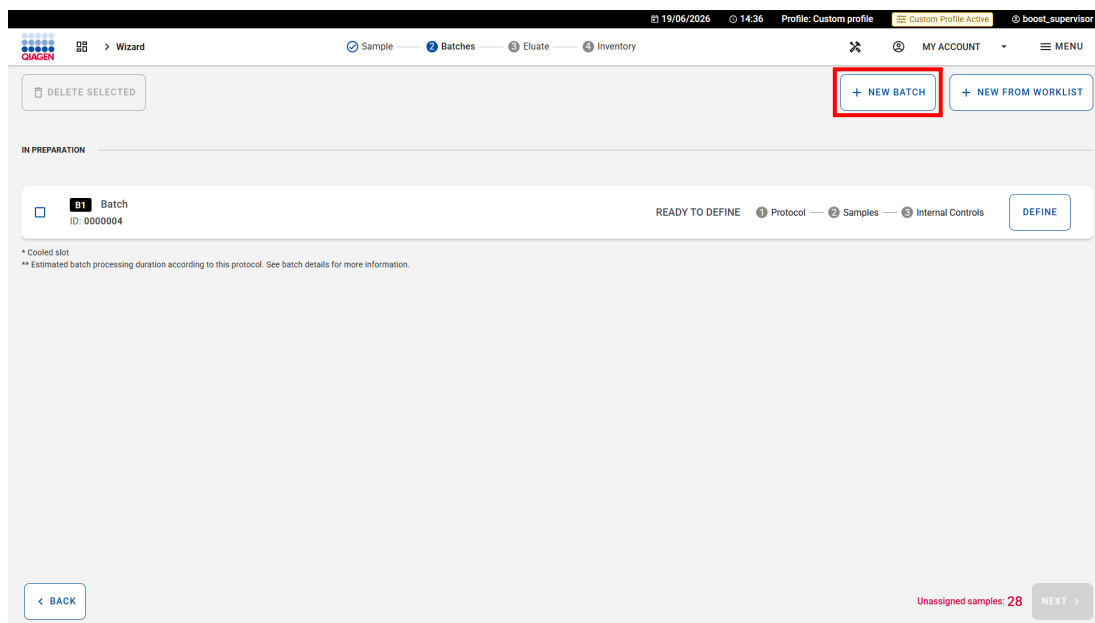
6.11. Batch definition (Guided setup in Wizard – step 2)

QIAsymphony Connect processes samples grouped into batches. A batch is a collection of up to 24 samples processed in one cycle.

All samples in a batch must use the same protocol, be processed to a single eluate rack, and have the same elution volume. If configuration parameter “Allow batches that consist of samples from different carriers” is set to “No” in the active process profile, a new batch can be created using only samples from one tube carrier.

6.11.1. Creating a new batch

1. On the "SAMPLE" screen in Wizard, press **NEXT >**.
2. On the "BATCHES" screen, press **+ NEW BATCH**. If the samples being set up use different protocols or have different elution volumes, create as many batches as needed to ensure that samples with the same characteristics are processed together.

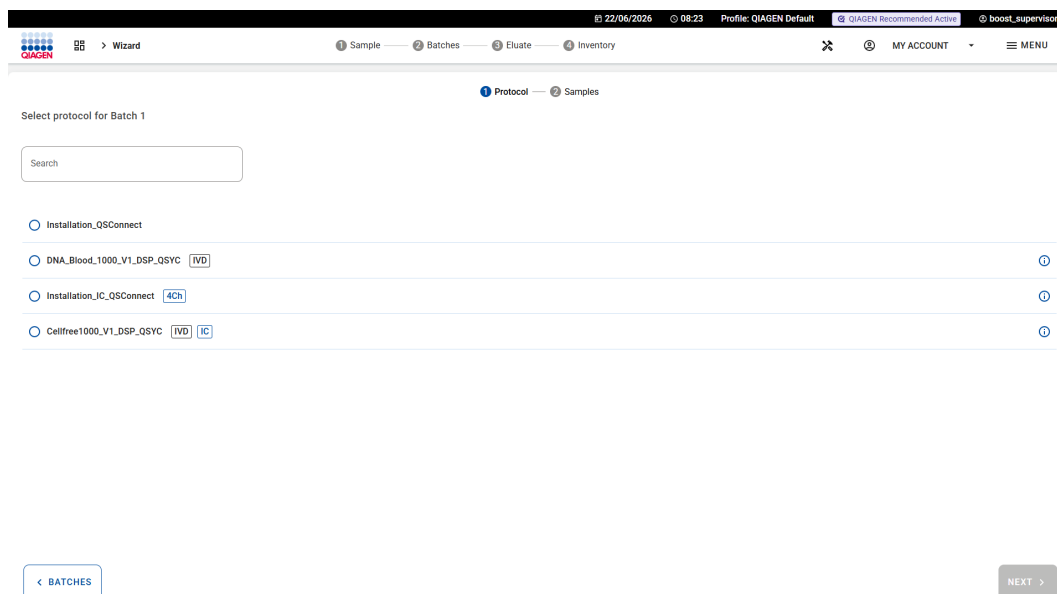


" + NEW BATCH " button.

3. On the newly created batch, press **DEFINE**.
4. Select a protocol from the list.

The following tags can be displayed next to protocols:

 - a. **IC**: this protocol uses internal controls.
 - b. **IVD**: this protocol is used by an In Vitro Diagnostic compliant kit.
 - c. **4Ch**: this protocol uses simultaneous pipetting with all four channels, which requires that samples are positioned on the tube carrier in blocks of four adjacent positions. Insert types and tube types must be the same in each four-sample block. Four-sample blocks can be adjacent to one another, separated by space or other samples. The last block in the batch may contain fewer than four adjacent samples. If these conditions are not met, the instrument will not allow to assign samples to the batch.

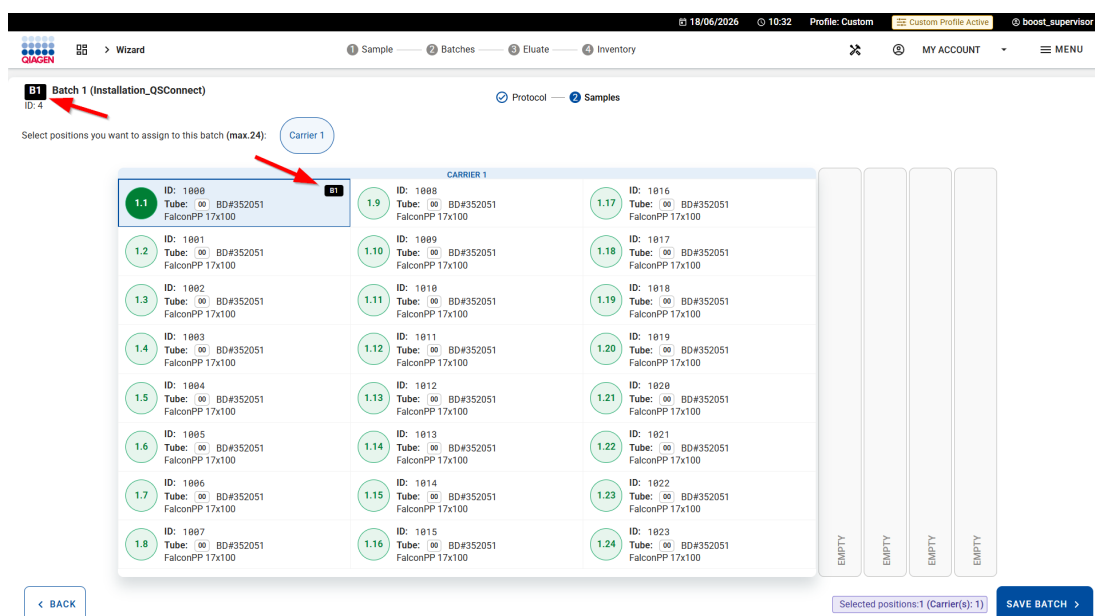


List of protocols.

To check the meaning of tags associated with a protocol, press the information  icon far at the right of the protocol name. The information icon is only displayed on the protocol if the protocol has associated tags.

Alternatively, use the **Search** field above the protocol list to find the protocol by name, then select it.

- Press **NEXT >**.
- Assign up to 24 samples to the batch. If you select more, the batch cannot be saved. In the top left corner you can see a black chip with a batch sequence number. When you select samples, the instrument marks selected samples with the same chip.



Batch chip marks samples assigned to batches.

You can:

- Select samples individually from a single tube carrier.
- Select samples individually from multiple tube carriers. Use the left and right arrows to navigate between the tube carriers. The option to select samples from multiple tube carriers depends on the configuration of the active process profile. If the process profile does not allow selection from different carriers, the instrument displays a notification.
- Select all samples from one carrier using buttons **CARRIER 1**, **CARRIER 2**, etc.

You cannot: Select tubes containing internal controls, empty tubes, or accessory reagents.

- If the protocol selected for the batch has the IC tag and only one Assay Control Set is associated with the protocol, then the QIAsymphony Connect automatically assigns the internal control specified by the Assay Control Set file for use in the run. Press **SAVE BATCH >**. Continue with step 11.
- If the protocol selected for the batch has the IC tag and more than one Assay Control Set is associated with the protocol, then there is an additional Internal Controls step on the batch definition stepper. Press **NEXT >**.
- A list of samples assigned to this batch during the previous step will appear. Select one or more samples, then choose an internal control on the right.

The screenshot shows the 'Internal Controls' step in the QIAsymphony Connect wizard. The top navigation bar includes 'Sample', 'Batches', 'Eluate', and 'Inventory'. The 'Internal Controls' step is selected. The main area displays a table of samples with columns for ID, IC, and a selection circle. The 'Internal Controls' section on the right lists 'Installation IC' and 'Installation IC V2', both with '0 samples assigned'. The 'SAVE BATCH >' button is at the bottom right.

Choosing internal controls for samples.

Internal controls displayed to the right only come from Assay Control Set files associated with the protocol selected for this batch. The specified internal controls will be used during the biological process for the selected samples based on the mapping done in this step. Also, selecting an internal control for a sample will affect your batch setup in the following way:

- On the "INVENTORY" screen, the instrument will display those internal controls as recommended.
- On the "ELUATE" screen, the eluate volume values available for selection or the default eluate volume for the batch will depend on the Assay Control Set file(s) from which the assigned internal controls originate.

- Press **SAVE BATCH >**.
- Repeat the steps above to create all the required batches.

Note: You can define batches with different protocols. However, the workdeck has space for only 2 reagent cartridges, 1 buffer bottle, and 2 Accessory Troughs in the “Reagents and Consumables” drawer. This limits the number of different protocols that can be executed in a single run. A run cannot be started if the workdeck does not contain sufficient reagents and consumables required for processing all batches assigned to the eluate racks.

12. Press **NEXT >**.

6.11.2. Creating a new batch using worklists

Worklists provide data for semi-automated batch definition by mapping samples to protocols and assay control sets. Worklists can be created using QIAAsymphony Connect Suite application. For more information, see Section 6.23 QIAAsymphony Connect Suite.

The status of worklist entry for each sample is tracked separately in the worklist. When processing of a batch with a sample begins, and the sample is transferred out of the sample tube, the worklist entry status for the sample changes from AVAILABLE to USED. Worklist entries with the USED status cannot be processed again. This means that a worklist entry can be used to process only one sample or extraction control with the matching sample ID.

A worklist becomes invalid once the specified validity period, set by the “Number of days for which worklist is valid” parameter, has elapsed since its creation. A worklist that expired or has no more worklist entries with the AVAILABLE status cannot be used any more.

To create a batch using a worklist in the WIZARD:

1. Create worklists for samples that you plan to process.
2. Transfer worklists to the instrument.

For more information, see Section 6.20.4 Transferring files between the QIAAsymphony Connect and a USB stick.

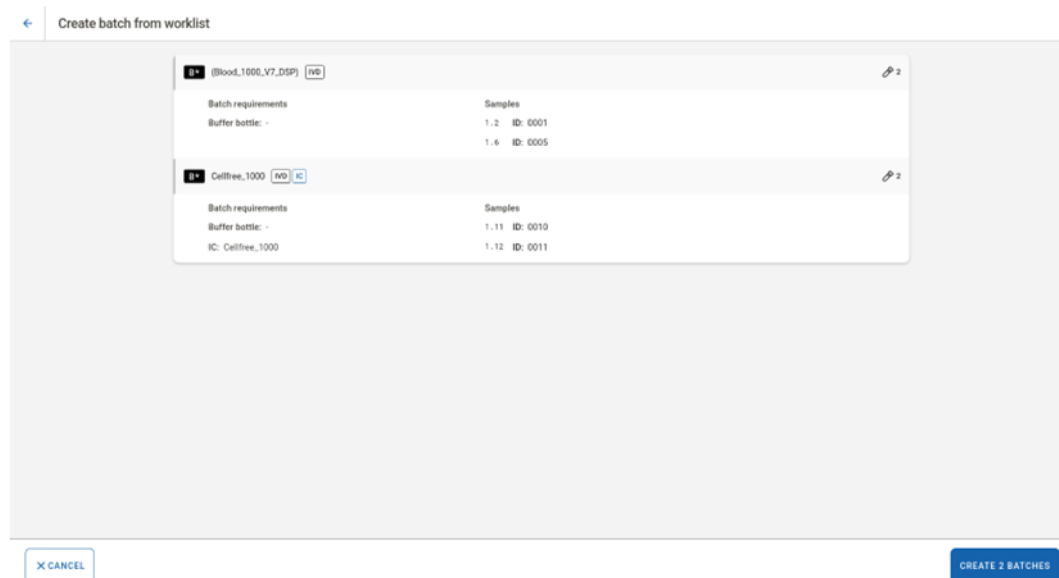
3. Define samples in the WIZARD and press **NEXT >** to move to the “BATCHES” screen in the WIZARD.
4. On the “BATCHES” screen, press **+ NEW FROM WORKLIST**.
5. Batch candidates will be displayed.

Batch candidates represent batches that you can create from samples and worklists loaded to the instrument.

Note that batch candidates:

- are displayed from worklists that passed worklist file structure validation and are not expired.
- are created only for samples loaded into the “Sample” drawer.
- can include some or all samples from a single worklist.
- can originate from different worklists, then samples from each worklist are grouped under separate batch candidates.
- can be processed in 1 protocol run along with manually created batches.
- do not include samples where barcode reading issues occurred for tube barcode or tube insert barcode.
- cannot be created if the worklists are incompatible with the configuration of the active process profile.

- cannot be created if a protocol in a worklist uses 4-channel pipetting and the samples from the worklist are not positioned in blocks of 4.
- if any worklists for loaded samples require the use of a buffer bottle, batch candidates are only shown for worklists that use the same reagent in the buffer bottle and provided that any batches with the PLANNED, READY TO ASSIGN, or PROCESSING status that already exist do not require a different buffer bottle.



Creating batches from worklist.

- When batch candidates are displayed without errors, press **CREATE [1, 2, 3, etc.] BATCHES**, to turn batch candidates into batches.

Batches created from worklists are marked with a Worklist label right next to the batch protocol name.



Batch created using a worklist.

6.12. Eluate definition (Guided setup in Wizard – step 3)

See Section 4.3 Internal features of the QIASymphony Connect for more information on the “Eluate” drawer.

To define eluate labware and assign batches:

- Prepare the elution labware.

If you are using QIAGEN Elution Microtubes CL racks, remove the bottom by gently twisting the rack until the bottom separates before loading into the respective cooling adapter. If applicable, remove the lid(s) of the eluate labware before loading.

The following cooling adapters from the QIAAsymphony SP/AS cannot be used on the QIAAsymphony Connect:

- Cooling adapter, EMT, v2, Qsym (cat. no. 9020730)
- Cooling Adapter, SBS Universal, V2, Qsym (cat. no 9243384)

2. If required, place elution racks into the appropriate adapter.
3. Open the “Eluate” drawer.

When opening the “Eluate” drawer, the “Labware”, and “Enter/scan Rack ID” fields become active for all slots.

Slot fields becoming active when the “Eluate” drawer is open.

4. Press **Labware** for the slot you are going to use. Slot 1 is open by default.

Eluate cooling is only possible on slot 1 and requires a cooling adapter.

If you are using the Elution Microtube Rack (EMTR) adapter, you can skip this step as the system will automatically choose QIA#19588 * EMTR Labware when you scan or enter the rack ID associated with it (ID starting with 1013740 or 1013741).

Select labware for Slot 1

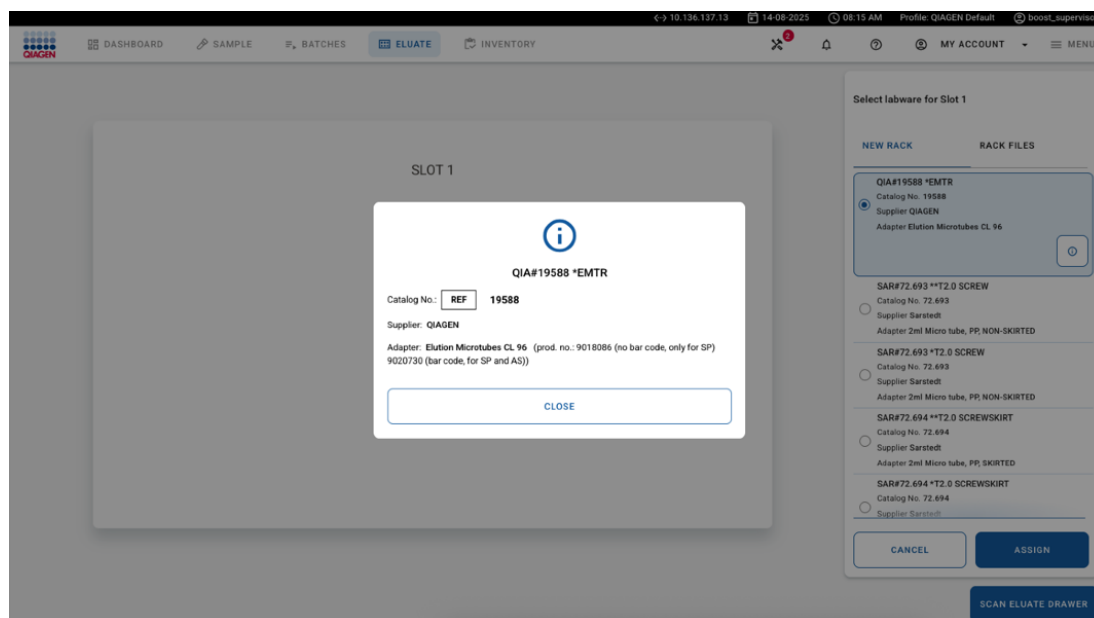
NEW RACK	RACK FILES
☐ QIA#19588 *EMTR Catalog No. 19588 Supplier: QIAGEN Adapter: Elution Microtubes CL 96	
☐ SAR#72.693 **T2.0 SCREW Catalog No. 72.693 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, NON-SKIRTED	
☐ SAR#72.693 **T2.0 SCREW Catalog No. 72.693 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, NON-SKIRTED	
☐ SAR#72.694 **T2.0 SCREWSKIRT Catalog No. 72.694 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, SKIRTED	
☐ SAR#72.694 **T2.0 SCREWSKIRT Catalog No. 72.694 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, SKIRTED	
☐ AB#0600 *PCR96	

CANCEL ASSIGN

Selecting labware.

- If this eluate rack has not been used before, select labware under **NEW RACK**, then press **ASSIGN**.

You can press the  icon to display more information about the labware.



SLOT 1



QIA#19588 *EMTR

Catalog No.: REF 19588

Supplier: QIAGEN

Adapter: Elution Microtubes CL 96 (prod. no.: 9018086 (no bar code, only for SP) 9020730 (bar code, for SP and AS))

CLOSE

Select labware for Slot 1

NEW RACK	RACK FILES
☒ QIA#19588 *EMTR Catalog No. 19588 Supplier: QIAGEN Adapter: Elution Microtubes CL 96	
☐ SAR#72.693 **T2.0 SCREW Catalog No. 72.693 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, NON-SKIRTED	
☐ SAR#72.693 **T2.0 SCREW Catalog No. 72.693 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, NON-SKIRTED	
☐ SAR#72.694 **T2.0 SCREWSKIRT Catalog No. 72.694 Supplier: Sarstedt Adapter: 2ml Micro tube, PP, SKIRTED	
☐ SAR#72.694 **T2.0 SCREWSKIRT Catalog No. 72.694 Supplier: Sarstedt	

CANCEL ASSIGN

SCAN ELUATE DRAWER

Labware information popup screen example.

- Press **Enter/Scan Rack ID**.

If the elution rack is barcode labeled, scan the barcode using the handheld scanner. Alternatively, enter the elution rack ID manually using the on-screen keyboard. If the rack has been used before and there is a rack file for the scanned or entered rack ID, the system will ask if you want to use it. Press **USE THIS LABWARE**.



This rack ID (1013740) already exists in rack files. Do you want to use it?

General information

QIA#19588 *EMTR (96 wells available)

ID: 1013740

Catalog No. 19588

Last used: 20260617 10:56:45

Supplier: QIAGEN

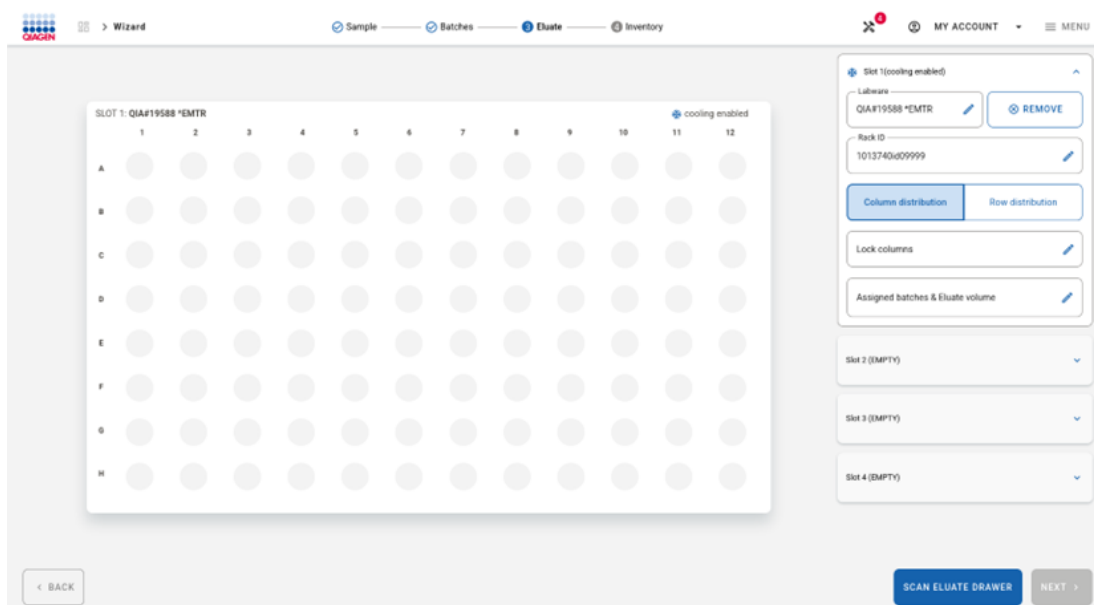
Adapter: Cooling Adapter, EMT, QSYC (prod. no.: 9027730)

CANCEL
USE THIS LABWARE

System prompt to use an existing rack file for a recognized eluate rack.

7. If you know that the eluate rack has been used before and that a rack file exists on the instrument, you can select a rack file from the list instead of entering the rack ID manually or scanning it with the handheld scanner. Press **RACK FILES**, and choose the rack file matching the rack ID, then press **ASSIGN**.

A visual representation of the rack file will appear.



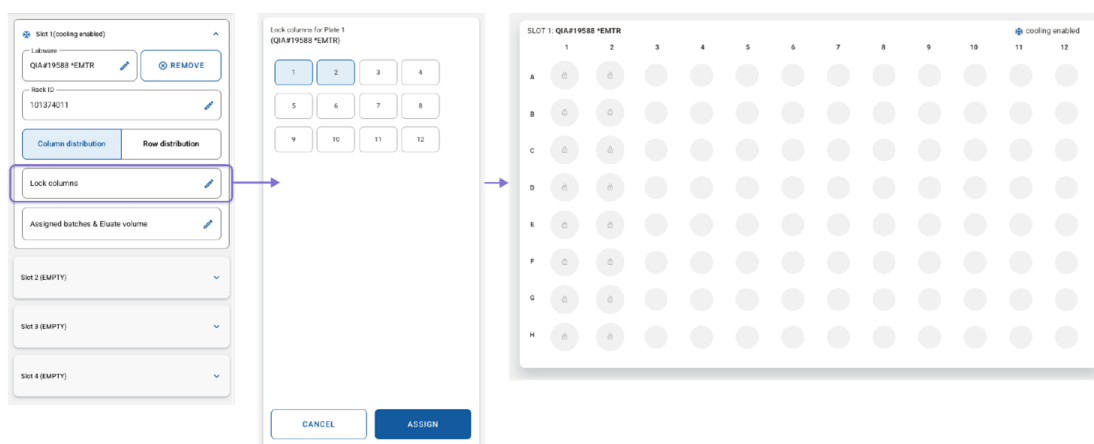
The screenshot shows the 'Eluate' configuration screen in the QIAGEN software. On the left, a 12x8 grid represents the eluate rack, labeled 'SLOT 1: QIA#19588 *EMTR'. The grid has columns numbered 1-12 and rows labeled A-H. A 'cooling enabled' icon is in the top right corner of the grid. On the right, there are configuration options for 'Slot 1 (cooling enabled)'. These include a 'Labware' dropdown set to 'QIA#19588 *EMTR', a 'Rack ID' field with '1013740d09999', and buttons for 'Column distribution' and 'Row distribution'. Below these are fields for 'Lock columns' and 'Assigned batches & Eluate volume'. At the bottom right, there are dropdowns for 'Slot 2 (EMPTY)', 'Slot 3 (EMPTY)', and 'Slot 4 (EMPTY)'. At the bottom left is a '< BACK' button, and at the bottom right are 'SCAN ELUATE DRAWER' and 'NEXT >' buttons.

Visual representation of a rack file.

8. Place the elution rack with well A1 in the upper left corner of the adapter. Make sure to position eluate labware into slots and adapter correctly until it clicks in.
9. If there is no rack file for this rack, choose whether to distribute eluates on the rack in columns or rows.

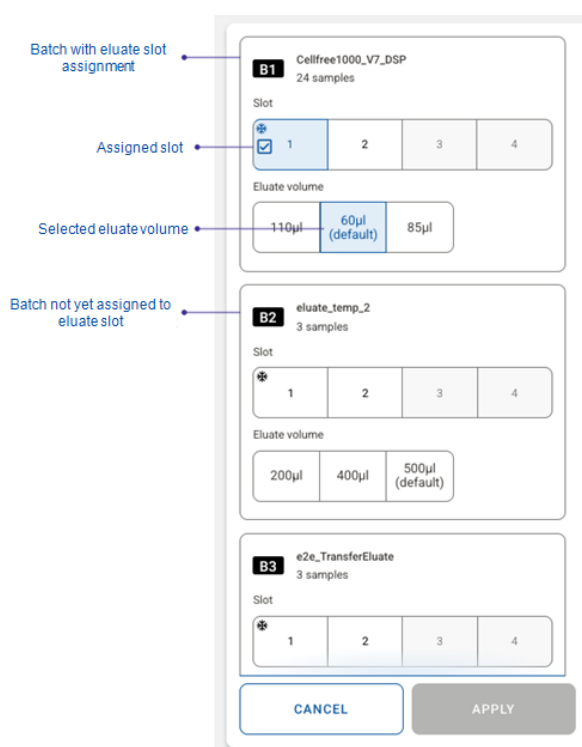
We recommend using column distribution because in some cases it allows processing more batches to a single eluate rack (whenever a batch is defined to occupy a position on the eluate rack, the system will reserve the entire column or row for that batch depending on the selected distribution).

10. **Optional:** Depending on the distribution selected in the previous step, lock columns or rows on the eluate rack if you do not want the instrument to transfer eluates to those positions.



Eluate rack screen for locking columns and/or rows.

11. If you need to load more elution racks in the "Eluate" drawer on the other slots, repeat the steps above.
12. Close the "Eluate" drawer.
13. Press **Assign batches & Eluate volume**. For each batch on the list denoted by the batch sequence number (e.g., **B1**), select the eluate slot to assign the batch to.



Assigning batches and eluate volume.

The system will show destination positions on the eluate rack that will be taken by the batch.

If the eluate labware is not recommended for use with the protocol defined in the batch, and the "Allow not recommended labware during run definition?" setting in the active process configuration profile is set to Block, the instrument does not allow the batch to be assigned to the eluate rack.

If the protocol requires cooling, and you try to assign the batch to a non-cooled slot, the instrument will ask whether to assign to a non-cooled slot.

If there are already eluates in an elution rack from a previous run loaded in the “Eluate” drawer, ensure that the cooling temperatures are suitable for these eluates on the same elution rack.

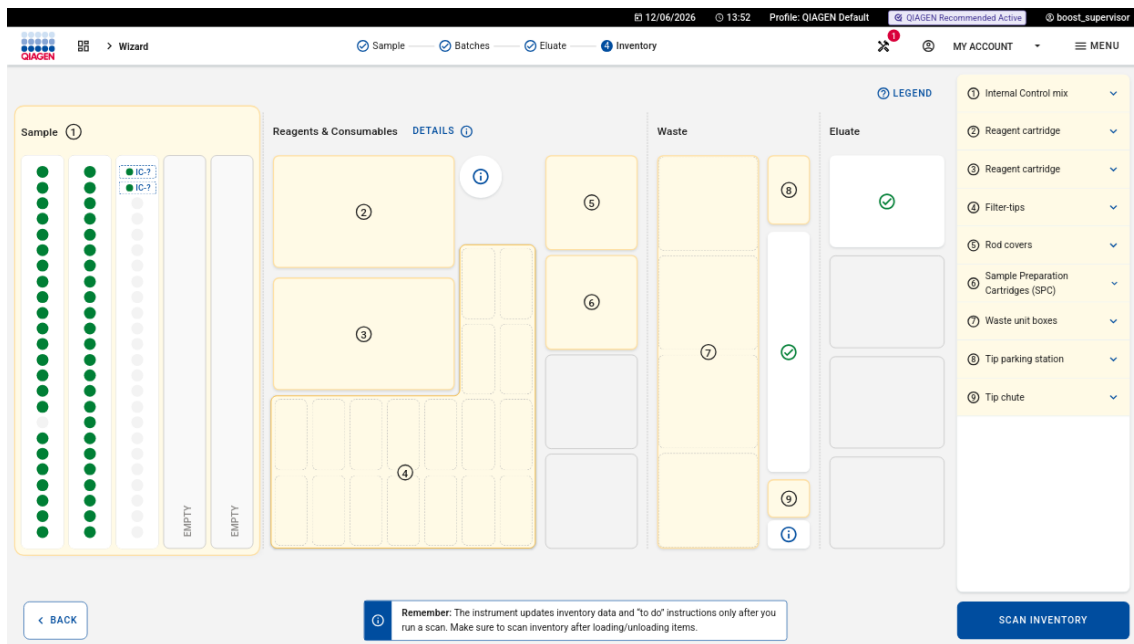
Note: If you are using an eluate rack that already contains eluates, and those eluates were not generated by batches processed after the rack was loaded into the instrument, the system cannot determine whether cooling is required. In such cases, the instrument does not activate cooling for that rack. As a result, the eluates may be stored on the rack at an unsuitable temperature and risk being damaged.

14. When you have defined all loaded eluate racks. Press **SCAN ELUATE DRAWER**.
15. When the scan is complete, press **NEXT >**.

A fully defined Eluate screen.

6.13. Inventory preparation (Guided setup in Wizard – step 4)

If you progressed to the “INVENTORY” screen through the Wizard or defined batches and assigned them to eluate racks so that they have the “PLANNED” status, the instrument has already determined reagents and consumables that are required for the protocol run. The list of missing elements is displayed to the right. You can find a visual representation of the workdeck to the left. Numbers on the workdeck correspond to the numbered list to the right and show you where the listed reagents and consumables should be placed.



"INVENTORY" screen.

1. Expand each item on the list to the right to see which consumables and reagents are required, and in what quantities, for processing the defined batches.

3 Filter-tips

Missing filter-tips

Reservation 1500µl [tips]

Reserved: 0
Loaded: (scan required)
Missing: 35

Reservation 200µl [tips]

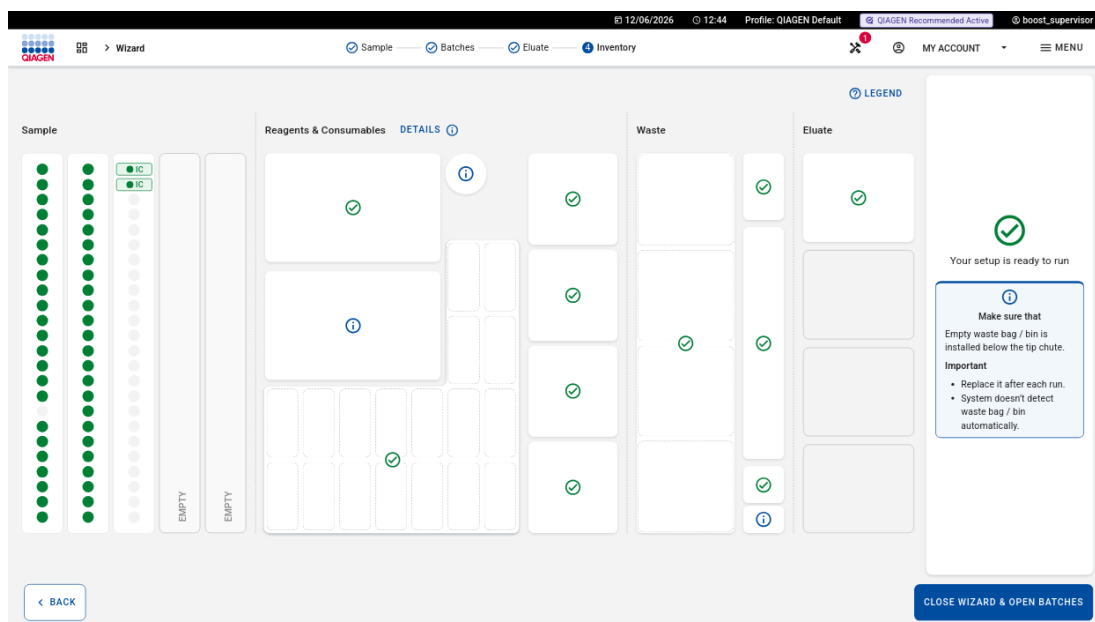
Reserved: 0
Loaded: (scan required)
Missing: 0

Make sure that
Additional tips are loaded to
perform liquid level detection
of loaded reagents.
Note: Do not refill partially
used tip racks

MORE INFO

Expanded item in "INVENTORY" screen.

2. If Internal Control mix item appears on the missing elements list, load and configure internal controls in the “Sample” drawer. See Section 6.14.2 Loading internal controls for instructions.
3. Load the “Reagents and Consumables” drawer. See the Section 6.15 Loading the “Reagents and Consumables” drawer for instructions.
4. Press **SCAN INVENTORY**.



“INVENTORY” set up for a run.

6.14. Loading the “Sample” drawer

The “Sample” drawer can be loaded with tube carriers that can contain:

- Samples
- Positive and negative extraction controls
- Internal controls
- Empty tubes
- Accessory reagent

6.14.1. Loading samples

Prepare samples in tubes and place them in the tube carrier. QIAAsymphony Connect tube carrier can accommodate up to 24 samples. You can place tube carriers in any “Sample” drawer slot, but we recommend that you start from the left.

If none of the protocols that you plan to use require internal controls, empty tubes or accessory reagents, you can occupy all five “Sample” drawer slots with samples. Otherwise, leave one slot free for a separate tube carrier with internal controls, empty tubes or accessory reagents.

For step-by-step instructions about how to load samples, see Section 6.14.5 Loading a tube carrier.

External positive and negative control

Tubes with external positive and negative controls can be placed on the same tube carrier as samples.

6.14.2. Loading internal controls

If a protocol requires the use of an internal control, they must be loaded into the “Sample” drawer using a tube carrier. Internal controls cannot be placed on the same tube carrier as samples or external controls. However, they may be placed on the same tube carrier as empty tubes or accessory reagents.

The tube carrier with internal controls can be placed in any free “Sample” drawer slot and inserted at any time when the slot is unlocked.

For step-by-step instructions about how to load internal controls, see Section 6.14.5 Loading a tube carrier.

6.14.3. Loading accessory reagents required by protocol into the “Sample” drawer

If a protocol requires the use of an accessory reagent located in the “Sample” drawer, tubes with the accessory reagent must be loaded into the “Sample” drawer using a tube carrier. Accessory reagents cannot be placed on the same tube carrier as samples or external controls. However, they can be placed on the same tube carrier as internal controls or empty tubes.

The tube carrier with an accessory reagent can be placed in any free “Sample” drawer slot and inserted at any time when the slot is unlocked.

For step-by-step instructions about how to load the accessory reagent, see Section 6.14.5 Loading a tube carrier.

6.14.4. Loading empty tubes required by protocol

If a protocol requires the use of an empty tube in the “Sample” drawer, empty tubes must be loaded using a tube carrier. Empty tubes cannot be placed on the same tube carrier as samples or external controls. However, they may be placed on the same tube carrier as internal controls or accessory reagents.

The tube carrier with empty tubes can be placed in any free “Sample” drawer slot and inserted at any time when the slot is unlocked.

Note: QIASymphony Connect automatically detects empty tubes if they are barcoded with the specific empty tube barcode. It is not possible to manually change the content type of other tubes to empty tube.

Note: If an empty tube is loaded on a carrier with samples, the instrument will automatically change the content type of all other tubes to internal controls.

For step-by-step instructions about how to load empty tubes, see Section 6.14.5 Loading a tube carrier.

6.14.5. Loading a tube carrier



Locations of barcode reader.

To insert a tube carrier:

1. Place tubes in the tube carrier using the appropriate tube insert . Make sure that:
 - a. Lids of all tubes must be removed before loading the tube carrier onto the instrument.
 - b. Tube barcodes are oriented to be visible in the window of each carrier position. Depending on the Configuration Profile, the system may not allow use of samples with unreadable barcodes.
Note: Do not include personally identifiable information (PII), such as a name, surname, or government-issued personal identification number in tube barcodes attached to the tubes.
 - c. Tubes are pushed to the bottom of the tube carrier or inserts, if inserts are used.
Note: If you are using sample tubes that fit loosely into the recommended insert, ensure that the tube carrier is handled gently to avoid tube rotation that could result in barcode reading errors. Tube rotation can be minimized by using larger labels which wrap around the tube to increase its diameter. If using 1D barcodes then ensure that the width of the barcode is greater than the window of the carrier position to allow a greater chance of the barcode being read in the case of tube rotation.
- d. Internal controls, empty tubes, or accessory reagents are not placed on the same tube carrier as samples or external controls.
- e. If using sample tubes without barcodes, tubes with small volumes of liquid or clear liquids may not be detected. In this case, use a blank barcode label to enable detection of the sample tube.
2. Open the “Sample” drawer by pulling the flap toward you. Five slots are available for loading tube carriers. Leave one slot empty if the QIAasympyony kit requires an internal control, empty tube or accessory reagent.

The status of each slot is shown by LEDs located behind the stop line. The LEDs may be illuminated in green, orange, or red.

- **Green:** slot is free and ready for loading.
- **Orange:** tube carrier is loaded.
- **Red:** slot is currently locked. A flashing red light indicates an error.



Sliding a tube carrier into the appropriate slot.

3. Use both hands to hold the tube carrier: one on the handle, the other supporting the carrier from the bottom. Gently place the tube carrier in any free slot and insert it up to the stop line. The camera will move forward towards the tube carrier and the LED light panel will illuminate.
4. As soon as the barcode camera is in position, the slot unlocks and the green LED starts flashing. Slide the carrier into the slot until it locks at the back of the instrument. To ensure error-free barcode reading, slide tube carrier into the "Sample" drawer with a smooth motion that should take between 2 and 10 seconds.

Important: Do not lift or twist the carrier during insertion. This may cause carrier insertion errors.

5. The barcode camera reads barcodes on the carrier, inserts, and corresponding tubes (if barcoded). Upon successful loading, the LED changes from green to orange.
6. The barcode camera returns to the home position.
7. To add more sample tubes in different slots, repeat the procedure described in this section. Otherwise close the "Sample" drawer.

6.14.6. Unloading a tube carrier

If the tube carrier slot is not locked (LED is not illuminated red), you can remove the tube carrier from the slot. During a run, the carrier with samples can be removed as soon as the samples have been transferred. When a batch consists of samples from more than one tube carrier, the instrument will unlock all carriers containing samples from the batch once the sample transfer is complete.

If the carrier is removed before the sample transfer—for example, for batches with the PLANNED status—any batches with samples assigned from the removed carrier will be updated or removed completely from the system depending on how the

samples were assigned to batches. This can change the position of other batches assigned to the same eluate rack that are planned for execution, by shifting them left or higher in the eluate rack.

If you unload a tube carrier with internal controls, empty tubes, or accessory reagents during a protocol run, and these are still needed by any PLANNED batch, the batches that do not require the tubes will continue processing without impact. However, the first batch that requires the removed tubes will have its batch reservation status changed to FAILED and will remain with the PLANNED status. The protocol run will end. You can process the affected PLANNED batches by starting a new protocol run after resolving the failed reservation. See Section 6.18.6 Resolving inventory issues that lead to FAILED batch reservation status.

To unload a carrier that is not locked:

1. Open the "Sample" drawer by pulling the flap toward you.
2. Pull the carrier by the handle. When the carrier is almost all the way out of the "Sample" drawer support the bottom of the carrier with your other hand.

It is not possible to unload a tube carrier while it is locked in the slot. Wait until the instrument unlocks the carrier before attempting to remove it.

Note: At the start of a run, the instrument locks the tube carrier containing samples assigned to the first batch that will be processed.

6.15. Loading the "Reagents and Consumables" drawer

The "Reagents and Consumables" drawer accommodates consumables and reagents required for the protocol run.

Before starting a protocol run, the drawer must be loaded with the appropriate reagents in prefilled, sealed reagent cartridges, sample prep cartridges, 8-Rod Covers, and disposable filter-tips. In some cases, an Accessory Trough and buffer bottle may be required.

During a protocol run and some inventory scans the "Reagents and Consumables" drawer is locked and cannot be opened.

Depending on the kit and protocol being used, different types or amounts of consumables may be required. For more information, refer to the handbook of the QIAAsymphony kit you are using or the information provided by the graphical user interface during the setup of a protocol run.



Reagents and consumables drawer.

6.15.1. Loading of 8-Rod Covers and Sample Prep Cartridges

Sample Prep Cartridges (see Section 4.4.2) and 8-Rod Covers (see Section 4.4.3) required for sample purification are placed into the “Reagents and Consumables” drawer of the QIAAsymphony Connect worktable in Unit boxes (see Section 4.4.1).

Each unit box slot in the “Reagents and Consumables” drawer can be used either for a unit box filled with sample prep cartridges or a unit box filled with 8-Rod Covers. Partially used unit boxes can be loaded into the drawer since the number of Sample Prep Cartridges or 8-Rod Covers they contain will be detected during the inventory scan.

Typically, more Sample Prep Cartridges will be required than 8-Rod Covers, and this needs to be taken into account when loading the QIAAsymphony Connect with unit boxes.

To load unit boxes, follow the steps below.

1. Remove the lid from the unit box and keep it for later use. Lids can be used to reclose partially used unit boxes or to close unit boxes used for waste collection.
2. Inspect each unit box to ensure that the contents are correctly stacked.
3. Open the “Reagents and Consumables” drawer.
4. Place unit boxes containing either unused 8-Rod Covers or Sample Prep Cartridges into the Unit box slots of the “Reagents and Consumables” drawer. Unit boxes are designed so that they fit into the Unit box slots only in the correct orientation.
5. Close the “Reagents and Consumables” drawer or proceed to loading reagents and other consumables.

For unloading of unit boxes, open the “Reagents and Consumables” drawer and take out the unit boxes from the Unit box slots. Close the unit boxes with the lids. Unit boxes can be left in the “Reagents and Consumables” drawer.

Note: Do not refill partially used unit boxes. The number of Sample Prep Cartridges or 8-Rod Covers is detected during the inventory scan.

Note: Do not throw empty unit boxes and their lids away. Empty unit boxes (without lids) are used in the “Waste” drawer for collection of used sample prep cartridges and 8-Rod Covers during the sample purification procedure. The lids can be used to close the waste-filled unit boxes when removing them from the instruments.

6.15.2. Assembling and loading the reagent cartridge

The required reagent cartridges (see Section 4.4.5) are determined by the QIAAsymphony Connect from the protocols that were chosen by the user and the number of samples to be processed. If a protocol supports more than one reagent cartridge, all supported reagent cartridges are listed.

There are 2 slots for reagent cartridges in the “Reagents and Consumables” drawer. The reagent cartridges can be either from the same kit or from different kits.

Reagent cartridges fit only in the correct orientation. The unused reagent cartridge is automatically opened by the QIAAsymphony Connect, which eliminates manual handling and pouring of reagents. If a reagent cartridge shall be re-used, the re-used seal set must be removed manually. Each individual reagent in the reagent cartridge is labeled with a 2D barcode, enabling tracking of reagents through the entire purification procedure.

The reagent cartridge must be assembled before first use. The assembled reagent cartridge can be reused in accordance with the specified stabilities until the maximum number of samples has been processed. For further information see the user manual of the respective QIAAsymphony kit.

Assembling reagent cartridges

1. Place the reagent cartridge holder onto a firm surface.
2. Remove the reagent cartridge from the QIAAsymphony kit.
3. Place the reagent cartridge into the reagent cartridge holder.



Placing the reagent cartridge into the holder.

4. Remove the foil seal from the magnetic-particle trough and replace it with the trough cover.

Important: Be sure to remove the foil from the magnetic-particle trough before first use of the reagent cartridge. Failure to remove it can result in incorrect liquid level detection of the bead volume and failure to transfer the beads to the samples during the run.

5. If an enzyme rack is provided with the kit, place it in its slot on the reagent cartridge holder. Remove the lids from the tubes and place them into the appropriate slots to prevent mix ups.



Attaching enzyme rack.

6. Take a piercing lid and remove it from its packaging.
7. If the cartridge has not been used before, place the piercing lid on top of the reagent cartridge so that the side with the opening fits against the magnetic-particle trough. The cut-outs in the piercing lid fit around the tubes of the enzyme rack when the reagent cartridge is pierced by the QIA Symphony Connect.



Placing the piercing lid on top of the reagent cartridge.

8. Gently push the piercing lid downward until it clicks into place.

Note: Ensure that the buffer troughs fit correctly within the reagent cartridge otherwise liquid-level detection errors may occur.

The composition of the reagent cartridge is kit specific. Do not mix troughs from different kits.

Note: Avoid shaking the reagent cartridge since this may cause buffers to foam, resulting in liquid-level detection errors.

Note: Do not exchange the reagent cartridge of a running batch as this may lead to performance or pipetting errors.

Note: Do not combine enzyme racks, buffer or magnetic-particle troughs from different reagent cartridges and/or different lot numbers.

Visually check all reagent troughs for precipitates. If precipitates are present, refer to the handbook of the QIAasympphony kit you are using for more information.

Note: Make sure that reagents and enzymes are at room temperature (15–25°C) before placing them into the “Reagents and Consumables” drawer.

Important: Do not autoclave a prefilled reagent cartridge. Do not change the order of the troughs within the reagent cartridge.

Important: Do not refill partially used reagent cartridges.

Loading reagent cartridges

1. Vortex the magnetic-particle trough if required by the QIAasympphony kit (refer to the kit handbook for detailed information) and replace it in the reagent cartridge.

Note: Make sure that the magnetic-particle trough is sealed or closed with a Reuse Seal Strip before vortexing.

2. If using a new reagent cartridge, follow the instructions provided in the previous section to assemble the reagent cartridge. If using an already used reagent cartridge, manually remove the seals.

Note: If using a partially used reagent cartridge, place the reagent cartridge into the reagent cartridge holder before loading onto the instrument. Ensure that all screw-caps and covers are removed from the enzyme tubes and troughs before placing into the “Reagents and Consumables” drawer.

3. Open the “Reagents and Consumables” drawer.
4. Take the assembled reagent cartridge with the magnetic-particle trough oriented to the left and hold it using both hands.



Assembled reagent cartridge ready to be loaded.

5. Slide the reagent cartridge along the slide rail into one of the reagent cartridge slots. The reagent cartridge will be automatically held in place by a catch on the metal plate at the back of the slot.



Sliding the reagent cartridge along the side rail.

6. Close the “Reagents and Consumables” drawer.

For unloading the reagent cartridge, open the “Reagents and Consumables” drawer and slide out the reagent cartridge from the reagent cartridge slot. Follow the loading instructions in reverse order.

To avoid evaporation of reagents, we strongly recommend resealing the troughs of the reagent cartridge immediately after use. Reseal the troughs using Reuse Seal Strips provided in QIAasympphony kits. Replace screw-caps on the tubes in the enzyme rack.

For storage, remove the reagent cartridge from the reagent cartridge holder and store according to the instructions in the kit handbook. The reagent cartridge holder can then be used in combination with other kits. Store the enzyme rack according to the instructions in the kit handbook.

If the reagent cartridge is empty, remove it from the reagent cartridge holder and discard it according to your local safety regulations.

6.15.3. Loading Filter-Tips

Filter-tips (see Section 4.4.4 Filter-tips) required for sample purification are placed into the “Reagents and Consumables” drawer of the QIAasympphony Connect worktable in tip racks. There are 18 tip rack slots in the “Reagents and Consumables” drawer. Tip racks can be placed in any of the slots since rack position, tip type, and number of tips are detected during the inventory scan. The number of tips required per sample varies depending on the protocol being run.



Tip rack slots with inserted tip racks (black and blue frames) and tips (black) in the QIAAsymphony Connect worktable.

To load tip racks, follow the steps below.

1. Open the “Reagents and Consumables” drawer.
2. Hold the tip rack between two fingers by the recessed grips.
3. Gently squeeze the tip rack together and place it into a tip rack slot.

Note: To ensure detection of the tip racks during the inventory scan, make sure that the tip racks are properly seated in the tip rack slot, and that none of the protrusions on the tip racks are broken.

Important: Load more than the required number of filter-tips of each size so that sufficient filter-tips are available for automated error handling.

Important: Do not refill partially used tip racks. A mixture of various tip sizes in one rack will result in an error during the run.

Important: Do not refill partially used tip racks. The number of filter-tips will be detected during the inventory scan.

6.15.4. Loading the buffer bottle

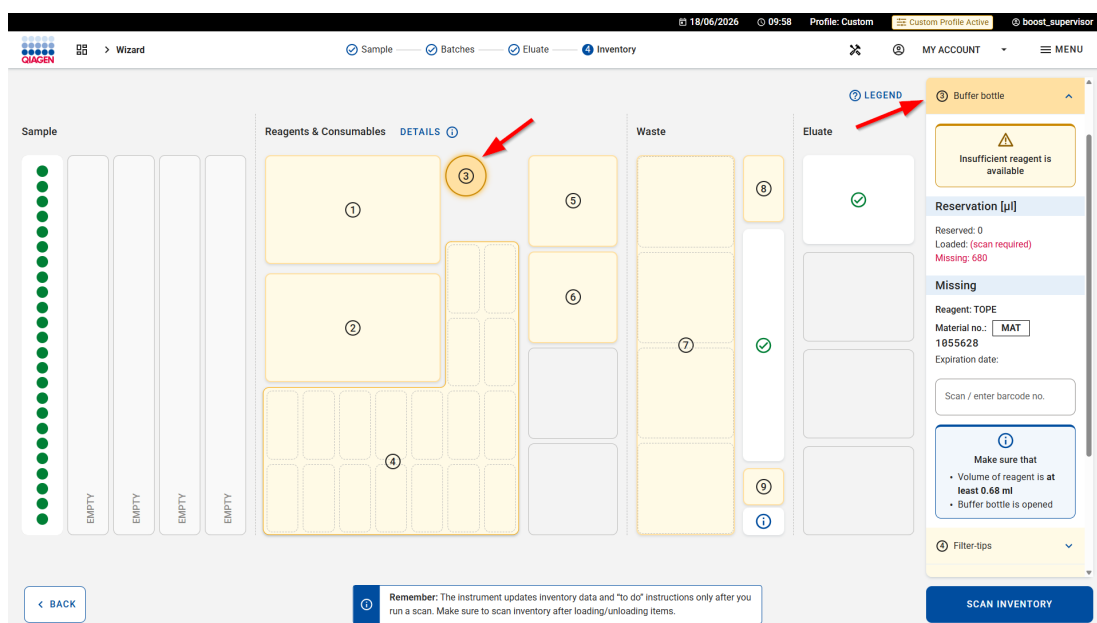
Depending on the kit being used, an additional bottle of buffer may be provided. The bottle is prefilled with up to 60 mL of reagent. For more information about the provided reagent, refer to the kit handbook.



Buffer bottle slot.

To load the “Reagents and Consumables” drawer of the QIAAsymphony Connect with the buffer bottle, follow the steps below.

1. Open the “Reagents and Consumables” drawer.
2. Remove the screw-cap from the buffer bottle.
3. On the “INVENTORY” screen, on the list of missing elements to the right, expand the Buffer bottle item.



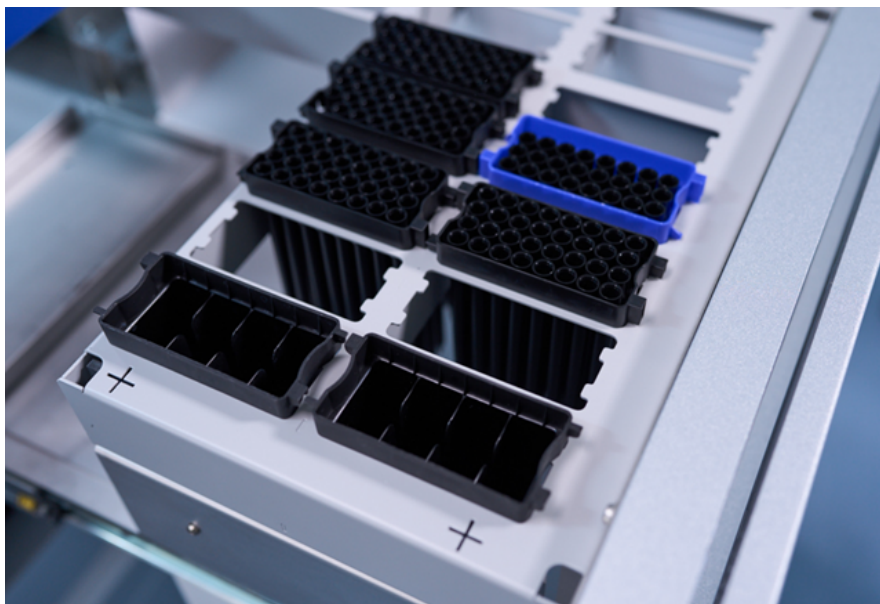
Buffer bottle on the “INVENTORY” screen.

4. Press **Scan / enter barcode no.** The on-screen keyboard appears.
5. Scan the buffer bottle barcode using the handheld barcode scanner. Alternatively, type in the bar code using the on-screen keyboard. The barcode enables the QIAAsymphony Connect to identify the buffer.
6. Place the bottle into the slot just in front of tip rack slots 1 and 2 in the “Reagents and Consumables” drawer.

The buffer bottle and volume of buffer will be automatically detected during the inventory scan.

6.15.5. Loading the Accessory Trough

If the purification procedure requires additional reagents which are not provided with the QIAAsymphony kit, this must be poured by the user into an Accessory Trough, which is then placed into either tip rack slot 5 or 12. These slots can be used for either tip racks or Accessory Troughs.



Position of Accessory Trough(s).

To load the QIAAsymphony Connect with an Accessory Trough, follow the steps below.

1. Fill the Accessory Trough(s) with the volume of additional reagent(s) not provided with the QIAAsymphony kit stated in the handbook of the QIAAsymphony kit you are using.

Avoid creating bubbles, as those can effect the liquid level detection.

2. Place the Accessory Trough(s) into tip rack slot 5 and/or 12.

Note: Ensure that the Accessory Trough is properly seated in the tip rack slot, otherwise an error may occur during the inventory scan.

6.16. Preparing the “Waste” drawer

Prepare the “Waste” drawer before starting a run.

First, prepare unit boxes. Follow the steps below to prepare unit boxes:

1. Remove the lid from the unit box.

Do not throw away the lids of open unit boxes. Used unit boxes must be closed with lids to avoid liquid spillage.

2. If the unit box contains a spacer, make sure to remove it.

The spacer at the bottom of an empty 8-Rod Cover unit box must be removed before placing the unit box into the “Waste” drawer, as an error may occur during the inventory scan.

Then, prepare the “Waste” drawer. We recommend preparing the “Waste” drawer by following the steps below:

1. Open the “Waste” drawer.
2. Insert the empty liquid waste container (below left) (be sure to remove lid before placing into the drawer[see below right]).



3. Insert tip chute.



4. Insert empty unit boxes.



Do not empty partially filled unit boxes. Partially filled unit boxes will be detected during the inventory scan and can be used until they are full.

5. Install empty tip disposal bag or QlAsymphony Cabinet waste bin.

Important: The instrument detects when the liquid waste container is full, but it does not continuously monitor the exact liquid level. The liquid waste container is designed to hold only waste from one run. Failure to empty the liquid waste container before each run may result in liquid waste spillage.

Liquid waste spillage around the liquid waste container can pose a health risk to the user and may damage the instrument.

WARNING

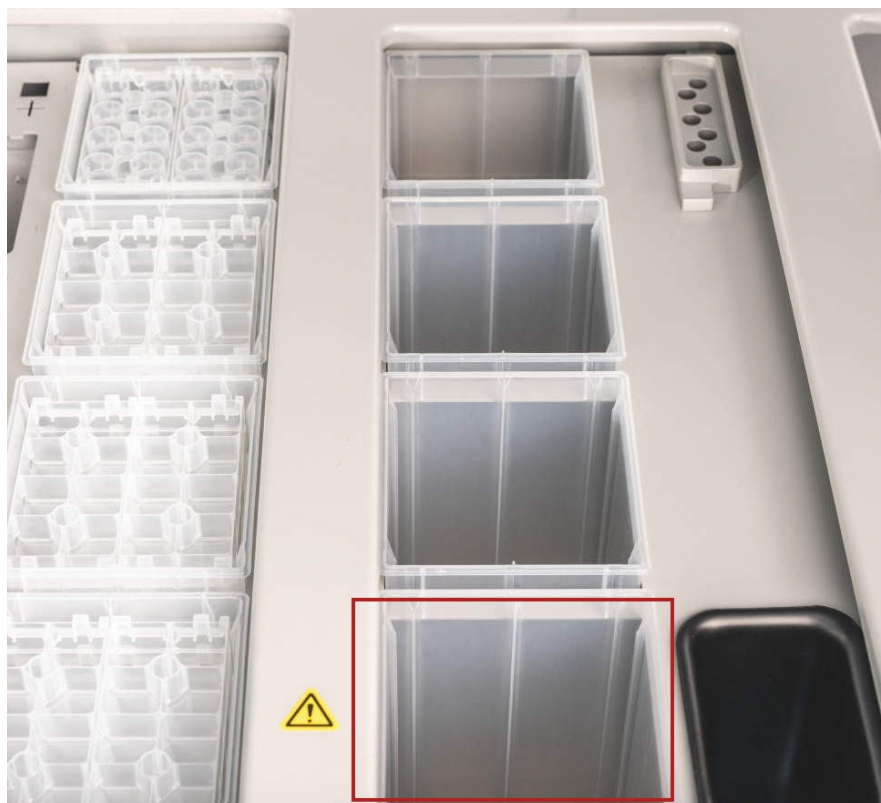


Hazardous materials and infectious agents

The liquid waste contains samples and reagents. This waste may contain toxic or infectious material.

Important: The instrument does not check for the presence of a tip disposal bag or QlAsymphony Cabinet waste bin. If the appropriate waste container is not present, tips will not be collected and will fall to the surface below the instrument or inside

the cabinet. The tip waste must be emptied after each run as part of the post-run maintenance. Replace the tip disposal bag or empty the cabinet waste bin after each run. Otherwise, tips may stack and pile up, leading to an instrument crash.



Unit box slots (slot 4 indicated).

Note: An empty unit box must be placed into slot 4 of the “Waste” drawer. During initialization, the handler goes down into the unit box in position 4. If the unit box is not empty, the handler may crash.

6.17. Performing inventory scans

An inventory scan of each drawer of the QIAAsymphony Connect must be performed before a sample preparation protocol can be run. The QIAAsymphony Connect uses a laser and a ceiling camera to check the type and number of consumables, and the type and location of adapters loaded in each drawer. A barcode detection system recognizes and scans 1D or 2D bar codes (e.g., on the reagent cartridge). The laser and barcode camera are integrated in the robotic arm. This ensures that positions over the whole worktable can be scanned. A liquid waste container sensor checks if the liquid waste container is full.

6.17.1. Inventory scan of the “Reagents and Consumables” drawer

The inventory scan of the “Reagents and Consumables” drawer is divided into two main parts. First, the instrument checks which positions on the workdeck are occupied and reads their barcodes to identify the type and quantity of consumables. It then performs liquid level detection on the open reagents.

Reagent cartridges

Reagent cartridge slots are scanned. The instrument will check first for the presence of the respective reagent cartridge. 2D barcodes on reagent troughs, the magnetic-particle trough, and the enzyme rack are checked. In addition, the piercing status of the reagent cartridge is checked.

Note: Ensure that all 2D bar codes are accessible by the sensor.



2D barcodes.

- If the reagent cartridge is sealed and not pierced, the liquid level of all reagents in the reagent cartridge is set to the original value. An additional liquid-level check will not be performed.
- Both reagent cartridge slots are scanned.

Tip rack slots

- All 18 tip rack slots are scanned to determine the loaded tip rack types and the number of tips.
- If there is some discrepancy between the detection of the rack type (e.g., due to environmental factors such as dirt on the camera or improperly seated racks) an error message will be generated stating the affected positions.

Buffer bottle

- If a protocol requires the use of the buffer bottle, the respective barcode of the bottle must be scanned with the handheld scanner prior to loading the bottle.
- The inventory scan will detect the presence of a buffer bottle and will report an error message if the lid is not removed from the bottle or will treat the buffer bottle as a missing element if it is loaded without prior barcode scanning with the handheld scanner.

Accessory Trough

- If a protocol requires the use of additional reagents not provided with the QIAsymphony kit, the Accessory Trough(s) must be loaded.

- The inventory scan will detect the presence of Accessory Trough(s), if a protocol requires the use of additional reagents not provided with the QIASymphony kit.

Unit boxes

- The unit box slots are scanned to detect the presence of unit boxes in the 4 slots.
- Afterwards, the type (8-Rod Cover or sample prep cartridge) and number of consumables are determined.

Liquid-level scan of detected reagents

This scan is only performed if the liquid level is not known (e.g., for a partially used reagent cartridge). These checks use 1500 µL and 200 µL filter-tips. If there are not enough tips to perform liquid level detection of reagents, then liquid level detection will not be performed on the reagents, and the drawer will remain as pending a scan.

- Liquid-level scan of detected reagents in the reagent cartridges.
- Liquid-level check of the buffer bottle (if detected).
- Liquid-level check of Accessory Trough(s) (if detected).
- Liquid-level scan of internal controls and accessory reagents loaded in the “Sample” drawer (if defined).

Note: The inventory scan will only enable detection of the liquid level of open and recognized vessels.

Partial inventory scan

The instrument detects when you open and close the “Reagents and Consumables” drawer. When you open and then close the drawer outside of the Wizard, the instrument asks if you made any changes.

① The Reagents & Consumables drawer was opened. Did you make any changes?

Set all	Scan now	Scan later	Nothing changed
---------	----------	------------	-----------------

R&C drawer			
Reagents	Scan now	Scan later	Nothing changed
Tip racks	Scan now	Scan later	Nothing changed
Unit boxes	Scan now	Scan later	Nothing changed
Buffer bottle	Scan now	Scan later	Nothing changed
Accessory trough	Scan now	Scan later	Nothing changed

APPLY			
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Popup screen when the “Reagents and Consumables” drawer is opened.

For each region of the drawer, you can choose one of the following options:

- **Scan now:** the instrument scans the region(s) immediately after you close the pop-up window.
- **Scan later:** the instrument postpones the scan and requires you to perform it before starting batch processing.
- **Nothing changed:** the instrument assumes that nothing has changed in the region(s) and allows you to start batch processing as long as you already scanned the other required regions and drawers.

Note: Selecting **Nothing changed** after making any changes in the “Reagents and Consumables” area can cause the batch to abort and may result in invalid sample results.

When the active process profile has the “Allow selection of ‘Nothing changed’ on “INVENTORY” screen of R&C drawer and hood?” configuration parameter set to “No”, the “Nothing changed” option is not shown.

Your selections determine whether the instrument performs a full or partial inventory scan. For example, if you modify only one region and select Nothing changed for the others, the instrument scans only the modified region.

6.17.2. Inventory scan of the “Waste” drawer

The inventory scan of the “Waste” drawer (see Section 4.3.4) consists of a laser scan and a liquid waste container sensor check. The instrument detects when you open and close the “Waste” drawer. When you open and then close the drawer outside of the Wizard, the instrument asks if you made any changes. You can choose one of the following options:

- **Scan now:** the instrument scans the drawer immediately after you close the pop-up window.
- **Scan later:** the instrument postpones the scan and requires you to perform it before starting batch processing.

During the inventory scan of the “Waste” drawer:

1. The tip park station slot is scanned. This checks that the tip park station is mounted.
2. The tip chute slot is scanned. This checks that the tip chute is installed.
3. The unit box slots are scanned. First of all, each of the four-unit box slots is scanned to detect whether a unit box is in the slot. Afterwards, the content of each box is determined (e.g., amount and type of consumables in each box).
4. The liquid waste container is checked if it is full.

Note: The Inventory scan does not check whether the tip bag is installed or how much space there is left.

Important: Empty the liquid waste container before starting a protocol run. A protocol run will not start with a full liquid waste container.

6.17.3. Inventory scan of the “Eluate” drawer

The instrument detects when you open and close the “Eluate” drawer. When you open the drawer outside of the Wizard, the QIAsymphony Connect automatically displays the “ELUATE” screen where you can perform an inventory scan of the “Eluate” drawer.

The QIAsymphony Connect checks the elution slots to make sure that selected elution slots contain an elution rack.

If the QIAsymphony Connect detects a discrepancy between the expected and actual elution rack(s) that are loaded in the “Eluate” drawer, a message appears prompting the user to correct the issue. Open the “Eluate” drawer and place the elution rack(s) onto the correct position(s) or edit the slot/rack assignment.

A message appears in the following situations:

- The scanned or entered eluate rack ID does not match the detected rack ID on eluate slots 1 and 2.
- An eluate rack is defined for a slot but no rack is detected on the slot during the scan.
- No eluate rack is defined for a slot but an eluate rack is detected during the scan.
- The scanned rack ID does not match the defined labware.
- The detected barcode and the adapter barcode specified in the labware file do not match.
- A barcode is detected but the selected labware file does not specify an adapter barcode.
- No barcode is detected, but the selected labware file specifies a required adapter barcode.

Note: The QIA Symphony Connect only detects whether an elution slot is occupied by an elution rack or adapter. It cannot identify the elution rack type on the respective elution slot.

To correct eluate rack placement or definition errors:

1. If the instrument detects that the scanned rack ID is different from the rack ID specified in the Rack ID field or scanned (e.g., because the barcode was scanned with a handheld scanner for a rack placed on a different slot) then you can press **USE SCANNED ID** to fix the rack ID on the slot.
2. In all other cases, open the “Eluate” drawer, correct a relevant eluate rack placement issue, close the “Eluate” drawer, and press **SCAN ELUATE DRAWER**.

6.17.4. Inventory scan after the hood is open and closed

The instrument detects when you open and close the hood. When you open and close the hood outside of the Wizard, the instrument asks if you made any changes. You can choose one of the following options:

- **Scan now:** the instrument scans all drawers immediately after you close the pop-up window.
- **Scan later:** the instrument postpones the scan and requires you to perform it before starting batch processing.
- **Nothing changed:** the instrument assumes that nothing has changed in any of the drawers and allows you to start batch processing.

Note: Selecting **Nothing changed** after making any changes can cause the batch to abort and may result in invalid sample results.

When the active process profile has the “Allow selection of ‘Nothing changed’ on “INVENTORY” screen of R&C drawer and hood?” configuration parameter set to “No”, the “Nothing changed option” is not shown.

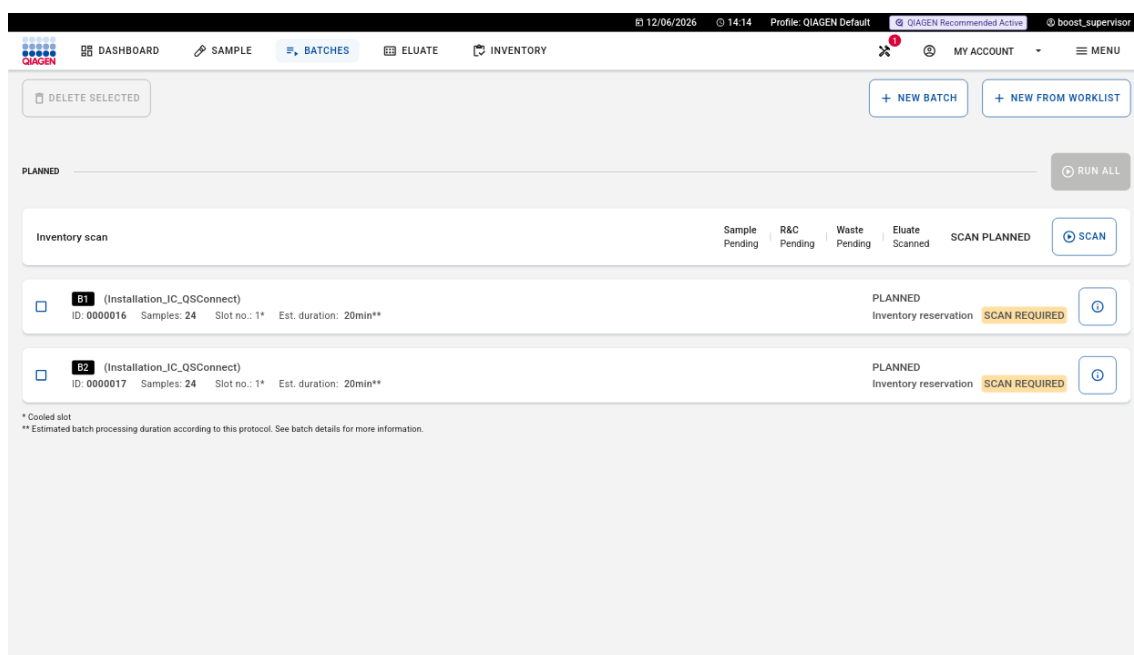
6.17.5. Cancelling an inventory scan

To cancel an inventory scan, press the **CANCEL** button while the scan is in progress.

- Drawers and regions that have been fully scanned display the status Scanned.
- Drawers and regions where the scan was interrupted or not started display the status Pending.

6.18. "BATCHES" screen and inventory reservation

The "BATCHES" view is designed for batch management and monitoring of batch processing.



View of batches for Inventory scan.

In the Wizard, on the "BATCHES" screen, you can:

- Create new batches.
- Delete batches.
- View batch information.

Outside the Wizard, on the "BATCHES" screen, you can additionally:

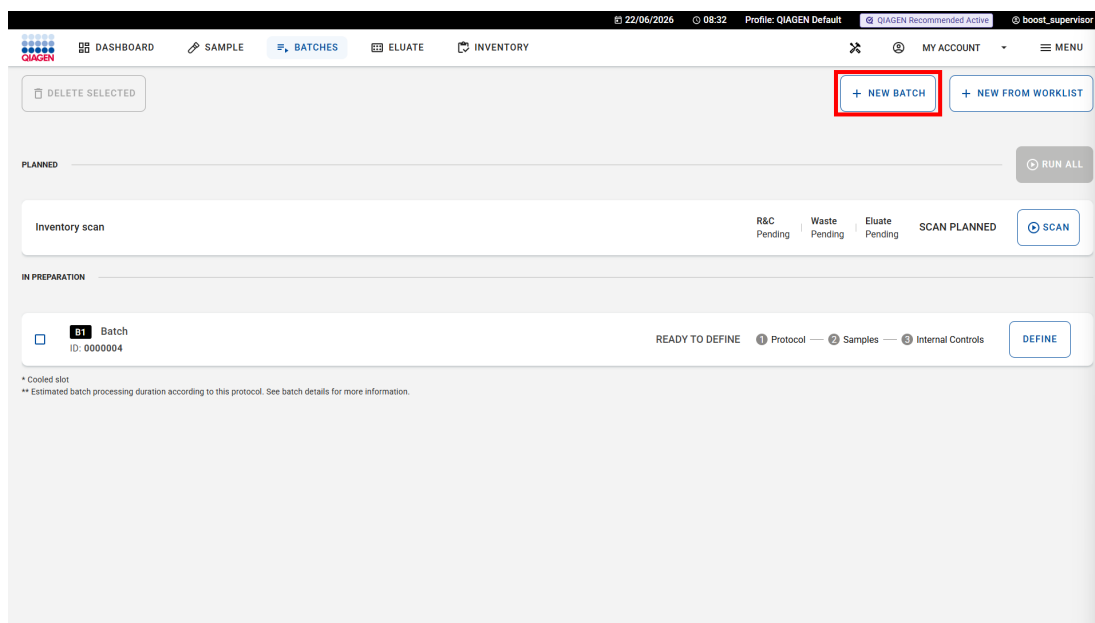
- Start an inventory scan of all (pending) drawers.
- Start a protocol run.
- Start a protocol run with inventory scan included as part of the run (if any drawer or region is pending a scan).
- Pause batch processing.
- Resume batch processing.
- Stop a protocol run.

6.18.1. Creating batches manually

Steps for creating a batch in and out of the Wizard are the same.

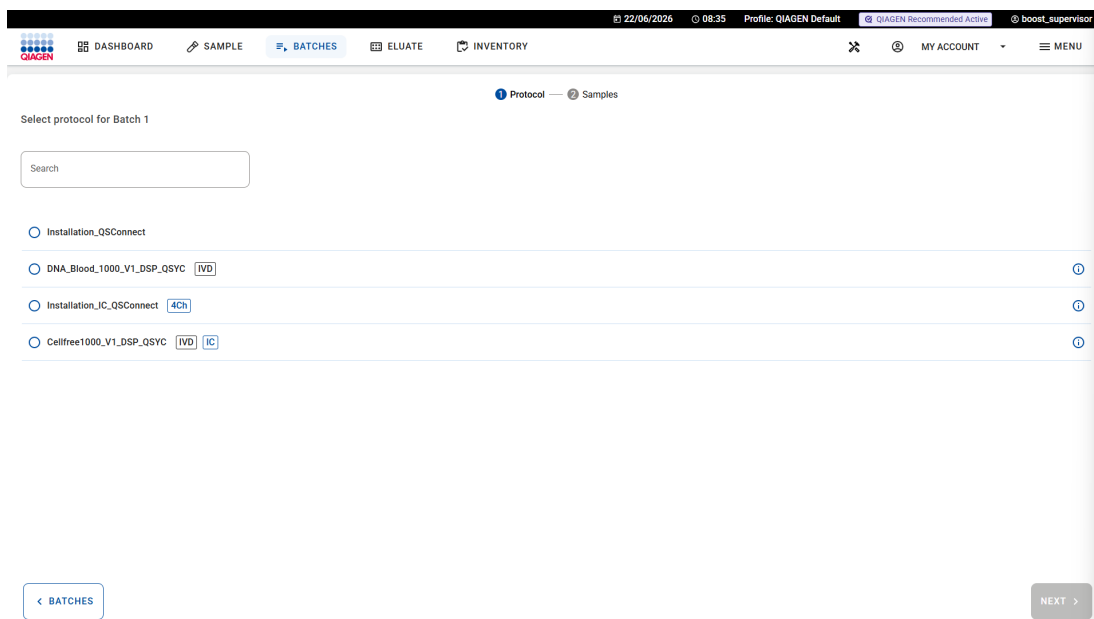
To create a new batch:

1. Make sure samples are inserted into the “Sample” drawer.
2. On the “BATCHES” screen, press **+ NEW BATCH**. If the samples you are setting up use different protocols or have different elution volumes, create as many batches as needed to ensure that samples with the same characteristics are processed together.



“+ NEW BATCH” button.

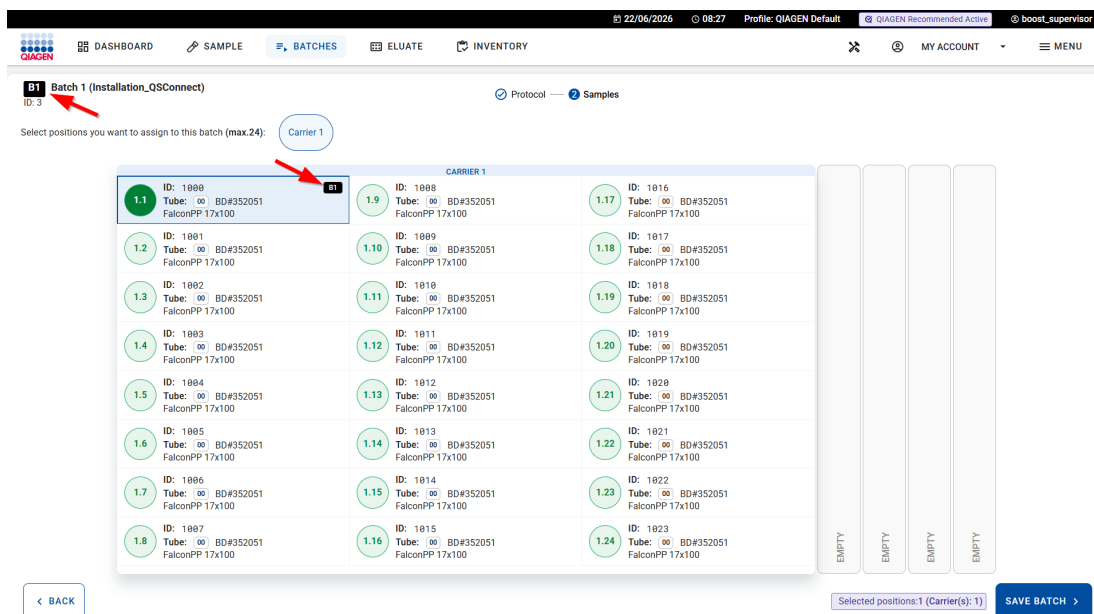
3. On the newly created batch, press **DEFINE**.
 4. Select a protocol from the list.
- The following tags can be displayed next to protocols:
- a. **IC**: protocol uses internal controls.
 - b. **IVD**: protocol is In Vitro Diagnostic compliant.
 - c. **4Ch**: protocol uses simultaneous pipetting with all four channels, which requires that samples are positioned on the tube carrier in blocks of four adjacent positions. Insert types and tube types must be the same in each four-sample block. Four-sample blocks can be adjacent to one another, separated by space or other samples. The last block in the batch may contain fewer than four adjacent samples. If these conditions are not met, the instrument will not allow to assign samples to the batch.



List of protocols.

To check the meaning of tags associated with a protocol, press the information (i) icon far to the right of the protocol name. The information icon is only displayed on a protocol if the protocol has associated tags.

5. Alternatively, use the **Search** field above the protocol list to find the protocol by name, then select it.
6. Press **NEXT >**.
7. Assign up to 24 samples to the batch. If you select more, the batch cannot be saved. In the top left corner you can see a black chip with a batch sequence number. When you select samples, the instrument marks selected samples with the same chip.



Batch chip marks samples assigned to batches.

You can:

- a. Select samples individually from a single tube carrier.
- b. Select samples individually from multiple tube carriers. Use the left and right arrows to navigate between the tube carriers. The option to select samples from multiple tube carriers depends on the configuration of the active process profile. If the process profile does not allow selection from different carriers, the instrument displays a notification.
- c. Select all samples from one carrier using buttons **CARRIER 1**, **CARRIER 2**, etc.

You cannot: Select internal controls, empty tubes or accessory reagents.

8. If the protocol selected for the batch has the IC tag and only one Assay Control Set is associated with the protocol, then the QIAAsymphony Connect automatically assigns the internal control specified by the Assay Control Set file for use in the run, and you can press **SAVE BATCH >**. Continue with step 12.
9. If the protocol selected for the batch has the IC tag and more than one Assay Control Set is associated with the protocol, then there is an additional Internal Controls step on the batch definition stepper. Press **NEXT >**.
10. Now you can see the list of samples assigned to this batch during the previous step. Select one or more samples, and choose an internal control on the right.

Internal controls displayed to the right only come from Assay Control Set files associated with the protocol selected for this batch. The specified internal controls will be used during the biological process for the selected samples based on the mapping done in this step. Also, selecting an internal control for a sample will affect your batch setup in the following way:

- a. On the “INVENTORY” screen, the instrument will display those internal controls as recommended.
- b. On the “ELUATE” screen, the eluate volume values available for selection or the default eluate volume for the batch will depend on the Assay Control Set file(s) from which the assigned internal controls originate.

The screenshot shows the QIAAsymphony Connect interface. At the top, there's a navigation bar with tabs: DASHBOARD, SAMPLE, BATCHES (active), ELUATE, and INVENTORY. Below the navigation bar, the main content area is titled 'Batch 1 (Installation_IC_QSConnect)'. It shows a table of samples with columns for ID, IC, and a selection circle. The samples listed are 1.1 (ID: 1000, IC: -), 1.2 (ID: 1001, IC: -), 1.3 (ID: 1002, IC: -), and 1.4 (ID: 1003, IC: -). To the right of the sample table, there's a section for 'Internal Controls' with a dropdown menu. Below this, there are two boxes: 'Installation IC' and 'Installation IC V2', both showing '0 samples assigned'. At the bottom right, there's a 'SAVE BATCH >' button. A '< BACK' button is at the bottom left.

Choosing internal controls for samples.

11. Press **SAVE BATCH >**.
12. Repeat the steps above to create all the required batches.

Note: You can define batches with different protocols. However, the workdeck has space for only 2 reagent boxes, one buffer bottle, and 2 Accessory Troughs in the “Reagents and Consumables” drawer. This limits the number of different protocols that can be executed in a single run. A run cannot be started if the workdeck does not contain sufficient reagents and consumables required for processing all batches assigned to the eluate racks.

6.18.2. Creating batches using worklists

To create a batch using a worklist in the BATCHES view:

1. Create worklists for samples that you plan to process.
2. Transfer worklists to the instrument.
For more information, see Section 6.20.4 Transferring files between the QIA Symphony Connect and a USB stick.
3. Make sure samples are inserted into the “Sample” drawer.
4. On the “BATCHES” screen, press **+ NEW FROM WORKLIST**.
5. Batch candidates will be displayed

Batch candidates represent batches that you can create from samples and worklists loaded to the instrument.

Note that batch candidates:

- are displayed from worklists that passed worklist file structure validation and are not expired
- are created only for samples loaded into the “Sample” drawer
- can include some or all samples from one worklist
- can originate from different worklists, then samples from each worklist are grouped under separate batch candidates
- can be processed in one protocol run along with manually created batches
- do not include samples where barcode reading issues occurred for tube barcode or tube insert barcode
- cannot be created if the worklists are incompatible with the configuration of the active process profile
- cannot be created if the same sample ID is found in more than one worklist
- cannot be created if a protocol in a worklist uses 4-channel pipetting and the samples from the worklist are not positioned in blocks of 4
- if any worklists for loaded samples require the use of a buffer bottle, batch candidates are only shown for worklists that use the same reagent in the buffer bottle and provided that any batches with the PLANNED, READY TO ASSIGN or PROCESSING status that already exist do not require a different buffer bottle

← Create batch from worklist

B1 (Blood_1000_V7_DSP) [WB]	
Batch requirements	Samples
Buffer bottle: -	1.2 ID: 0001
	1.6 ID: 0005

B2 Cellfree_1000 [WB] [IC]	
Batch requirements	Samples
Buffer bottle: -	1.11 ID: 0010
IC: Cellfree_1000	1.12 ID: 0011

X CANCEL CREATE 2 BATCHES

Creating batches from worklists.

- When batch candidates are displayed without errors, press **CREATE [1, 2, 3 etc.] BATCHES**, to turn batch candidates into batches.

Batches created from worklists are marked with a Worklist label right next to the batch protocol name.

☐	B1 (Blood_1000_V7_DSP) [Worklist]
ID: 0000021 Samples: 2	

Batch created using a worklist.

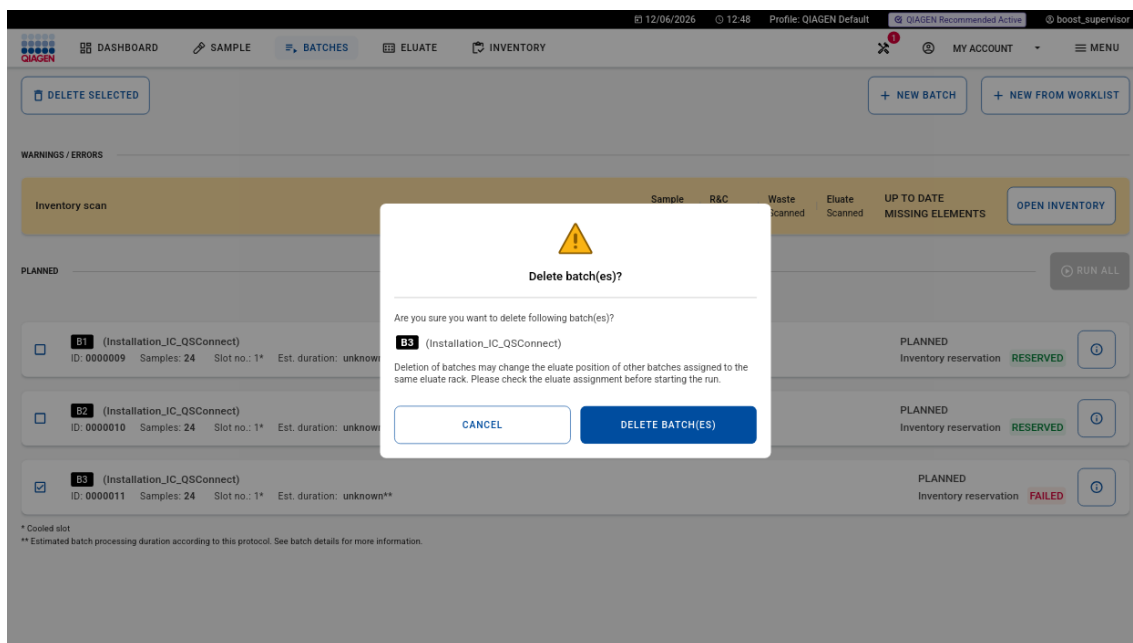
6.18.3. Deleting batches

Batches can be deleted as long as they do not have READY TO DEFINE, READY TO ASSIGN, or PLANNED status.

To delete a batch:

- Go to the **BATCHES** view.
- Select batches to delete.
- Press **DELETE SELECTED** button.

DELETE SELECTED



Selecting batch(es) to delete.

- Double check that batches selected for deletion are the batches that you want to delete. Press **DELETE BATCH(ES)** to confirm.

Deleting batches that are assigned to an eluate rack may change the position of other batches assigned to the same eluate rack by shifting them left or higher, depending on the distribution selected for the rack.

6.18.4. Understanding batch information

By looking at the batch list you can identify the following information:

B1 (Installation_IC_QSConnect) ID: 0000004 Samples: 4 Slot no.: 1* Est. duration: unknown** Est. finish time: unknown PROCESSING Step 1 of 5 type

- Batch sequence number:** the sequence number of a batch that cycles from 1 to 99 and restarts at 1.
Batch sequence number helps to differentiate and track batches on a single instrument.
- Batch ID:** a batch identification number that is unique to the instrument. The batch ID number is never reset.
Batch ID helps to differentiate and track batches outside the instrument (e.g., in the Report File).
- Protocol assigned to batch:** the name of the protocol assigned to the batch.
- Number of samples:** the number of samples to be processed in the batch.
- Slot no.:** slot number in the “Eluate” drawer to which the batch is assigned.
- Est. duration:** the estimated duration of the batch based on records collected from prior processing of the same protocol and number of samples. If records are not available, the time is displayed as unknown.
- Est. finish time:** the estimated time when the batch is expected to finish. If records are not available, the time is displayed as unknown.

8. Batch status:

Batch status	Description
READY TO DEFINE	Batch: · is created
READY TO ASSIGN	Batch: · is created · has protocol assigned · has samples assigned · has internal controls assigned (if required)
PLANNED	Batch: · is created · has protocol assigned · has samples assigned · has internal controls assigned (if required) · is assigned to an eluate rack
CANCELLED	Batch becomes cancelled when processing of a planned batch is not possible due to an error or user action. Cancelled batches cannot be deleted. They will disappear when you unload the eluate rack they were assigned to from the instrument.
PROCESSING	When processing of a batch begins on the instrument, the batch changes status from "PLANNED" to "PROCESSING".
PAUSING	Pressing PAUSE initiates batch pausing. Batch pausing is a process and can take a moment.
PAUSED	When batch pausing process has completed, batch status changes to "PAUSED" and pause time is displayed. Paused batches can be resumed or stopped. Pausing changes the status of all samples in the batch to unclear.
RESUMING	Pressing RESUME initiates batch processing from the process step where it paused.
COMPLETED	Batch is completed when it has been successfully executed. A batch is considered successfully executed when at least one sample in the batch has a valid or unclear status.
ABORTED	Batch is aborted when an error occurred during batch processing that cannot be fixed by the user. All samples are invalid in an aborted batch. When batch is aborted, the instrument enters an ERROR STATE. In the ERROR STATE, you have to perform the cleanup maintenance procedure before the instrument can be used again. See Section 8.3 Error state for more information.
STOPPED (by user)	Batch is stopped by user when user pressed STOP for a paused batch. All samples are invalid in a batch stopped by user. When a batch is stopped by the user, the instrument enters an ERROR STATE. In the ERROR STATE, you must perform the cleanup maintenance procedure before the instrument can be used again. See Section 8.3 Error state for more information.

9. **Batch reservation status:** a status visible for batches in the PLANNED status that informs whether the reagents and consumables on the workdeck are sufficient for processing the batch.

Batch reservation status	Description
SCAN REQUIRED	One or more drawers have not been scanned, or a drawer was opened and closed and the dialog asking if anything changed is still displayed.
SCAN IN PROGRESS	One or more drawers are currently being scanned during an inventory scan.
RESERVED	All drawers are scanned or for drawers that were scanned, opened and closed, Nothing changed option was selected on the dialog asking if you made any changes. Loaded reagents match reagents required by the protocol assigned to the batch. The amount of reagents and consumables, as well as space in waste unit boxes is sufficient to process the batch.
FAILED	All drawers are scanned, or for drawers that were opened and closed, the Nothing Changed option was selected in the dialog asking if any changes were made. Loaded reagents do not match those required by the protocol assigned to the batch, or the amount of reagents and consumables as well as the available space in waste unit boxes is insufficient to process the batch.

10. **Batch definition steps:** as long as a batch is in the READY TO DEFINE status, it shows 3 batch definition steps: 1 Protocol, – 2 Samples, and – 3 Internal Controls. If you select a protocol during batch definition that does not require internal controls, then the instrument automatically skips the internal controls steps.
11. **Batch details:** press **Batch details** icon  on the right side of the batch status bar opens Batch details.



The Batch details view expands the information provided for a batch with sample-level information, such as live updated sample status, sample position, sample ID, and, if a processing error has occurred, the error code and description.

Batch details: **B1** (Installation_QSConnect) ID: 0000002 Samples: 4 Slot no.: 1* Est. duration: unknown** Est. finish time: unknown

PROCESSING Step 1 of 5: Lyse

✕

Error code	Description	Affected sample positions
140043	Not enough liquid found in sample container. Aspiration volume changed due to EnableLessSample mode. 936.811µl sample were less pipetted.	1.1

Sample status	Sample pos.	Elution pos.	Sample ID	Error code
	1.1	A1	1000	140043
	1.2	B1	1001	-
	1.3	C1	1002	-
	1.4	D1	1003	-

Legend
 Current sample status
 Awaiting status
 Valid
 Unclear
 Invalid

 * Cooled slot
 ** Estimated batch processing time according to this protocol.

Est. duration
 Estimated processing time is based on the most recent execution records. Actual time may vary depending on sample layout, reagent status, error-handling retries and instrument state.
 For more details, see user manual.

Batch details view.

Sample statuses

Status	Description
Awaiting status	Sample processing has not yet started.
Valid	The sample is being processed or has been successfully processed, and no errors have occurred.
Unclear	The sample is being processed or has been processed while it has been flagged as unclear. During processing, conditions may occur that do not invalidate the sample, but also prevent it from being considered successfully processed. The operator must qualify unclear samples using the available information.
Invalid	The sample has been flagged as invalid. Sample processing resulted in a failure. When a sample is flagged as invalid, its processing is interrupted as early as possible. In most cases, the position on the eluate rack reserved for the sample's elution remains empty.

6.18.5. Running an inventory scan from the BATCHES view

Inventory scan is displayed in the PLANNED section of the BATCHES view out of the Wizard, when any drawer is pending an inventory scan or when there are any MISSING ELEMENTS for any of the batches on the batch list.

To start an inventory scan of unscanned drawers or regions from the BATCHES view outside of the Wizard, press the SCAN button. When the scan finishes, the reservation status of all batches with the PLANNED status updates to RESERVED or FAILED.

☐	B1 (Installation_IC_QSConnect) ID: 0000009 Samples: 24 Slot no.: 1* Est. duration: unknown**	PLANNED Inventory reservation RESERVED	
☐	B3 (Installation_IC_QSConnect) ID: 0000010 Samples: 24 Slot no.: 1* Est. duration: unknown**	PLANNED Inventory reservation RESERVED	
☐	B4 (Installation_IC_QSConnect) ID: 0000012 Samples: 24 Slot no.: 1* Est. duration: unknown**	PLANNED Inventory reservation FAILED	

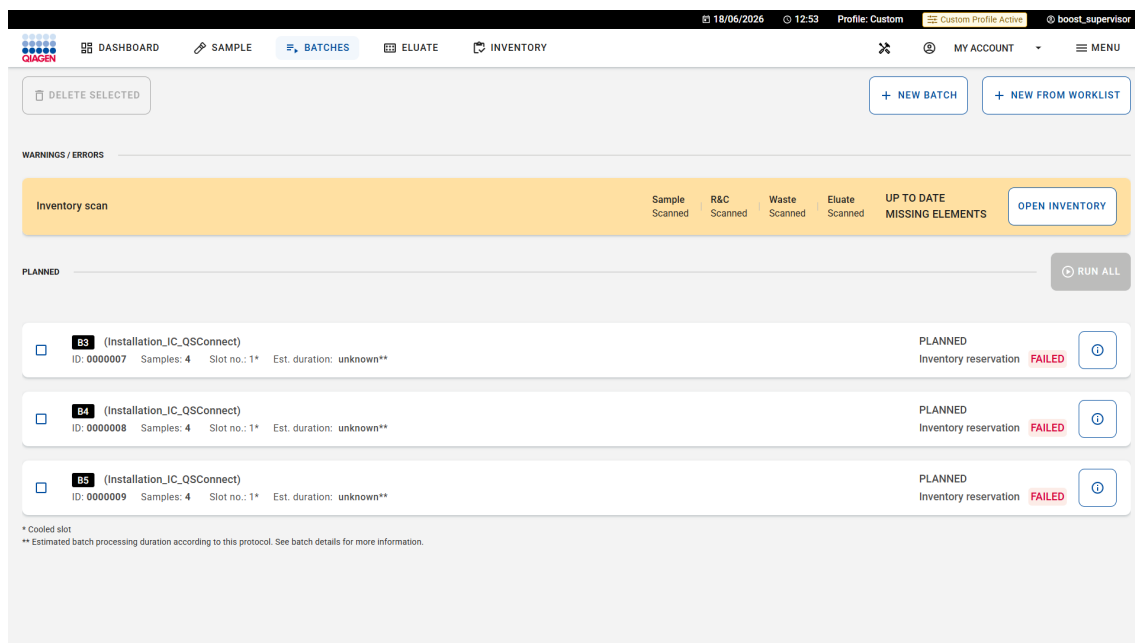
Reservation status of the Batches inventory scan.

When all batches with the PLANNED status have their reservation status changed to RESERVED, then the inventory item changes color to green, and moves from the PLANNED section to COMPLETED.

The screenshot shows the 'BATCHES' tab in the QIAsymphony Connect interface. At the top, there are navigation buttons: 'DASHBOARD', 'SAMPLE', 'BATCHES' (active), 'ELUATE', and 'INVENTORY'. On the right, there are buttons for '+ NEW BATCH' and '+ NEW FROM WORKLIST'. Below these, there are tabs for 'PLANNED' and 'COMPLETED'. In the 'PLANNED' section, three batch cards are visible, each with a checkbox, a batch ID (B3, B4, B5), a name '(Installation_IC_QSConnect)', and details like 'ID: 0000007', 'Samples: 4', 'Slot no.: 1*', and 'Est. duration: unknown**'. Each card shows 'PLANNED' status and 'Inventory reservation' as 'RESERVED'. A 'RUN ALL' button is at the bottom right of the 'PLANNED' section. In the 'COMPLETED' section, a green bar indicates the 'Inventory scan' is 'COMPLETED'. At the bottom, there are footnotes: '* Cooled slot' and '** Estimated batch processing duration according to this protocol. See batch details for more information.'

Batches with successful reservation of inventory.

When any of the batches with PLANNED status has its reservation status changed to FAILED, the inventory scan component on the batch list changes color to orange, and has MISSING ELEMENTS text.



Batches with failed reservation of inventory.

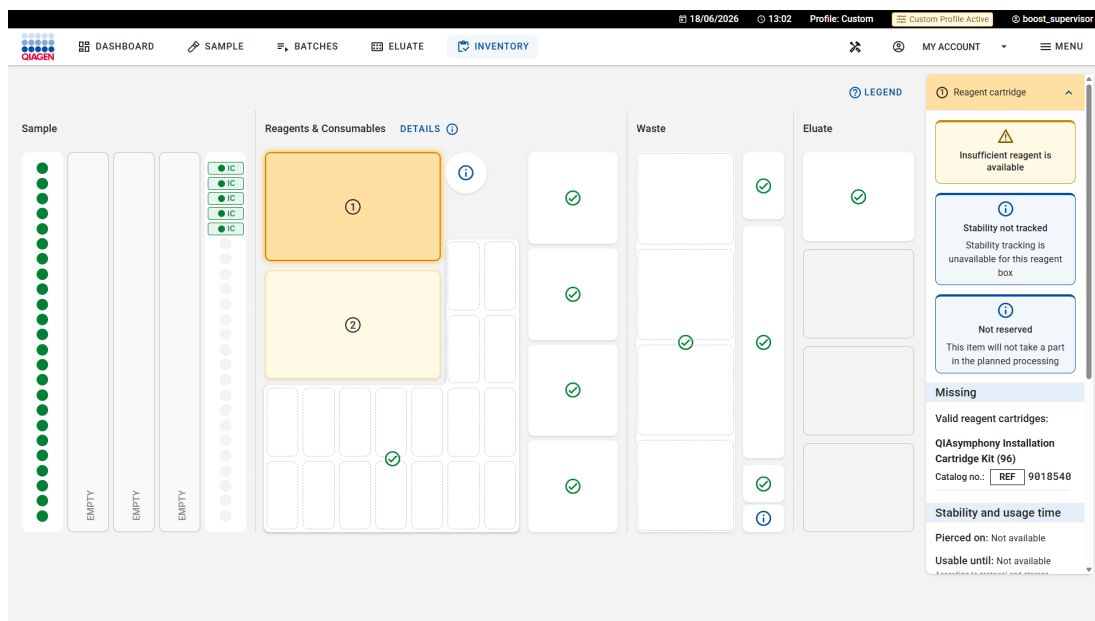
Reservation can fail for any of the following reasons:

- Reagents on the workdeck do not match reagents required by the protocol assigned to the batch.
- Internal controls are missing or not specified.
- The amount of reagents or consumables is insufficient to process the batch or the loaded reagents are not suitable for the planned batches.
- There is not enough space in waste unit boxes for waste that would be produced during batch processing.
- Tip park station or tip chute is not inserted in the "Waste" drawer.
- Liquid waste container is full.

6.18.6. Resolving inventory issues that lead to FAILED batch reservation status

To resolve a FAILED reservation:

1. Press **OPEN INVENTORY**.
2. Make sure that the liquid waste container is empty.
3. See the list of missing elements and load what is missing.



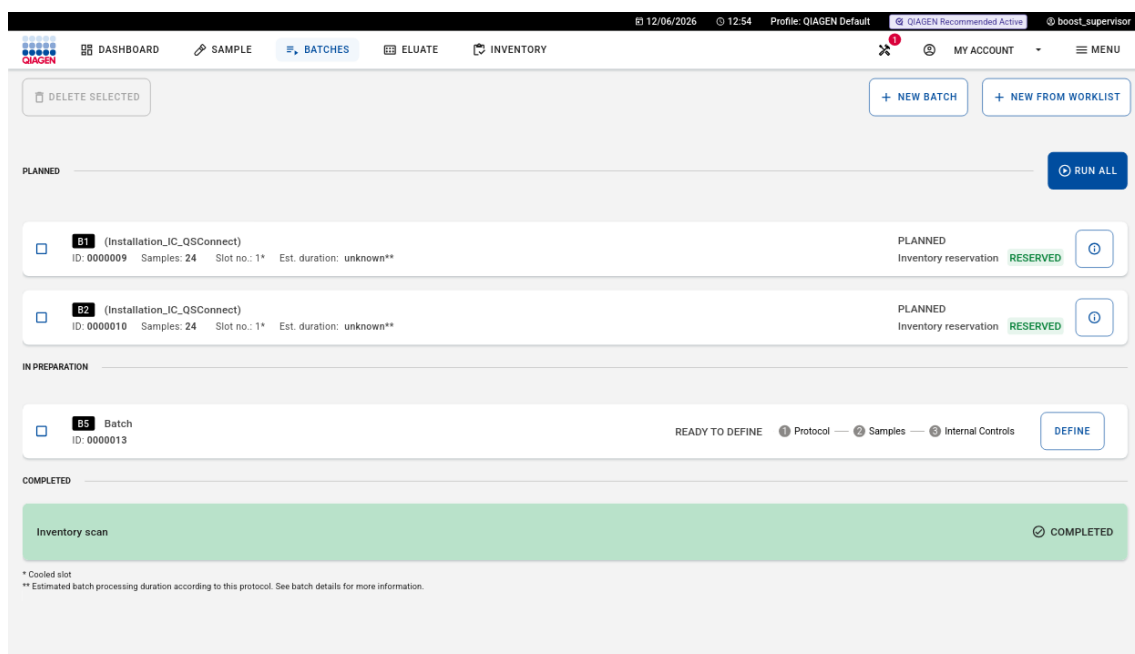
Reagent box with insufficient reagents or reagent box incompatible with defined batches.

4. Run an inventory scan of the affected drawers.
5. Return to the BATCHES view.

When you fix all inventory issues, the batch reservation status changes from FAILED to RESERVED.

6.18.7. Starting a protocol run

To start a protocol run, press the **RUN ALL** button when at least one batch has PLANNED status:



Batches prepared for processing; Run all button active.

Starting processing of planned batches

- If the status of any drawer was USER CONFIRMED or PENDING, then an inventory scan is performed before the protocol run. If the inventory scan leads to a FAILED reservation status of any planned batches, then the protocol run does not begin and batches remain in the PLANNED status. See Section 6.18.6 Resolving inventory issues that lead to FAILED batch reservation status for more information.
- If the status of all drawers is SCANNED, then an inventory run is not performed and batch processing starts in the order of allocation on the eluate racks.

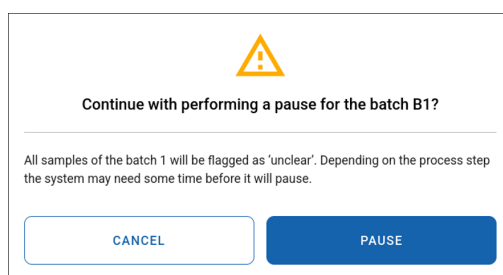
When all drawers scanned and no reservations issues occur, the instrument starts processing of all planned batches.

6.18.8. Pausing a protocol run

Note: Pausing a protocol run marks all samples as unclear. We do not recommend pausing a protocol run.

To pause a protocol run:

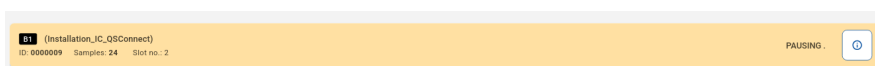
1. Press **PAUSE** while the protocol run is in progress.
2. When the confirmation dialog appears, press **PAUSE** again to confirm.



Confirmation dialog for pausing a protocol run.

The instrument completes the current processing step before pausing. During this transition:

- The batch status changes from PROCESSING to PAUSING.



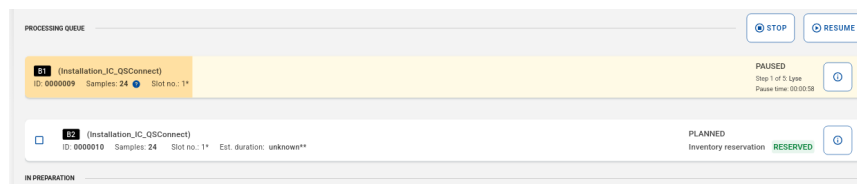
A batch in the Pausing status.

- Once paused, the instrument displays:
 - The name of the step at which it paused.
 - The elapsed time since the batch was paused.

When a protocol run is paused:

- All samples from the paused batch are flagged as unclear.
- The Wizard is locked.
- The hood and all drawers are unlocked.

- If the hood or any drawer is opened and closed:
 - The instrument asks whether anything has changed.
 - If you press **SCAN NOW**, the instrument performs an inventory scan of the drawer or region pending a scan.
- You can resume or stop batch processing.



Stop and Resume buttons when batch processing is paused.

If any drawer or the hood was opened and then closed during the pause, then depending what was opened, the system automatically performs an inventory scan or asks if anything has changed in the “Reagents and Consumables” drawer. If the inventory scan detects that the liquid waste container is full, empty the liquid waste container. For more information, see Section 7.4 Empty waste container.

Important: During the pause you can load reagents into free positions in the “Reagents and Consumables” drawer but do not replace or reposition reagents that are already loaded.

6.18.9. Resuming a paused protocol run

To resume a paused protocol run, press **RESUME**.

Batch processing resumes from the beginning of the next step after which the batch processing was paused.

6.18.10. Continuous loading during a protocol run

QIAsymphony Connect supports “continuous loading” which allows you to load additional tube carriers during ongoing batch processing so that more samples, grouped in batches, can be added to the run. The number of samples that can be processed using continuous loading depends on the inventory loaded to the instrument, space remaining in the waste boxes, and space available on the loaded elution racks.

You can load additional tube carriers:

- if there is a free slot in the “Sample” drawer.
- if you unload a tube carrier after the sample transfer step has finished for all batches defined from the samples on the tube carrier. Go to the “SAMPLE” screen, and verify that all the batches assigned to samples from the tube carrier have been completed, or, if the last batch from the tube carrier is still being processed, that the sample transfer step has finished. If this is the case, open the “Sample” drawer flap and check the LED light color for that lane. If it is green, you can unload the carrier.

Note: When the protocol run is in progress, only unload tube carriers that you are certain will not be required for further batch processing. If you unload a tube carrier with a green LED light for which there are more batches to process, or if the tube carrier holds empty tubes, internal controls or accessory reagents that are not required by the current batch but will be needed for another planned batch, those batches will not be processed. For more information, see Section 6.14.6 Unloading a tube carrier.

Adding new batches to a protocol run that is in progress

To add new batches to a protocol run that is in progress using the WIZARD:

1. Insert the tube carrier.

For more information see Section 6.14.5 Loading a tube carrier.

2. On the dashboard, open the WIZARD.

3. Define samples on the "SAMPLE" screen.

For more information see Section 6.10 Sample definition (Guided setup in Wizard – step 1).

4. Create and define batches on the "BATCHES" screen.

For more information see Section 6.11 Batch definition (Guided setup in Wizard – step 2).

5. On the "ELUATE" screen, press **Assign batches & Eluate volume**. For each newly created batch on the list denoted by the batch sequence number (e.g., **B1**), select the eluate slot to assign the batch to. You may have to scroll down the list of assigned batches to find the new batch.

6. The instrument will calculate if there are enough unreserved reagents, consumables, and space in the waste box to add the batch to the ongoing run:

- a. If there are enough resources to include the batch in the run, the batch status will change to **PLANNED** and the inventory status to **RESERVED**. The batch will be added to the execution queue.
- b. If there are not enough resources to include the batch in the run, the batch status will change to **PLANNED** and the inventory status to **FAILED**.

Resolving inventory issues for batches defined during a protocol run

To resolve a **FAILED** reservation for a batch defined while a protocol run is in progress:

1. Open the "INVENTORY" screen.

2. Review the list of missing elements.

3. If the list of missing elements includes empty tubes or internal controls, load a tube carrier with the appropriate tubes.

For more information, see "Loading additional tube carriers with internal controls or empty tubes when a protocol run is in progress".

4. If the list of missing elements includes empty tubes or internal controls that were loaded while a protocol run was already in progress, and the positions on the loaded tube carrier indicate barcode reading warnings or errors, then fix the barcode reading issues. For more information, see "Loading additional tube carriers with internal controls or empty tubes when a protocol run is in progress".

5. If the list of missing elements includes any other items, it is recommended to process the samples in a separate protocol run. If you pause a run to load more consumables, all samples from the paused batch will be flagged as unclear. For more information, see Section 6.18.8 Pausing a protocol run.

Loading additional tube carriers with internal controls or empty tubes when a protocol run is in progress

When a protocol run is in progress, load a tube carrier with internal controls only if you plan to create, and define new batches that require internal controls. Load empty tubes only when the batches require a master mix.

Tubes with barcode not detectable as internal control

To add internal controls in tubes with barcodes that are not detected as internal controls to a protocol run that is in progress using the "INVENTORY" screen:

1. Insert the tube carrier.
For more information see Section 6.14.5 Loading a tube carrier.
2. On the dashboard, open the "INVENTORY" screen.
3. Press the inserted tube carrier with internal controls.
4. Select all positions on the tube carrier.
5. Press **Content type** on the right to expand the list of available options.
6. Select **Internal Control**.
7. Press **SELECT IC**.
8. Select the internal control mix, and press **SELECT IC MIX**.
9. Press **ASSIGN**.
10. Press **CHANGE** when the confirmation dialog appears.

The instrument will perform liquid level detection on internal control tubes when processing of the current batch finishes, provided that at least one more batch is planned.

Tubes with barcode detectable as internal control

To add internal controls in tubes with barcodes that are detected as internal controls to a protocol run that is in progress:

1. Insert the tube carrier. For more information see Section 6.14.5 Loading a tube carrier.

The instrument will perform liquid level detection on internal control tubes when processing of the current batch finishes, provided that at least one more batch is planned.

Tubes with barcode detectable as empty tube

To add empty tubes with barcodes that are detected as an empty tube to a protocol run that is in progress:

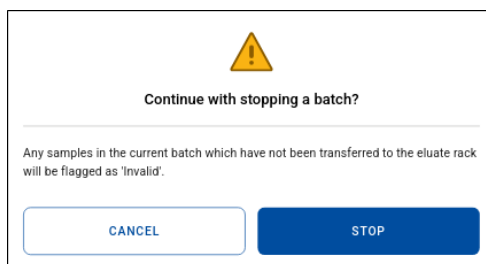
1. Insert the tube carrier. For more information see Section 6.14.5 Loading a tube carrier.

Loading empty tubes immediately updates the reservation status of batches that require them.

6.18.11. Stopping a protocol run

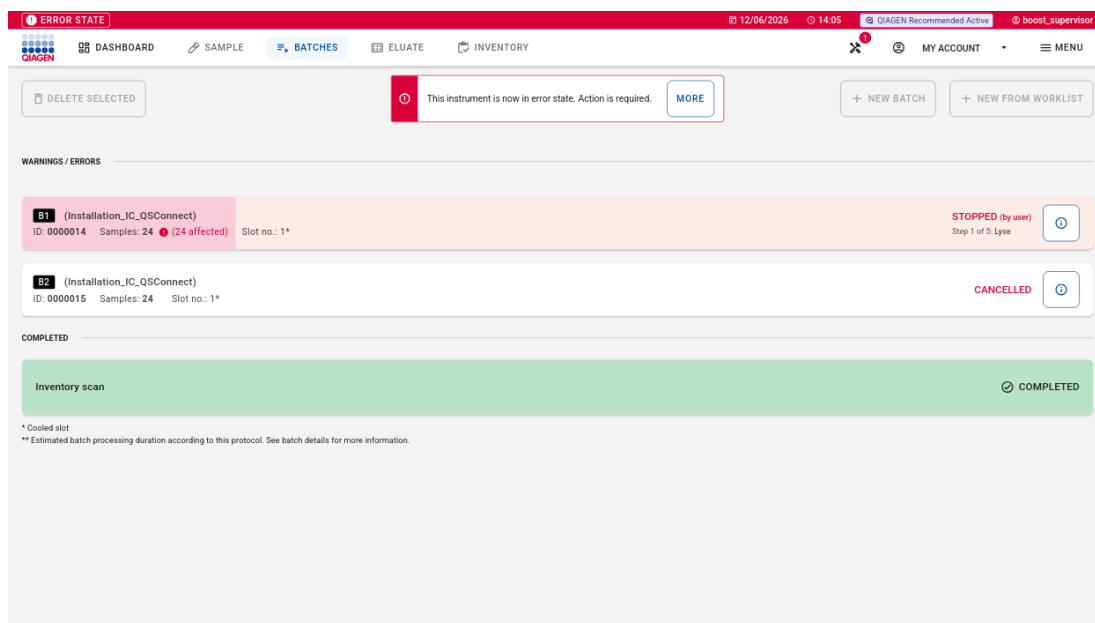
To stop a protocol run:

1. Press **STOP** when a batch is PAUSED.
2. When the confirmation dialog appears, press **STOP** again.



Confirmation dialog before stopping batch processing.

3. After stopping the run, go to **Tools > MAINTENANCE TOOLS > CLEANUP** and perform the CLEANUP procedure.



A stopped run triggers Error state.

When a protocol run is stopped (by user):

- The batch that was stopped changes status from PAUSED to STOPPED (by user).
- The instrument enters “Error state”. For more information, see Section 8.3 Error state.
- Samples from the stopped batch that were not transferred to an eluate rack are flagged as invalid.
- Samples from completed batches retain their status.
- All batches with the PLANNED status change status to CANCELLED.

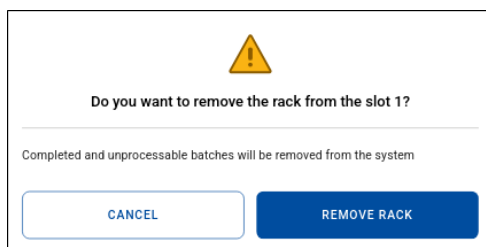
Important: We recommend only stopping a protocol run in exceptional cases. After stopping, consumables may remain in unintended locations, potentially obstructing the processing of future batches. Before preparing the instrument for another run, press **MENU > Tools > MAINTENANCE TOOLS > CLEANUP**, and perform the CLEANUP procedure.

6.19. End of run

A protocol run comes to an end when all PLANNED batches change status to COMPLETED. If the protocol run finished with the ABORTED or STOPPED (by user) status, see Section 8.3 Error state. The list of activities to perform when a protocol run ends depends on the final status of the batches.

When the protocol run has ended and all batches finished with the COMPLETED status:

1. Open the "Eluate" drawer.
2. Unload the eluate rack that batches were transferred to and rack adapters, if relevant.
3. On the touchscreen, press **REMOVE** for the eluate slot where the eluate rack was placed.
4. On the, confirmation dialog, press **REMOVE RACK**.

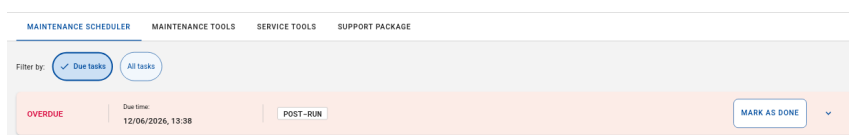


Confirmation dialog before removing an eluate rack.

5. Repeat steps 2–4 for all eluate racks that were used in the protocol run.
6. Close the "Eluate" drawer.
7. Press **SCAN ELUATE DRAWER**.

Note: Performing an inventory scan on the "Eluate" drawer is necessary to generate the Report File.

8. Remove tube carriers from the "Sample" drawer.
9. Press **MENU > Tools > MAINTENANCE SCHEDULER**. Find the due post-run maintenance task on the list, expand its description and follow instructions in the task. Once finished, select **MARK AS DONE**.



Overdue post-run maintenance task.

6.19.1. Report File

Report files are generated for each elution rack. When the elution rack is removed from the "Eluate" drawer following the process described in the section above, the corresponding report file is generated and can be downloaded from the instrument.

The file name is created automatically with the following nomenclature:

YYYYMMDDHHMMSS_ElutionRackID.HTML

YYYYMMDDHHMMSS_ElutionRackID.XML

6.19.2. Generating a Report File

The Report File is generated automatically when the run is finished after you follow the steps described in the in Section 6.19 End of run. If you do not follow steps described below or in the End of run section, the Report File is created the next time the

QIAsymphony Connect starts but the status of all impacted samples is set to unclear.

Note: If the eluate rack is not removed after the end of a protocol run, and another run is started, the instrument continues writing records from all batches assigned to that eluate rack and processed in subsequent protocol runs to the same Report File until the eluate rack is removed.

6.19.3. Report File content

General information

Item	Description
Run details	
Start run time	The time at which processing of the first batch started.
End run time	The time at which processing of the last batch finished.
Eluate removed time	Time at which the elution rack was removed.
Run started by	Name of the user that pressed the RUN ALL button.
Overall status check	- Processed without deviations – all samples from all batches have been processed correctly. - Processed with deviations – at least one sample is flagged as “Unclear” or “Invalid”.
QIAGEN Recommended	- True – the run was processed when a process profile was active that has all settings in line with QIAGEN Recommended configuration. - False – the run was processed when a process profile was active that has any settings set to a non-QIAGEN Recommended value. For more information, see Section 6.5.1 General tab and Section 6.8 QIAGEN Recommended mode.
Rack details	
Elution rack ID	ID of the elution rack used.
Elution labware	Type of the elution rack used.
Elution slot number	Number of the elution slot used.
Report file	Name of the *.xml report file.
File ID	ID of the report file.
Instrument	
QIAsymphony serial number	Serial number of the QIAsymphony on which the protocol run was executed.
Software version	Current software version.
Process configuration profile	The process configuration profile that was used when the batch was processed. See Section 6.5.1 General tab for more information about process configuration profiles.

Reagent information

Item	Description
Reagent cartridge	
Number	Number of the reagent rack used (i.e., 1, 2, or 3).
Slot	Number of the reagent rack slot used in the “Reagents and Consumables” drawer.
Description	Description of the reagent rack used.
Lot number	Lot number of the reagent cartridge used.

Item	Description
Expiration date	Expiration date of the reagent rack.
Expired	• Yes – reagent was expired when the run started. • No – reagent was not expired when the run started. • If its expired for some batches and for some other it is not, then the Expired row is split into two lists of batches: ◦ Expired for batches ◦ Not expired for batches The instrument checks whether a reagent cartridge is expired at the start of the run when RUN ALL button is pressed. If you process batches to an eluate rack using unexpired reagents, the run finishes, and you then define more batches and press the RUN ALL button again, the new batches are saved to the same Report File. However, the new batches can be processed using expired reagents if the "Enable use of expired reagents?" parameter is set to "Yes". For more information, see Section 6.5.1 General tab.
Exceeded open and usable times	• Yes – either open or usable time has been exceeded. • No – neither open or usable time has been exceeded. • If its expired for some batches and for some other it is not, then the Exceeded open and usable times row is split into two lists of batches: ◦ Exceeded open and usable times for batches ◦ Not exceeded open and usable times for batches The instrument checks whether a reagent cartridge has exceeded open or usable time at the start of the run when RUN ALL button is pressed. If you process batches to an eluate rack using reagents that have not exceeded open and usable times, the run finishes, and you then define more batches and press the RUN ALL button again, the new batches are saved to the same Report File. However, the new batches can be processed using reagents that exceeded open and usable times if the "Allow cartridges to be used that have an exceeded open and usable times?" parameter is set to "Yes". For more information, see Section 6.5.1 General tab.
Pierced before run	• Yes – reagent cartridge was already pierced before the protocol run was started. • No – reagent cartridge was sealed before the protocol run started and was pierced at the beginning of the protocol run.
Enzyme rack	
Lot number	Lot number of the enzyme rack used.
Expiration date	Expiration date of the enzyme rack.
Expired	• Yes – enzyme has expired. • No – enzyme has not expired. • If its expired for some batches and for some other it is not, then the Expired row is split into two lists of batches: ◦ Expired for batches ◦ Not expired for batches The instrument checks whether the enzyme rack is expired at the start of the run when RUN ALL button is pressed. If you process batches to an eluate rack using unexpired enzymes, the run finishes, and you then define more batches and press the RUN ALL button again, the new batches are saved to the same Report File. However, the new batches can be processed using expired enzymes if the Enable use of expired reagents? parameter is set to Yes. For more information, see Section 6.5.1 General tab.
Buffer bottle	
Slot	Name of the slot on the workdeck used by the buffer bottle.
Buffer	Name of the buffer.
Lot number	Lot number of the reagent.
Expiration date	Expiration date of the reagent.

Item	Description
Expired	• Yes – reagent has expired. • No – reagent has not expired. • If its expired for some batches and for some other it is not, then the Expired row is split into two lists of batches: ◦ Expired for batches ◦ Not expired for batches The instrument checks whether the buffer bottle is expired at the start of the run when RUN ALL button is pressed. If you process batches to an eluate rack using unexpired buffer bottle, the run finishes, and you then define more batches and press the RUN ALL button again, the new batches are saved to the same Report File. However, the new batches can be processed using expired buffer if the “Enable use of expired reagents?” parameter is set to Yes. For more information, see Section 6.5.1 General tab.

Accessory Trough

Slot	Name of the slot on the workdeck used by the Accessory Trough.
Reagent	Name of the reagent.

Internal control

Internal Control Name	Name of the internal control.
Assay control set name	Name of the Assay Control Set.
Tube position	Position of the internal control (IC) tube in the tube carrier.
Labware	Type of the tube with the internal control (IC).

Batch information

Item	Description
Batch ID	ID of the batch.
Assay control set	Name of the Assay Control Set.
Protocol name	Name of the protocol.
Planned time	Date and time at which the batch was planned by the user.
Start time	Date and time at which the batch processing started.
End time	Date and time at which the batch processing finished.
Samples slot	The “Sample” drawer tube carrier slot used.
IVD	• True - The protocol is used by an In Vitro Diagnostic compliant kit. • False – The protocol is not used by an In Vitro Diagnostic compliant kit.

Detailed information for batch

Messages

Item	Description
Timestamp	Time when the message was triggered.
Message ID	The error code of the message, if relevant. Messages that are not errors, do not have message IDs.
Text	The text of the message.
Command	Name and number of an abstract command, if the message is related to an abstract command.
Sample ID	One or more sample IDs.

Item	Description
Sample Position	One or more sample positions on a tube carrier, for example 1.5 indicates position 5 on tube carrier in the “Sample” drawer slot 1.

Samples

Item	Description
Sample ID	Sample ID generated by the instrument.
Sample position	Position of the sample in the “Sample” drawer. The number before the period denotes the sample slot. The number after the period denotes the position on the tube carrier.
Sample labware	Type of the sample labware.
Type	Content type: • S – sample • EC+ – positive extraction control • EC- – negative extraction control
Liquid level detection	Liquid level detection method: • P – pressure • C – capacitive • N – none
Elution position	Position of the eluate on the elution labware.
Elution volume (µL)	Volume of the eluate in the elution labware. Depending on the protocol, this field may or may not appear.
Min. elution volume (µL)	Minimum elution volume in the elution rack at the time of transfer. Depending on the protocol, this field may or may not appear.
Initial elution volume (µL)	The initial volume of buffer. Depending on the protocol, this field may or may not appear.
S/E onboard time (minutes)	Number of minutes for how long: • (S) – sample was in the tube carrier before its processing began. • (E) – eluate was on the elution rack before the elution rack was removed.
IC name	Name of the IC that was used.
IC tube position	Position of internal control used for this sample in the “Sample” drawer. The number before the period denotes the sample slot. The number after the period denotes the position on the tube carrier.
RC no. (beads + reagents)	Number of the reagent rack for beads and reagents.
RC no. (enzyme rack)	Number of the reagent rack for enzymes.
Result	Sample status after processing: • Valid • Unclear • Invalid

Temperature information

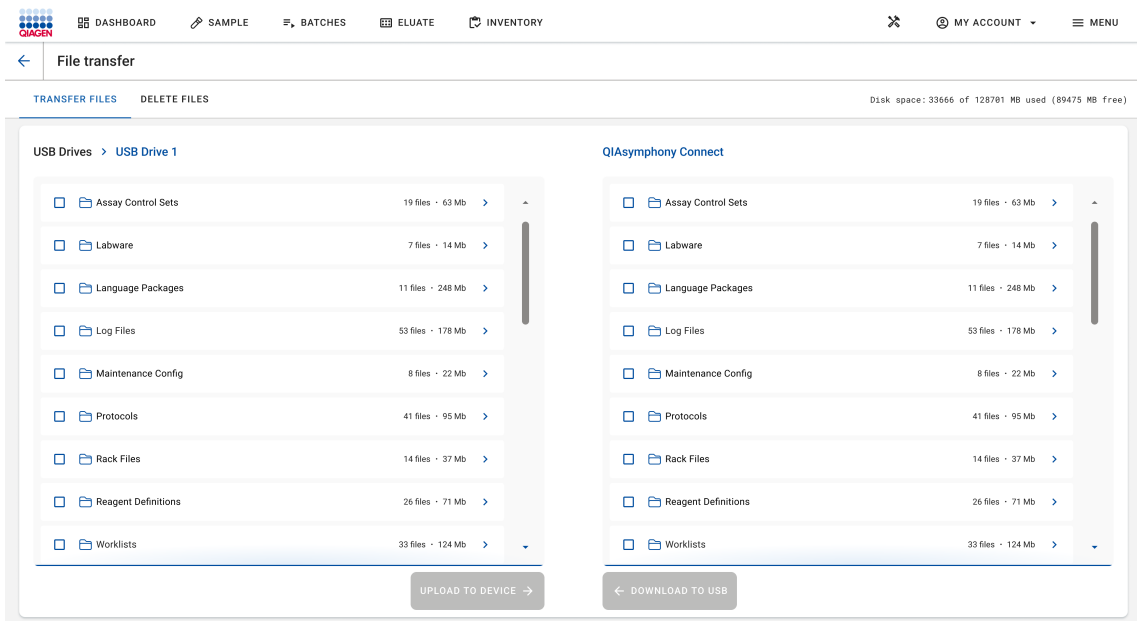
Item	Description
Batch	ID of the batch.
Lysis temperature	Status information of the lysis temperature: • OK – protocol includes lysis, no issues detected • Deviation – protocol includes lysis, issue(s) occurred • Not required – protocol does not include lysis
Cooling position temperature	Status information of the cooling position temperature: • OK – protocol specifies eluate cooling, no issues detected • Deviation – protocol specifies eluate cooling, issue(s) occurred • Not required – protocol does not specify eluate cooling • Cooling not available on selected slot – protocol specifies eluate cooling but was assigned to a non-coolable eluate slot 2, 3 or 4

Temperature deviations on eluate slot 1

This section only appears if a cooling deviation was detected on eluate slot 1. A plot is shown that represents temperature readings from the eluate rack, from the moment the temperature deviation was recorded until the eluate rack was removed from the “Eluate” drawer.

6.20. File transfer

Open the menu and press **FILE TRANSFER** to navigate to the “FILE TRANSFER” screen. The “FILE TRANSFER” screen allows you to upload, download, and delete files. Files can be transferred to and from a USB stick.



“FILES TRANSFER” screen.

6.20.1. Summary of file types supported by file transfer

This table provides a summary of QIAsymphony Connect files, listed in alphabetical order.

File type	Description	Source
Assay Control Set (ACS)	The combination of a protocol for the QIAAsymphony Connect, plus additional parameters defined (e.g., internal control).	Provided by QIAGEN.
Labware	Provides information about consumables.	Provided by QIAGEN.
Language packages	System files with translation of the graphical user interface.	Provided by QIAGEN.
Log file	Data file(s) that contain general information about the instrument, user interactions, and details about the protocol run.	Automatically generated by the instrument.
Maintenance configuration file	Defines the required and optional configuration settings for maintenance tasks.	Default maintenance configuration provided by QIAGEN. Customer adaptations are available on request.
Protocol	A set of instructions for the QIAAsymphony Connect that allows the instrument to perform an automated purification procedure.	Provided by QIAGEN.
Rack file	Contains information about eluate racks (i.e., rack type, rack ID, sample volumes, and sample IDs).	Automatically generated by the instrument or created and modified manually.
Reagent definition	Provide information required for recognizing different reagent cartridges.	Provided by QIAGEN.
Report file	A file that is generated for each eluate rack to which samples were processed in a protocol run. Includes information about the outcome of sample processing.	Automatically generated by the instrument.
Service script	A set of instructions for the instrument to execute maintenance procedures.	Provided by QIAGEN.
Support package	A package of zipped files necessary for troubleshooting issues by the QIAGEN Technical Service.	Manually generated by the instrument at user request.
Worklist	Provides data for semi-automated batch definition by mapping samples to protocols and assay control sets.	Can be generated by a LIMS, or can be manually generated.

6.20.2. User role permissions for operations on files

The File Manager displays folders according to the logged-in user role. Each role has specific permissions for viewing, transferring, or deleting files.

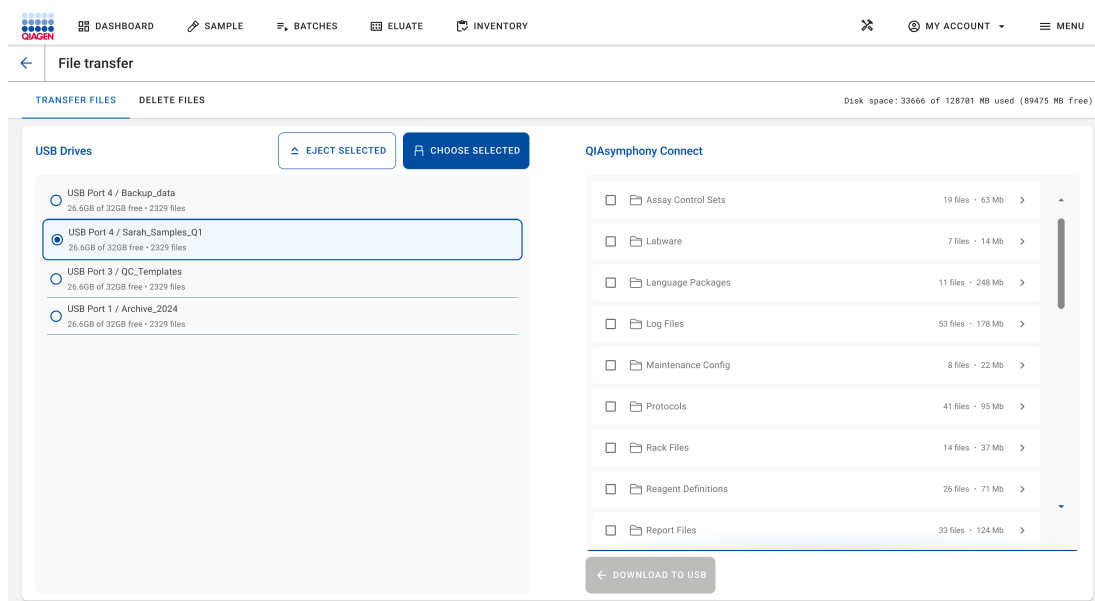
File type	Operator	Supervisor
ACS	View	View / Transfer / Delete
Labware	View	View / Transfer / Delete
Language Packages	View	View / Transfer / Delete
Log Files	No access	No access
Maintenance Config	View	View / Transfer
Protocols	View	View / Transfer / Delete
Rack Files	View / Transfer / Delete	View / Transfer / Delete
Reagent Definitions	View	View / Transfer / Delete
Report Files	View / Transfer / Delete	View / Transfer / Delete
Service Scripts: Maintenance	No access	No access
Service Scripts: Operator	View	View / Transfer / Delete
Service Scripts: Service	No access	No access
Support Packages	View / Transfer / Delete	View / Transfer / Delete
Worklists	View / Transfer / Delete	View / Transfer / Delete

Permission definitions:

- **View:** View basic file information on the instrument.
- **Transfer:** Transfer files to or from the instrument.
- **Delete:** Delete files from the instrument.
- **No access:** The folder is not available for that user role.

6.20.3. Accessing files

1. Log in to the instrument if you are logged out.
2. Plug in a USB stick to any port at the front of the instrument. The USB stick must be FAT32 formatted and must not use software-based encryption. USB sticks with keypad authentication can be used.
3. Press **MENU**, then **FILE TRANSFER**.
4. Select the USB stick you want to transfer files from or to, if more than one USB stick is plugged into the instrument's USB ports at the same time. The instrument will create file download directories on the USB stick.
5. Press **CHOOSE SELECTED** to access files on the USB stick and allow file transfer.

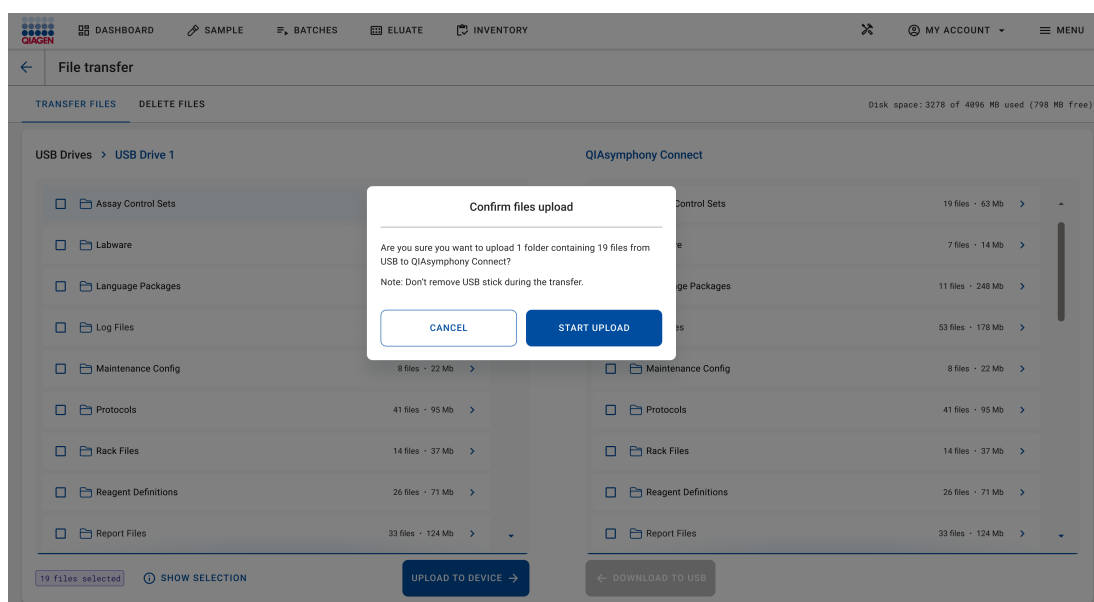


USB drive selection.

6.20.4. Transferring files between the QIAsymphony Connect and a USB stick

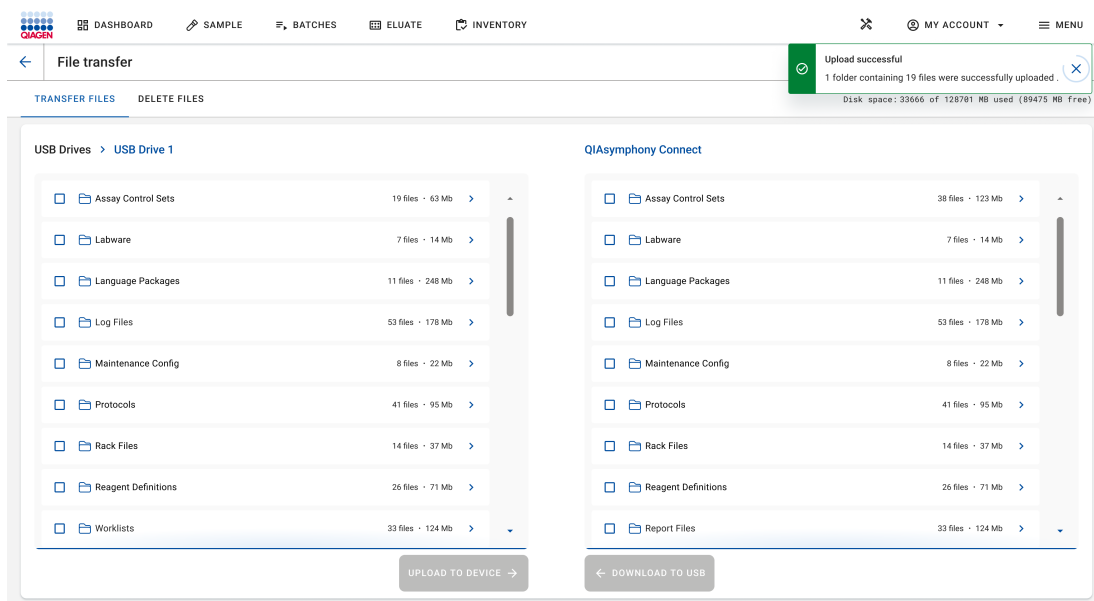
1. Access files on the USB stick of your choice as described in the section above.
2. Select files to transfer (all together or in batches, as convenient):
 - a. Files to upload to the instrument are on the left side of the screen.
 - b. Files to download from the instrument are on the right side of the screen.
 - c. To transfer files in two directions, first complete transfer in one direction, then complete transfer in the other direction. Do not select files on both sides; the instrument clears file selections after file transfer in one direction.

- d. To transfer all files of a specific type, put a checkmark next to the file type directory.
 - e. To transfer individual files of a specific type:
 - i. Press the arrow to the right of the folder name to display files available in the directory.
 - ii. Put a checkmark next to files to transfer.
 - iii. Use breadcrumbs above the directory tree to return to the higher-level directory. Press **QIAsymphony Connect** or the name of the USB stick to return directly to the root directory.
 - f. You can combine selection of all folder contents and individual files.
 - g. Empty file type directories cannot be selected.
3. **Optional:** check that the number of files selected shown at the bottom of the screen is correct or press **SHOW SELECTION** to list all files selected for transfer.
 4. Press **< DOWNLOAD TO USB** when files on the instrument are selected, or press **UPLOAD TO DEVICE >** when files on the USB stick are selected.
 5. On the confirmation dialog, press **START UPLOAD** or **START DOWNLOAD** depending on the transfer direction and which of the buttons is displayed.



File upload confirmation.

6. Wait for the transfer to finish, and do not unplug the USB stick until the transfer is complete.
- Important:** While the file transfer is in progress, the instrument does not allow any other action than cancelling the transfer. Logging out is also not allowed. A message will appear when the transfer is complete.



Successful upload notification.

7. If an error message appears, unplug the USB stick and try again.

Note: Store files downloaded from the QIAsymphony Connect, in particular Report Files and Rack Files, in a secure, access-controlled location to prevent unauthorized access, and third-party modification.

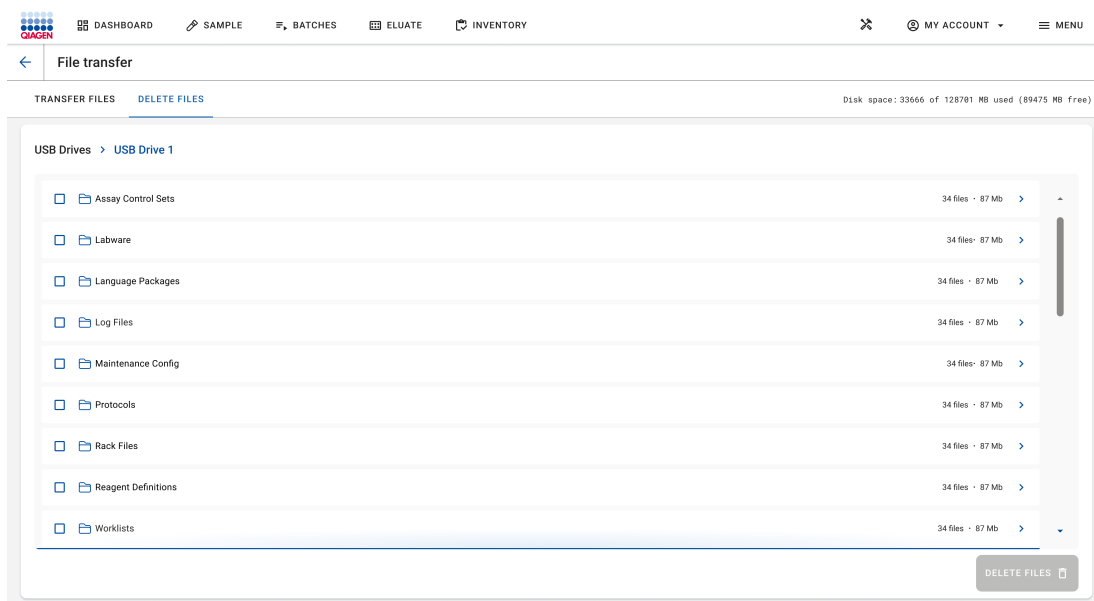
6.20.5. Deleting files from the instrument

The file types that users can delete depend on their role. For more information about available file operations and folder access, see Section 6.20.2 User role permissions for operations on files.

In the **Delete Files** tab for Audit Trail files, Rack files, Report files, and Support Packages, files that have already been downloaded to a USB drive are marked as “Downloaded”. By default, only previously downloaded files are shown. You can change the view to display all available files. If a folder is empty, no toggle is shown.

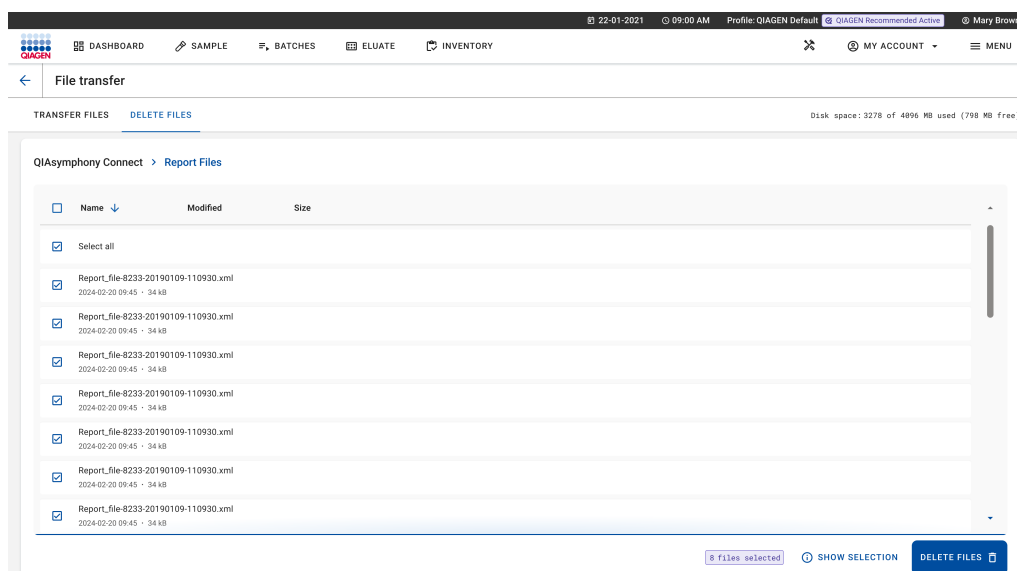
To delete files from the instrument:

1. As a “Supervisor”, press **MENU** on the dashboard, then **FILE TRANSFER**.
2. On the “FILE TRANSFER” screen, press **DELETE FILES**.



Delete Files tab.

3. Select files to delete (all together or in batches, as convenient):
 - a. To delete all files of a specific type, put a checkmark next to the file type directory.
 - b. To delete individual files of a specific type:
 - i. Press the arrow to the right of the folder name to display files available in the directory.
 - ii. Put a checkmark next to files to delete.
 - iii. Use breadcrumbs above the directory tree to return to the higher-level directory. Press **QIAsymphony Connect** or the name of the USB stick to return directly to the root directory.



Choosing files for deletion.

- c. You can combine selection of all folder contents and individual files.
- d. Empty file type directories cannot be selected.

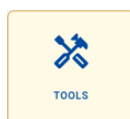
4. Optionally, check that the number of files selected shown at the bottom of the screen is correct or press **SHOW SELECTION** to list all the files for deletion.
5. Press **DELETE FILES**.
6. On the confirmation dialog, press **YES**.
7. Depending on the types of files selected for deletion, the instrument can ask you again if you want to delete selected files. Press **PROCEED**.
8. Wait for the deletion to finish.

While the file deletion is in progress, the instrument does not allow any other action than canceling the deletion. Logging out is also not allowed. A message will appear when files have been deleted.

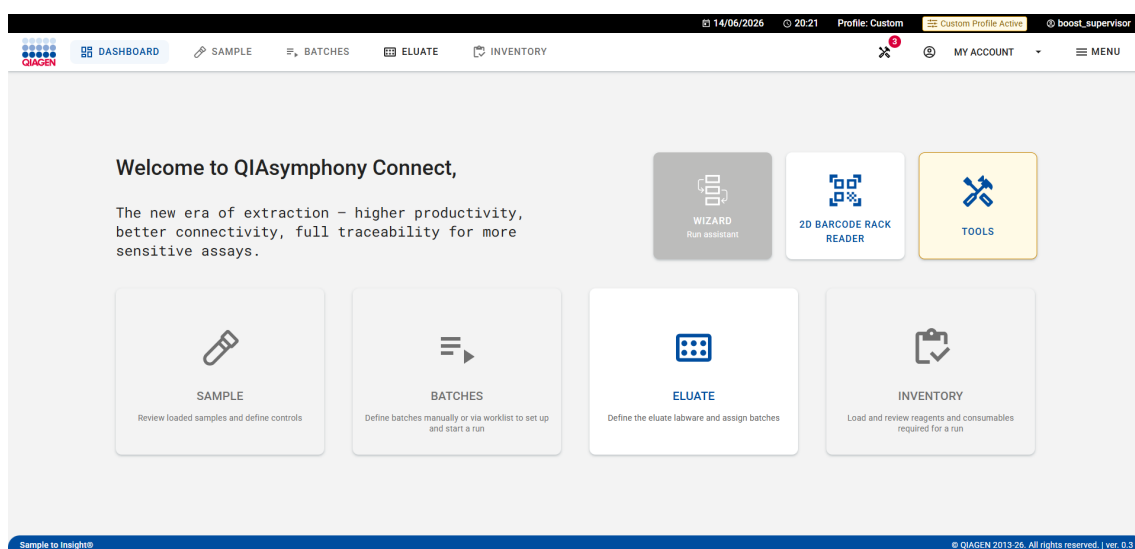
6.21. Maintenance scheduler

Maintenance scheduler lists maintenance tasks that have to be carried out on the instrument periodically and after certain events. Maintenance scheduler can be enabled or disabled in the configuration, for more information see Section 6.5.1 General tab. The occurrence pattern of reminders about maintenance tasks can be set in the configuration, for more information see Section 6.5.2 Maintenance scheduler tab.

When any maintenance tasks are overdue or due soon, the **TOOLS** widget is highlighted in yellow on the dashboard, and a number of such tasks is displayed on the maintenance scheduler icon .



When a maintenance task is overdue and the “Allow batch definition and processing when mandatory tasks are due” is set to “No” in the active process profile, it is not possible to access the “WIZARD”, and “SAMPLES”, “BATCHES” and “INVENTORY” screens. For more information see Section 6.5.1 General tab. To access the disabled screens, go to the Maintenance Scheduler, and complete the required maintenance tasks.

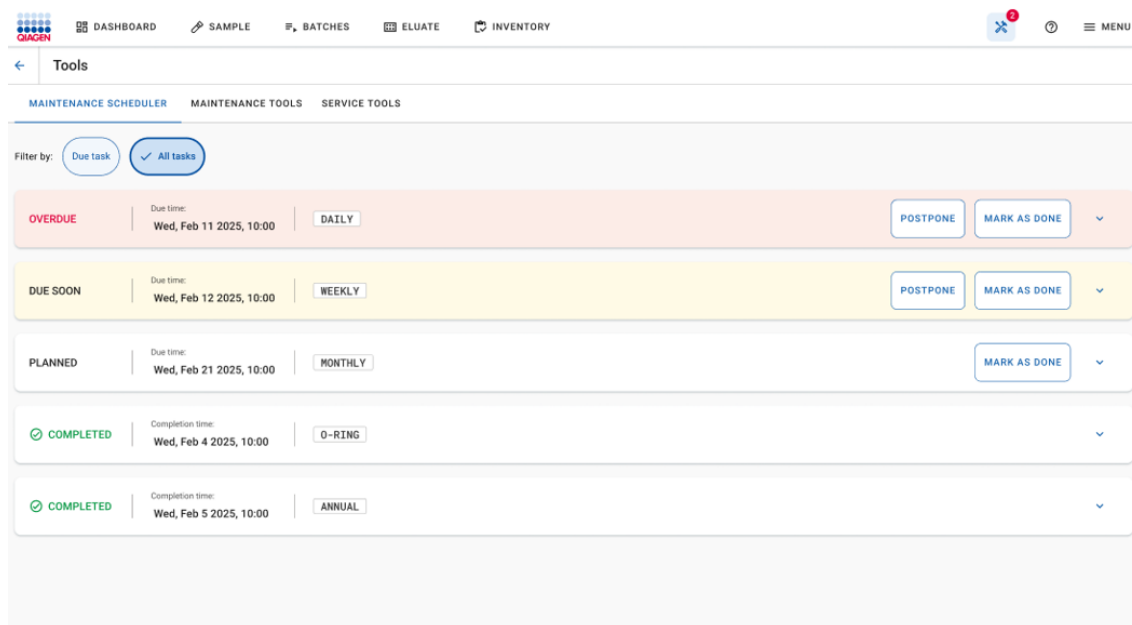


Dashboard with disabled access to the “WIZARD”, “SAMPLE”, “BATCHES”, and “INVENTORY” screens.

To go to the MAINTENANCE SCHEDULER, use one of the following options:

- On the dashboard, press the maintenance scheduler icon .
- On the dashboard, press **TOOLS**.

MAINTENANCE SCHEDULER is the first subtab and opens by default when you press **TOOLS**.



Maintenance Scheduler subtab.

Maintenance task types are listed below.

Maintenance task type	Description	Completing the task
ANNUAL	A time-driven preventive maintenance task that must be performed by the qualified QIAGEN service specialist.	Only the "Service specialist" role can change the due date of an annual maintenance task or mark it as done.
MONTHLY	A time-driven maintenance task that consists of a set of instructions for the operator that has to be repeated every 30 days. The "Supervisor" role can adjust its recurrence pattern, for example, by changing the day of month when the task is due.	Follow the instructions in the task description. When finished, press MARK AS DONE .
WEEKLY	A time-driven maintenance task that consists of a set of instructions for the operator that has to be repeated every week. The "Supervisor" role can adjust its recurrence pattern for example, by changing the day of the week when the task is due.	Follow the instructions in the task description. We recommend that you create a backup of QIAsymphony Connect files while performing the weekly maintenance task and, after the files have been backed up, delete report files older than ten days from the instrument. When finished, press MARK AS DONE .
DAILY	A time driven maintenance task that consists of a set of instructions for the operator that has to be repeated every day.	Follow the instructions in the task description. When finished, press MARK AS DONE .
O-RING	A time-driven maintenance task that consists of a set of instructions for the operator. The "Supervisor" role can adjust frequency of o-ring replacement and the day of the week when the task is due.	Go to TOOLS > MAINTENANCE TOOLS > MAINTENANCE and execute the O-RING REPLACEMENT procedure. If you perform the procedure within 24 hours for all pipetting channels, the task will automatically change to COMPLETED.
POST-RUN	A maintenance task driven by the end of a protocol run. The task must be performed after each completed protocol run.	Follow the instructions in the task description. When finished, press MARK AS DONE .

WARNING/CAUTION



Risk of personal injury and material damage

The POST-RUN maintenance task must be performed after each finished protocol run. Failure to perform the task may result in the waste container overflow with liquid waste that can lead to personal injury or instrument damage.

CAUTION



Damage to the instrument

If the tip disposal bag is not properly installed, a tip jam may occur. Ensure that an empty tip disposal bag is attached to the holder, unfolded and not crinkled before starting a run.

Maintenance task statuses are listed below.

Maintenance task status	Background color	Description
OVERDUE	Red	A maintenance task is overdue when the due time specified in the configuration has passed.
DUE SOON	Yellow	A maintenance task is due soon when the remaining time before the task is due is less than the warning lead time specified in the configuration.
PLANNED	White	A maintenance task starts with the PLANNED status. It also returns to PLANNED if you press POSTPONE .
COMPLETED	White	A maintenance task is completed when you press the MARK AS DONE button for the task. For O-ring maintenance tasks, the status changes to COMPLETED when the O-ring has been replaced on all pipetting channels within the last 24 hours.

Use the **Due tasks** and **All tasks** filters to switch between the list of all tasks and tasks that need action. Press the downward arrow to display the description of the maintenance task.

OVERDUE

Due time:
15/06/2026, 15:18

POST-RUN

MARK AS DONE

Description

To be performed after a run has finished:

- Remove eluate rack(s) if no longer required and download the report file.
- Remove used sample tube carriers.
- Remove and re-seal reagent cartridges and any other reagents if no longer required.
- Empty the unit boxes in the waste drawer, the liquid waste container and the tip disposal bag / bin.

Perform the daily maintenance if no further runs will be started today.
For detailed descriptions of individual maintenance tasks, please refer to the QIAasympy Connect User Manual.

A maintenance task description.

Follow the steps in the description. When you finish, press **MARK AS DONE**. If you cannot perform the maintenance procedure at this time, press **POSTPONE** (not available for post-run maintenance tasks). Postponed maintenance tasks return to the PLANNED status and will become DUE SOON again toward the end of the day, according to the warning time set for that task.

For more information about configuring maintenance tasks and their recurrence patterns, see Section 6.5.2 Maintenance scheduler tab.

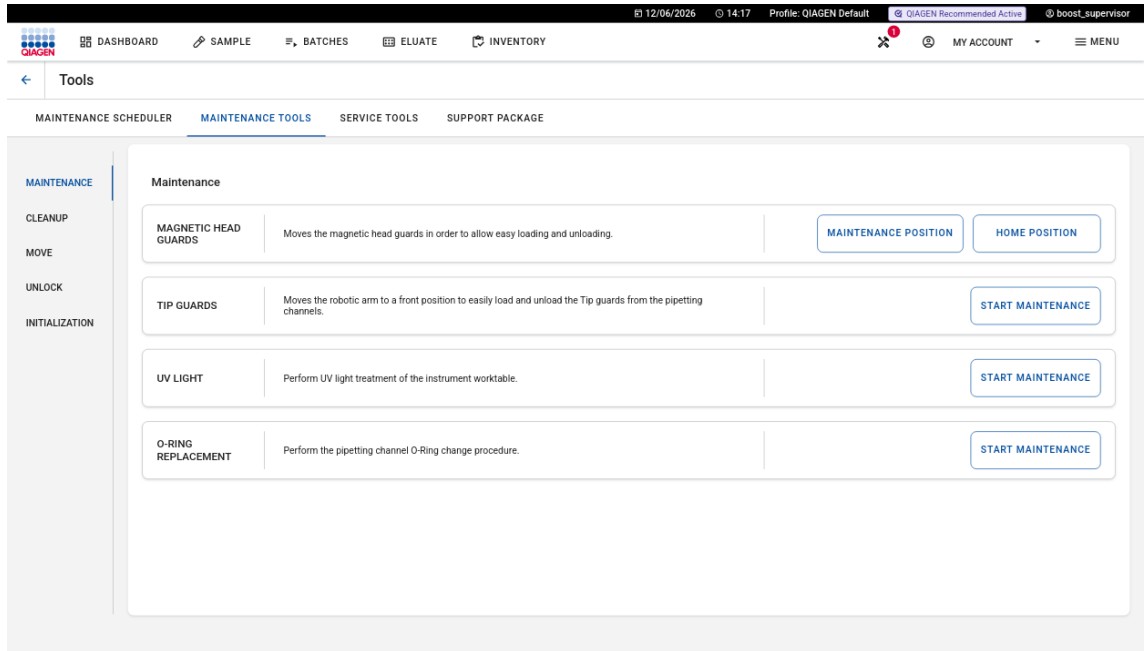
6.22. Maintenance and service procedures

QIAasympy Connect supports the execution of maintenance and service procedures. These procedures consist of automated, guided steps that you can run on the instrument, for example, when required by the maintenance scheduler or to clean up the workdeck after a protocol run is aborted or stopped by the user.

6.22.1. Maintenance tools

Commonly used procedures are available in the **MAINTENANCE TOOLS** tab and are provided with the instrument.

To access MAINTENANCE TOOLS, press **TOOLS** on the dashboard, then **MAINTENANCE TOOLS**.



Maintenance Tools screen.

The list of procedures in the MAINTENANCE TOOLS tab is fixed and distributed across several subtabs.

Procedures available on the MAINTENANCE subtab are listed below.

Group	Description	Procedure buttons
MAGNETIC HEAD GUARDS	Moves the magnetic head guards in order to allow easy loading and unloading.	- MAINTENANCE POSITION - HOME POSITION
TIP GUARDS	Moves the robotic arm to a front position to easily load and unload the tip guards from the pipetting channels.	START MAINTENANCE
UV LIGHT	Perform UV light treatment of the instrument worktable.	START MAINTENANCE
O-RING REPLACEMENT	Perform the pipetting channel O-Ring change procedure.	START MAINTENANCE

Procedures available on the CLEANUP subtab are listed below.

Group	Description	Procedure buttons
CLEANUP	Guided cleanup procedure to be performed after a run was stopped or aborted.	START MAINTENANCE

Procedures available on the MOVE subtab are listed below.

Group	Description	Procedure buttons
ROBOTIC ARM	Moves the robotic arm to back left or back right side of the instrument.	• MOVE LEFT • MOVE RIGHT
CONVEYOR	Moves the conveyor belt left or right.	• MOVE LEFT • MOVE RIGHT
LYSIS STATION	Moves the frame of the lysis station to the upper position.	MOVE UP
PIERCING DEVICE	Moves the piercing device to the lower position.	• SLOT 1: MOVE DOWN • SLOT 2: MOVE DOWN

Procedures available on the UNLOCK subtab are listed below.

Group	Description	Procedure buttons
DRAWERS	Unlocks the reagent and consumables, waste and eluate drawers.	UNLOCK
SAMPLE CARRIERS	Unlocks all sample carriers in the Sample Input Module.	UNLOCK
HOOD	Unlocks the hood.	UNLOCK

Procedures available on the INITIALIZATION subtab are listed below.

Group	Description	Procedure buttons
INITIALIZATION	The instrument will move all modules to their home positions.	INITIALIZE
SIM FREE POSITIONS	Recovers the Sample Input Module from error state.	RESET

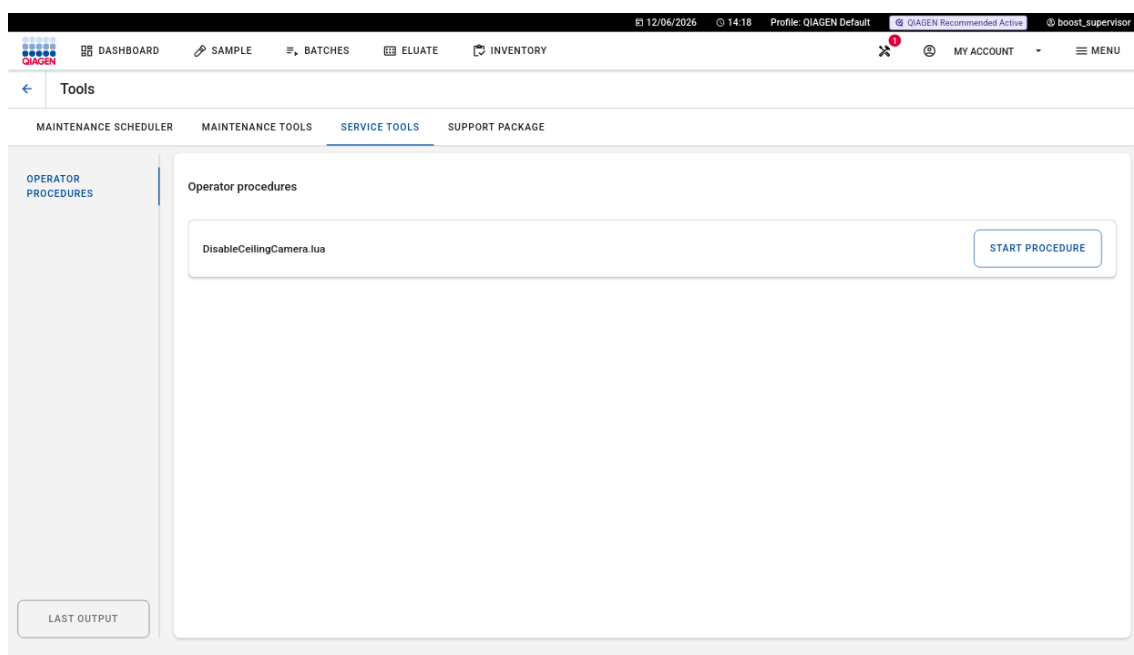
To run a maintenance procedure:

1. Go to the subtab where the procedure you want to run is located.
2. Press the button that runs the procedure you plan to run.
3. Depending on the procedure, the procedure execution can begin in a different window. If the procedure does not require user input, the instrument displays the result immediately.
4. If user input is required, the procedure guides you through each step.

Note: Running maintenance procedures is not possible during a protocol run or an inventory scan.

6.22.2. Service tools

In the **SERVICE TOOLS** tab, users with "Supervisor" or "Operator" roles can view procedures uploaded to the Service Scripts/Operator directory. When you upload additional procedures, they are automatically listed here.



Operator procedures available on the “SERVICE TOOLS” screen.

To run a service procedure:

1. Press **START PROCEDURE** for the procedure you want to run.
2. The procedure opens in a new screen. If the procedure does not require user input, the instrument displays the result immediately in the LAST OUTPUT view.
3. If user input is required, the procedure guides you through each step.
4. When the procedure finishes, the result and related messages appear in the LAST OUTPUT view.



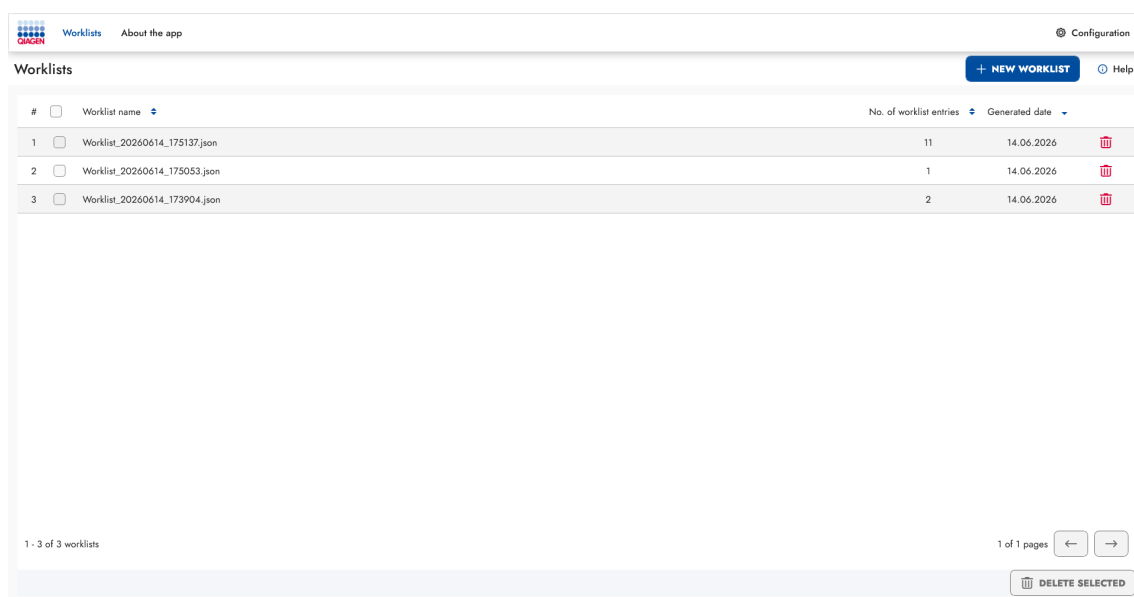
Last Output screen.

The LAST OUTPUT view displays messages from recent procedures. It is cleared when you press **CLEAR** or when you leave the SERVICE TOOLS tab.

Note: Running service procedures is not possible during a protocol run or an inventory scan.

6.23. QIAsymphony Connect Suite

QIAsymphony Connect Suite is an optional desktop application that allows users to create worklist files, but is not otherwise required for operating the QIAsymphony Connect instrument.



QIAsymphony Connect Suite Worklists screen.

6.23.1. Minimum system requirements

The table below lists the minimum PC requirements for QIAsymphony Connect Suite. The PC must be supplied by the user.

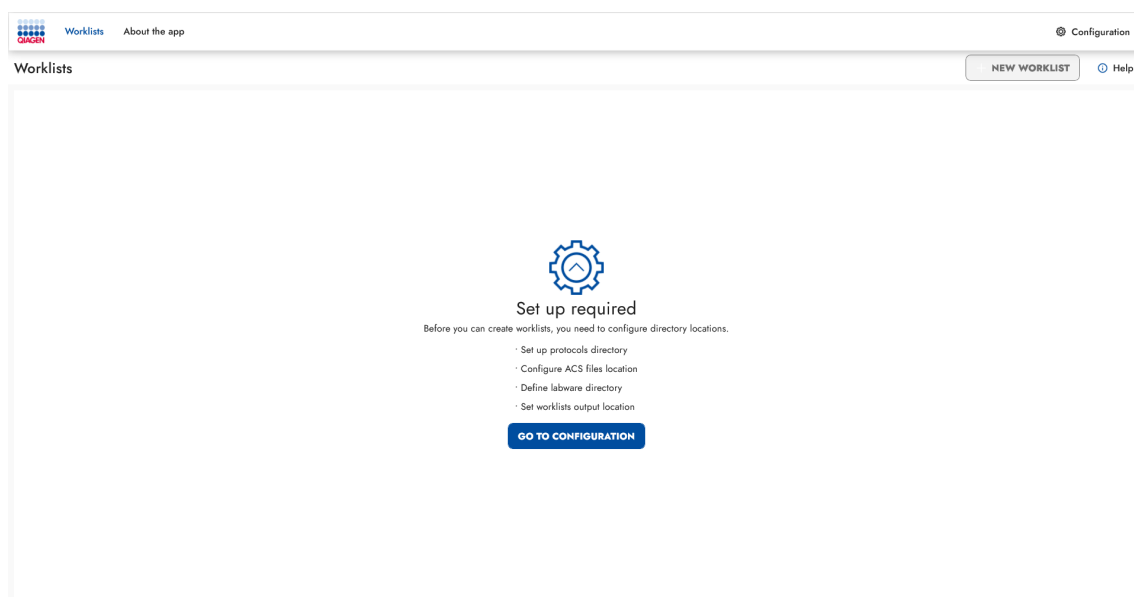
PC feature	Requirements
Supported operating systems	Windows 11 (version 21H2 or later) Windows 10 (version 1809 or later)
CPU	2-core x64 processor (e.g., Intel i3 1.2–2.0 or equivalent)
RAM	4 GB
Disk space	5 GB

6.23.2. Installation

1. Check that your system meets the minimum system requirements described in the section above.
2. Run the QIAsymphony_Connect_SW_Suite_<version>.msix file to start the installation wizard.
3. Follow the instructions in the installation wizard to complete the installation.

6.23.3. Configuration of QIAsymphony Connect Suite

QIAsymphony Connect Suite requires configuration before use.



QIAsymphony Connect Suite before configuration.

To set up QIAsymphony Connect Suite for worklist creation:

1. On the PC, create separate directories for:
 - a. Protocol files
 - b. Assay Control Set (ACS) files
 - c. Labware files
 - d. Worklist files
2. Copy protocols, ACS, and labware files to the respective directories. If you do not have the files, you can download them from the instrument using a USB stick.

For more information, see Section 6.20.4 Transferring files between the QIAsymphony Connect and a USB stick.

3. In the QIAsymphony Connect Suite, go to **Configuration**.

QIAsymphony Connect Suite configuration.

4. Click **BROWSE** for protocols, in the **Select Folder** window, locate the directory with protocol files, then click **Select Folder**.
5. Repeat this step for all remaining file types.
6. Click **SAVE & RETURN TO WORKLIST**.

6.23.4. Creating worklists using QIAsymphony Connect Suite

A worklist consists of data entries for each sample ID. If the protocol does not require the use an internal control, each entry must include at least a sample ID and a protocol name. If the protocol requires an IC, the IC name is also required in the worklist.

During worklist entry creation, QIAsymphony Connect Suite reads data from the specified protocol, ACS, and labware directories, and only offers for selection values that come from the files or their associated files (e.g., IC name selection from ACS files associated with the selected protocol).

Once a worklist has been created, it cannot be modified.

To create a worklist:

1. Click **+ NEW WORKLIST** to start adding entries to a worklist.
2. Add entries to the worklist by following instructions in the Operations on worklist entries in Section 6.23.5 Operations on worklists entries in QIAsymphony Connect Suite.
3. When finished, click **SAVE & EXIT**.

6.23.5. Operations on worklists entries in QIAsymphony Connect Suite

To create a single entry in a worklist:

1. Enter a sample ID in the input field in the Sample ID column. Each sample ID must be unique within a worklist.
2. Expand the dropdown in the Protocol name column and select a protocol from the list.

3. If the protocol requires the use of an internal control, select the internal control from the IC name dropdown.
If no internal control name appears, the protocol does not use internal controls.
4. **Optional:** Select a labware type from the **Sample labware type** dropdown.
5. **Optional:** Enter an elution rack ID in the **Elution rack ID** column.
6. **Optional:** Select a value from the **Elution volume (µL)** dropdown.
7. **Optional:** Select a labware type from the **Elution labware type** dropdown.

New worksheet

Worksheet name: worksheet will be automatically named using the format: **Worksheet_{date}_{time}.json**

⚠ Sample Labware Type, Elution Rack ID, Elution volume and Elution Labware Type, won't be validated on the instrument, but will be taken into consideration during batch candidate generation. You can type multiple sample ID all of them will be created with parameters you choose later.

#	Sample ID	Protocol name	IC name	Sample labware type	Elution rack ID	Elution volume (µl)	Elution labware type
	123456789	Cellfree1000_V1_QSYIC	CellfreeIC	BD#352051 FalconPP 17x100		110	QIA#19588 *EMTR

+ ADD

CANCEL SAVE SAVE & EXIT

Adding a single entry to a worksheet.

8. Click **+ ADD** to add the entry to the worksheet and start a new entry.
9. You can press the copy/paste to populate the fields with the same data as the copied entry, except for the Sample ID.
10. Repeat these steps for each sample as needed
11. When you finish, click **SAVE & EXIT**.

Note: You must not use the same sample ID more than once in a worksheet or across different worksheets. QIAAsymphony Connect does not allow to create batches with replicate sample IDs.

To create multiple entries in a worksheet:

1. Enter sample IDs in the Sample ID column for samples that will share the same worksheet specification, using a comma (,) as the separator.

Sample ID*
10000,10001,10002,10003

Adding multiple entries to a single worksheet in one step.

2. If the protocol requires an internal control, select the internal control from the IC name dropdown that will be shared by all specified sample IDs.
If no internal control name appears, the protocol does not use internal controls.

3. If all the other worklists parameters are the same for the listed sample IDs, you can specify them as needed or leave them blank.

For optional parameters, see the instructions in "To create a single entry in a new worklist" above.

4. When you finish, click **SAVE & EXIT**.

To delete an entry in a worklist:

1. Click the trash bin icon  for the entry you want to delete.
2. Click **SAVE** to save the changes, or **SAVE & EXIT** to return to the list of worklists in the worklist directory.

6.23.6. Deleting worklists in QIAsymphony Connect Suite

To delete a worklist:

On the "Worklists" screen, click the trash bin icon for the worklist you want to delete.

To delete multiple worklists in one step:

1. On the "Worklists" screen, select the worklists you want to delete.
2. Click **DELETE SELECTED** in the bottom right corner of the screen.
3. In the confirmation dialog, click **YES, DELETE**.

7. Maintenance

This section describes the routines and post-run maintenance procedures required for the QIAsymphony Connect. Each maintenance procedure must be carried out by appropriate personnel to ensure safe and reliable operation of the QIAsymphony Connect. Table 2 lists the maintenance tasks and their frequencies.

Table 2. Descriptions of maintenance tasks

Task	Frequency
Change the tip disposal bag and empty the liquid waste container	After each run
Cabinet maintenance instructions	Daily
Clean Magnetic head guards	Daily
Clean pipetting system tip guards	Daily
Clean worktable, drawers, and removable items	Daily
Clean the tube carriers and inserts	Daily
Clean reagent box adapters	Daily
Clean reagent cartridge holder	Daily
Clean tip park station	Daily
Clean tip disposal chute	Daily
Clean the liquid waste container	Daily
Clean eluate adapters	Daily
Clean the conveyor base tray	Daily
Clean the 2D barcode rack reader glass plate	Daily
Clean the weight of the robotic gripper	Weekly
Clean the magnetic head	Weekly
Clean the touchscreen	Weekly
Clean the hood and side panel windows	Monthly
Clean the illumination panel	Monthly
Clean the optical sensor of the robotic arm	Monthly
Clean the ceiling camera	Monthly
Clean the sample input camera	Monthly
Change tip adapter O-ring	Monthly
Clean the magnetic capture plate	Annual

7.1. Cleaning the QIASymphony Connect

Table 3 lists the recommended cleaning agents for the instrument, indicating whether each is for surface wiping or submerging worktable items.

Table 3. List of recommended cleaning agents

Cleaning agent	Surface of the instrument	Submerging worktable items
Ethanol 70%	✓ *	
DI water	✓	
Mikrozin® AF Liquid / Wipes	✓ *	
Mikrozin Sensitive Liquid / Wipes	✓	
Incidin® Liquid	✓ *	
Gigasept® Instru AF		✓
Gigasept FF (new)		✓
DECON-QUAT® 100		✓
Chemgene HLD4L		✓
0.1 M NaOH	✓	✓
DNA-ExitusPlus™ IF	✓ *	

*Not for alcohol-sensitive parts of QIASymphony Connect like hood, side panel, and illumination panel.

Submergible worktable items

- Magnetic head guards
- Tip guards
- Conveyor base tray
- Tube carriers and inserts
- Tip park station
- Tip disposal chute
- Liquid waste container
- Reagent cartridge holder
- Reagent box adapter
- Eluate adapters
- Cabinet tip and waste chute
- Cabinet drop catcher

7.1.1. Generic cleaning agents

- **Ethanol 70%:** for cleaning the glass plate of the 2D barcode rack reader, the sensor, and weight of the robotic arm; also used on the surface after being wiped by a disinfectant.
- **Deionized (DI) or Distilled Water:** for cleaning the hood, side panel, and diffuser panels; also used on the surface after being wiped by a disinfectant.

7.1.2. Disinfectants

Important: If you want to use disinfectants different from those recommended, ensure that their compositions are the same.

The cleaning agents mentioned in Table 3 are further described in the list below:

- **MikroZid AF Liquid:** 100 g solution contains 25 g ethanol (94 %) and 35 g 1-propanol.
Alcohol-based disinfectant for wiping surfaces of the QIASymphony Connect (not for instrument hood, side panel, and diffuser panels).
- **MikroZid AF Wipes:** Moistened with alcohol-based disinfectant for wiping surfaces of the QIASymphony Connect (not for instrument hood, side panel, and diffuser panels).
- **MikroZid Sensitive Liquid:** Quaternary ammonium salt-based disinfectant. 100 g solution contains 0.26 g quaternary ammonium compounds, benzyl-C12-C16-alkyldimethyl, chlorides; 0.26 g didecyldimethylammonium chloride and 0.26 g quaternary ammonium compounds, benzyl-C12-C14-alkyl[(ethylphenyl)methyl]dimethyl, chlorides).
Alcohol-free disinfectant for wiping alcohol sensitive surfaces of the QIASymphony Connect (for instrument hood, side panel, and diffuser panels).
- **Incidin Liquid:** 100 g solution contains 35g 2-Propanol and 25g 1-Propanol.
Alcohol-based disinfectant for wiping surfaces of the QIASymphony Connect (not for instrument hood, side panel, and diffuser panels).
- **Gigasept Instru AF:** 100 g solution contains 14 g cocospropylene-diamine-guanidine diacetate, 35 g phenoxypropanols, and 2.5 g benzalkonium chloride, with anticorrosion components, fragrance, and 15–30% nonionic surfactants.
Disinfectant for submerging worktable items.
- **Gigasept FF (new):** 100 g solution contains 93.9 g reaction product of DMO-THF, ethanol, and water.
Disinfectant for submerging worktable items.
- **DECON- QUAT 100:** Quaternary ammonium salt based disinfectant concentrate. Contains 5% alkyldimethylbenzylammonium chloride and 5% alkyl dimethyl ethylbenzyl ammonium chloride).
Disinfectant for submerging worktable items.
- **Chemgene HLD4L:** Quaternary ammonium salt-based disinfectant.
Disinfectant for submerging worktable items.

7.1.3. Removal of RNase contamination

0.1 M NaOH can be used for cleaning surfaces and submerging worktable items.

7.1.4. Removal of nucleic acid contamination (DNA and RNA)

DNA-ExitusPlus IF (indicator-free variant of DNA-ExitusPlus) can be used for cleaning surfaces and submerging worktable items. This is not for alcohol-sensitive parts of QIA Symphony Connect like hood, side panel, and diffuser panel.

7.2. General cleaning precautions

WARNING 	Risk of personal injury Always wear eye protection, lab coat, and lab gloves.
CAUTION 	Damage to the instrument If solvents or saline, corrosive, acidic, or alkaline solutions are spilled on QIA Symphony instrument, wipe them away immediately.
CAUTION 	Damage to the instrument Do not use alcohol or alcohol-based disinfectants to clean the QIA Symphony hood, side-panels, and diffuser panels. Exposure of the QIA Symphony hood, side-panels and diffuser panels to alcohol or alcohol-based disinfectants will cause surface cracking.
WARNING 	Hazardous chemicals and infectious agents If liquid is spilled on the QIA Symphony worktable, wipe it away as soon as the run has finished in accordance with the local regulations. Do not allow the liquid to dry.
CAUTION 	Damage to the instrument Ensure that no bits remain after wiping the drawers, the perforated metal plate, and the lysis station with paper towels. Pieces of paper towel remaining on the worktable could lead to a worktable collision.
CAUTION 	Damage to the instrument Only perform maintenance that is specifically described in the Instructions for Use.
WARNING 	Toxic fumes Do not use bleach, solvents, or reagents containing acids, alkalis, or abrasives to clean the QIA Symphony Connect instruments.
WARNING 	Risk of personal injury and material damage Do not autoclave the removable items.
CAUTION 	Damage to the instrument The magnetic capture plate can only be cleaned by certified QIAGEN service as part of the planned maintenance. Please contact QIAGEN Field Service specialists for details.

7.3. Change the tip disposal bag



Note: If using the QIAAsymphony Cabinet, refer to the instructions provided in Section 7.18 Cabinet maintenance instructions.

1. Remove the tip disposal bag
 - a. Pull out the holder and sliding rods. Grip the upper part of the holder and pull it toward you.
 - b. Lift the upper part of the holder and push it backwards until the cutouts are resting on the rods.
 - c. Remove the tip disposal bag from the lower part of the holder.
 - d. Attach the upper part of the holder to the lower part, and slide in the rods by pushing them toward the instrument.
 - e. Discard the waste according to your local regulations.
2. Clean the tip disposal bag holder
 - a. Wipe the tip disposal bag holder with disinfectant and incubate according to the disinfectant manufacturer's instructions.
 - b. Wipe with a lint-free cloth moistened with water or 70% ethanol.
3. Install a new tip disposal bag (cat. no. 9013395)
 - a. Pull out the holder and sliding rods.
 - b. Grip the upper part of the holder and pull it towards you.
 - c. Lift the upper part of the holder and pull it backwards until the cutouts are resting on the rods.
 - d. Attach the tip disposal bag to the lower part of the holder. Unfold the tip disposal bag, so that tips can freely fall into the bag.
 - e. Attach the upper part of the holder to the lower part, and slide in the rods by pushing them toward the instrument.

Important: The tip disposal bag is not checked during the inventory scan. Ensure that an empty tip disposal bag is installed before starting a run.

CAUTION



Damage to the instrument

If the tip disposal bag is not properly installed, a tip jam may occur. Ensure that an empty tip disposal bag is attached to the holder, unfolded and not crinkled before starting a run.

7.4. Empty waste container



Liquid waste container.

1. Open the “Waste” drawer and remove the liquid waste container.
2. Empty the liquid waste container. Dispose of the liquid waste according to your local regulations.
3. Put back the liquid waste container and close the “Waste” drawer.

7.5. Clean magnetic head guards

1. Open the **Tools** menu, select **Maintenance Tools > Magnetic head guards > Maintenance Position** to position the magnetic head guards for removal.
2. Open the hood and move the display to better reach the magnetic head guards.
3. Remove the two magnetic head guards by gently lifting the guards off the arm.
4. Disinfect the magnetic head guards by either:
 - a. **Option 1:** Wipe the magnetic head guards with disinfectant and incubate according to disinfectant manufacturer’s instructions. Wipe with a lint-free cloth moistened with water or 70% ethanol.
 - b. **Option 2:** Soak the magnetic head guards in disinfection bath according to the disinfectant manufacturer’s instructions. Rinse the head guards thoroughly with water to remove residues of the cleaning solution. Let the magnetic head guards dry.
5. Put back the magnetic head guards onto the arms in correct orientation (see below).



Correct orientation of magnetic head guards.

6. Select **Home Position** on GUI to return magnetic head guards.

Important: Make sure to install the magnetic head guards correctly before operating the QIA Symphony Connect instrument.

7.6. Clean pipetting system tip guards

1. Open the **Tools** menu, select **Maintenance Tools > Tip Guards > Start Maintenance** to position the tip guards for removal.
2. Open the hood and move the display to better reach the system tip guards.
3. Remove all four tip guards by pushing each tip guard upward until it clicks out of place.



Removing the tip guards.

4. Soak the tip guards in a disinfection bath according to the disinfectant manufacturer's instructions. Rinse thoroughly with water to remove residues of the cleaning solution. Let the tip guards dry.
5. Put back the tip guards.

Important: Tip guards should be dry and installed correctly before operating the QIA Symphony Connect instrument.

7.7. Clean worktable, drawers, and removable items

1. Remove all consumables from the drawers and worktable.
2. Remove the following items from the instrument if applicable:
 - a. Open instrument hood: remove the conveyor base tray beneath the conveyor of the extractor at the back of the instrument.



Conveyor Base tray.

- b. Open "Sample" drawer: remove tube carriers and inserts.
 - c. Open "Reagents and Consumables" drawer: remove reagent cartridge holder.
 - d. Open "Waste" drawer: remove tip park station, tip disposal chute, and liquid waste container.
 - e. Open "Eluate" drawer: remove eluate adapters.
3. Remove the reagent cartridge holder from the reagent cartridge.
 4. Clean the removed items by soaking in disinfection bath according to the manufacturer's instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the removed items dry.

CAUTION



Risk of personal injury and material damage

Do not autoclave the removable items.

5. Clean the worktable and the cover plates left and right to the workdeck with disinfectant and incubate according to disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.
6. Clean the recess and frame of the lysis station with disinfectant and incubate according to disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.



Recess and frame of the lysis station.

7. Clean the perforated metal plate of the piercing device (above and below and in the holes) with disinfectant and incubate according to disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.

WARNING



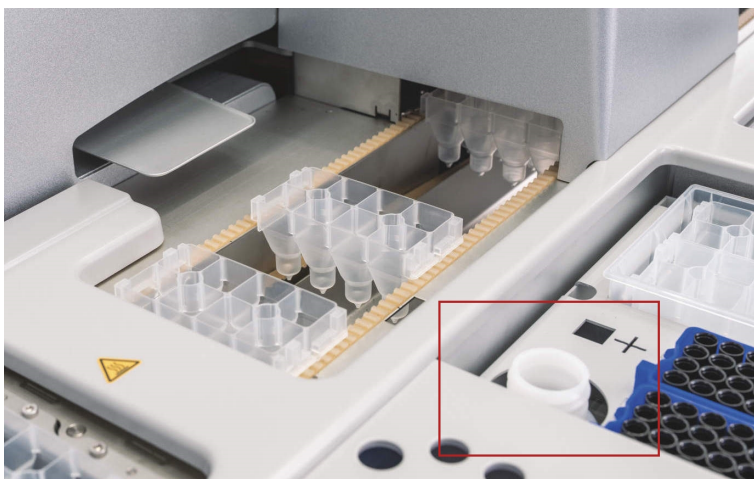
Risk of personal injury and material damage

There are spikes below the top plate of the piercing device in the "Reagents and Consumables" drawer that ensure that the reagent cartridge is correctly positioned. Take care when cleaning the "Reagents and Consumables" drawer to avoid injury.

8. Wipe the surface, the side, and the front of the drawers with disinfectant and incubate according to disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.
9. Clean the diffuser panel and the buffer bottle position in the Reagents and Consumables drawer with a soft lint-free cloth moistened with water, or use wipes soaked with alcohol-free disinfectant (recommended Mikrozid® Sensitive Liquid).



Diffuser panel beneath tip rack positions.



Buffer bottle position.

CAUTION



Damage to the instrument

Do not use alcohol or alcohol-based disinfectants to clean the diffuser panel or buffer bottle positions. Exposure of the diffuser panels or buffer bottle positions to alcohol or alcohol-based disinfectants will cause surface cracking.

10. Clean the 2D barcode rack reader glass plate and mirror on slot 2 of the eluate drawer with a lint-free cloth moistened with 70% ethanol. Make sure the glass plate and mirror are clean and free of streaks.

Note: Residues and streaks on the glass plate and mirror can lead to erroneous barcode readings.

11. Put back the removed items and close the drawers and the hood.

7.7.1. Clean the tube carriers and inserts

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

1. Remove tube carriers and inserts.
2. Soak in disinfection bath according to the disinfectant manufacturer's instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the tube carriers, adapters, and inserts dry.
3. Check the condition of the bar code labels on the carriers and inserts and ensure that they are not scratched or peeling off. Replace damaged items see Ordering information.

7.7.2. Clean reagent box adapters

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

1. Open the "Reagents and Consumables" drawer and remove the reagent box adapters.



Reagent Box Adapter.

2. Disinfect the reagent box adapters by either:
 - a. **Option 1:** Soak in disinfection bath according to the disinfectant manufacturer's instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the reagent box adapters dry.
 - b. **Option 2:** Wipe the reagent box adapters with disinfectant and incubate according to disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.
3. Put back the reagent box adapters and close the "Reagents and Consumables" drawer.

7.7.3. Clean reagent cartridge holder

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.



Reagent Cartridge Holder.

1. Remove the reagent cartridge holder from the reagent cartridge.
2. Soak in disinfection bath according to the disinfectant manufacturer's instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the reagent cartridge holder dry.

7.7.4. Clean tip park station

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.



Tip park station.

1. Open the "Waste" drawer and remove the tip park station.
2. Soak in disinfection bath according to the disinfectant manufacturer's instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the tip park station dry.
3. Put back the tip park station and close the "Waste" drawer.

7.7.5. Clean tip disposal chute



Tip disposal chute.

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

Note: If using the QIAsymphony Cabinet, refer to the instructions provided in Section 7.18 Cabinet maintenance instructions.

1. Open the “Waste” drawer and remove the tip disposal chute.
2. Soak in disinfection bath according to the disinfectant manufacturer’s instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the tip disposal chute dry.
3. Put back the tip disposal chute and close the “Waste” drawer.

7.7.6. Clean the liquid waste container

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.



Liquid waste container.

1. Open the “Waste” drawer and remove the liquid waste container.
2. Empty the liquid waste container. Dispose of the liquid waste according to your local regulations.
3. Clean the liquid waste container by soaking in disinfection bath according to the manufacturer’s instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the liquid waste container dry.
4. Put back the liquid waste container and close the “Waste” drawer.

7.7.7. Clean eluate adapters

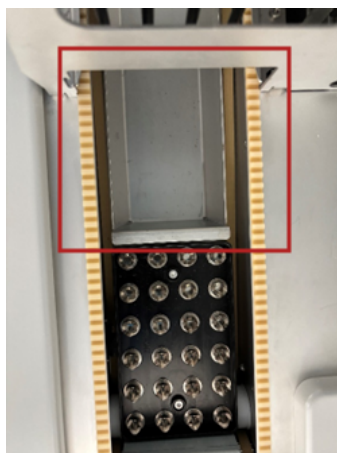
This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

1. Open the “Eluate” drawer and remove the eluate adapters from the drawer and confirm removal on screen.
2. Soak in disinfection bath according to the disinfectant manufacturer’s instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the eluate adapters dry.

7.7.8. Clean the conveyor base tray

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

1. Open the hood and carefully remove the conveyor base tray beneath the conveyor of the extractor at the back of the instrument.
2. Disinfect the conveyor base tray by either:
 - a. **Option 1:** Soak in disinfection bath according to the disinfectant manufacturer’s instructions. Then rinse thoroughly with water to remove residues of the cleaning solution. Let the conveyor base tray dry.
 - b. **Option 2:** Wipe the conveyor base tray with disinfectant and incubate according to disinfectant manufacturer’s instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.
3. Put back the conveyor base tray and close the hood. Make sure the conveyor base tray sits correctly (see the image below) and is not overlapping the magnetic capture plate.



Conveyor base tray positioned correctly.

CAUTION**Damage to the instrument**

Make sure to put the conveyor base tray in the correct position. The tray must not sit on the extractor plate otherwise the instrument may crash.

7.7.9. Clean the 2D barcode rack reader glass plate

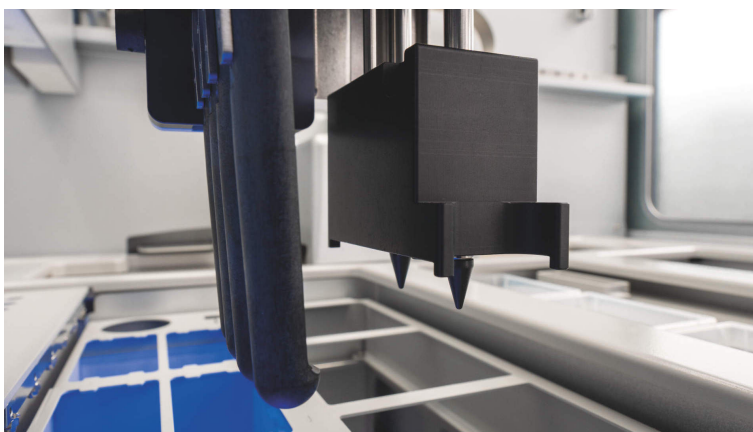
This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

1. Open the “Eluate” drawer.
2. Wipe the glass plate of the 2D barcode rack reader and the mirror with a lint-free cloth moistened with 70% ethanol. Make sure the glass plate and mirror are clean and free of streaks.
3. Close the “Eluate” drawer.

Note: Residues and streaks on the glass plate and mirror can lead to erroneous barcode readings.

7.8. Clean the weight of the robotic gripper

This procedure is part of the worktable, drawers, and removable items routine. It can be executed separately when necessary.

**Weight of the robotic gripper.**

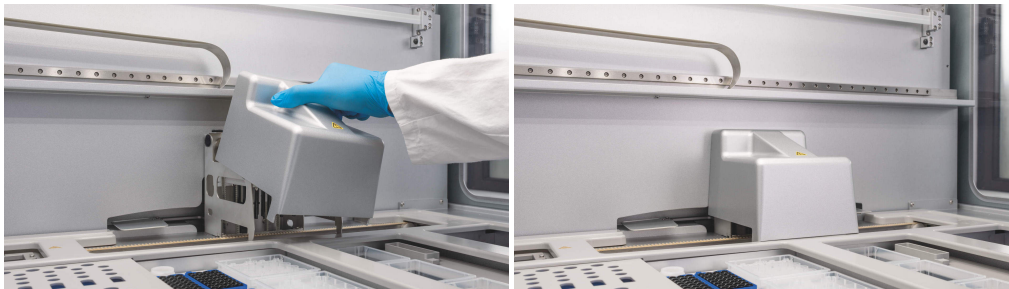
1. Open the Maintenance menu and select **Tip guards** to position the robotic arm for cleaning.
2. Open the hood.
3. Wipe the weight of the robotic gripper with a lint-free cloth moistened with 70% ethanol.
4. Close the hood.

CAUTION**Damage to the instrument**

Only wipe the weight (see 7.8). Do not wipe the rods otherwise the ball mechanism may become jammed.

7.9. Clean the magnetic head

1. Turn off the instrument.
2. Open the hood.
3. Remove the cover from the extractor.
4. Wipe the exterior of the magnetic head and the cover with disinfectant and incubate according to the disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.
5. Put back the cover of the extractor. Make sure the cover is installed correctly.
6. Close the hood.
7. The extractor will initialize when the instrument is switched on again.



Correctly installed extractor cover.

7.10. Clean the touchscreen

1. Swing open the touchscreen mounting.
2. Wipe the touchscreen and the mounting with disinfectant* and incubate according to the disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with 70% ethanol.
3. Close the touchscreen mounting.

7.11. Clean the hood and side panel windows

1. Wipe the outer surface with a soft lint-free cloth moistened with water.
2. Open the hood.
3. Wipe the inner surface of the hood and side panel windows with a soft lint-free cloth moistened with water.
4. **Optional:** If residues persist, use wipes soaked with alcohol-free disinfectant† and incubate according to the disinfectant manufacturer's instructions. Then, wipe clean with a soft lint-free cloth moistened with water.
5. Close the hood.

* It is recommended to use Mikrozyd AF or Incidin Liquid to avoid streaks.

† It is recommended to use Mikrozyd Sensitive Liquid.

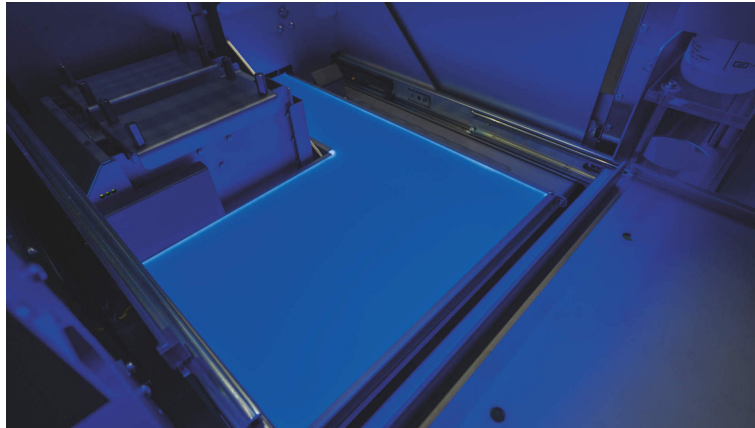
CAUTION



Damage to the instrument

Never clean the hood or side panels with alcohol or alcohol-based solutions. Alcohol will damage the hood and the side panels. To clean the hood and side panels, use water or alcohol-free disinfectant.

7.12. Clean the illumination panel



Illumination panel below the reagent and consumables drawer.

1. Open the "Reagents and Consumables" drawer.
2. Wipe the surface of the illumination panel below the Reagents and Consumables drawer with a soft lint-free cloth moistened with water.
3. **Optional:** If residues persist, use wipes soaked with alcohol free disinfectant* and incubate according to the disinfectant manufacturer's instructions. Then, wipe clean with a soft lint-free cloth moistened with water.
4. Close the "Reagents and Consumables" drawer.

CAUTION

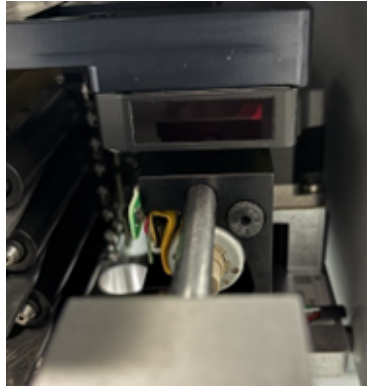


Damage to the instrument

Never clean the illumination panel with alcohol or alcohol-based solutions. Alcohol will damage the illumination panel. To clean the illumination panel, use water or alcohol-free disinfectant..

7.13. Clean the optical sensor of the robotic arm

1. Open the **Tools** menu. Select **Maintenance Tools > Tip Guards > Start Maintenance** to position the robotic arm at the front.
2. Open the hood.
3. Wipe the window of the optical sensor with a lint-free cloth moistened with 70% ethanol.

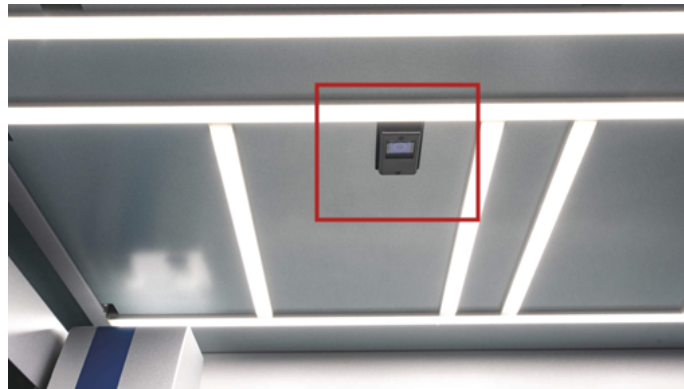


Optical sensor of the robotic arm.

4. Close the hood.

7.14. Clean the ceiling camera

1. Open the hood.
2. Wipe the ceiling camera with a lint-free cloth moistened with 70% ethanol.



Ceiling camera.

3. Close the hood.

7.15. Clean the sample input camera

1. Open the sample input flap.
2. Wipe the sample input camera with a lint-free cloth moistened with 70% ethanol.
3. Close the flap.

7.16. Change tip adapter O-ring

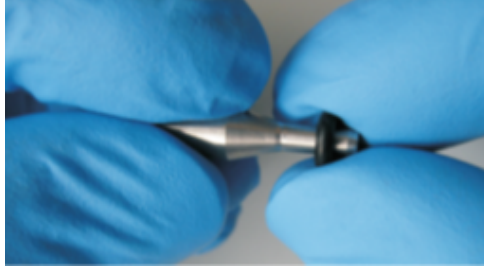
This section describes replacing the tip adapter O-ring using the O-ring Change Tool Set (cat. no. 9019164) to perform O-ring change. The O-rings must be changed every month using the O-Ring Change Tool Set.

Important: Only use O-rings with a remaining storage life of at least one month. The expiry date of the O-rings can be found on the O-ring pouch.

7.16.1. Preparation of the new O-ring

Before removing the old O-ring, prepare the new one using the following steps.

1. Slide the new O-ring over the small end of the peg.



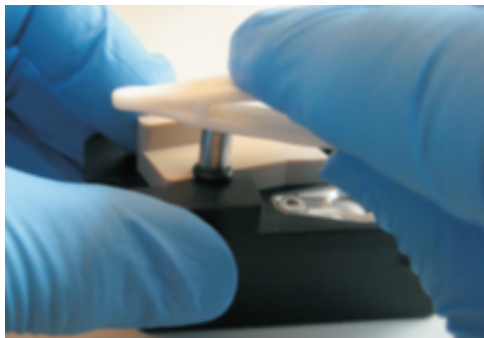
Sliding the new O-ring.

2. Push the beige lever all the way to the black stop, and insert the small end of the peg into the hole between the stop and the lever.



Inserting the small end of the peg.

3. Press the peg down using the one end of the tweezers until the O-ring slides up to the larger end of the peg.



Pushing the peg down.

4. Open the beige lever.
5. Insert the peg small end first into the hole as shown in the picture.



Inserting the peg.

7.16.2. O-ring Tool change procedure

1. Open the **Maintenance** menu and select **O-ring Replacement**.
2. Place the O-ring tool according to the instructions and close the drawers.
3. Select **Start Maintenance**, then select the pipetting channel for which to change the O-ring. The pipetting channel moves to the O-ring replacement position.
4. When the pipetting channel is moved to the cut position turn the beige lever counterclockwise. This cuts the old O-ring.



Cutting the old O-ring.

5. Grip the old O-ring end with the tweezers and then open the beige lever.



Gripping the old O-ring.

6. The cut O-ring must be removed.
7. Remove any remaining pieces of the old O-ring from the tip-adaptor.
8. Select **Next** to continue the protocol – the new O-ring will be picked up automatically.

9. Check that the new O-ring is mounted correctly (see the image below). The new O-ring shall be mounted (not twisted), and evenly in the mounting notch.



New O-ring mounted correctly.

10. Follow the instructions displayed on the touchscreen to move the pipetting channel back.

7.16.3. Unmounting the O-ring tool

1. Remove the O-ring tool from the QIASymphony instrument.
2. Remove the auxiliary peg from the O-ring tool.
3. Wipe the O-ring tool and peg with disinfectant and incubate according to the disinfectant manufacturer's instructions. Then wipe with a lint-free cloth moistened with water or 70% ethanol.

CAUTION



Damage to the instrument

Do not start an inventory scan while the O-ring tool is inside the instrument.

7.17. Clean the magnetic capture plate

The magnetic capture plate can only be cleaned by certified QIAGEN service and is part of the annual service maintenance. Contact QIAGEN Field Service specialists for details.

7.18. Cabinet maintenance instructions

Cabinet maintenance is recommended to be conducted daily, if you are using the QIASymphony Connect Cabinet. Annual service inspection is not required for the cabinet.

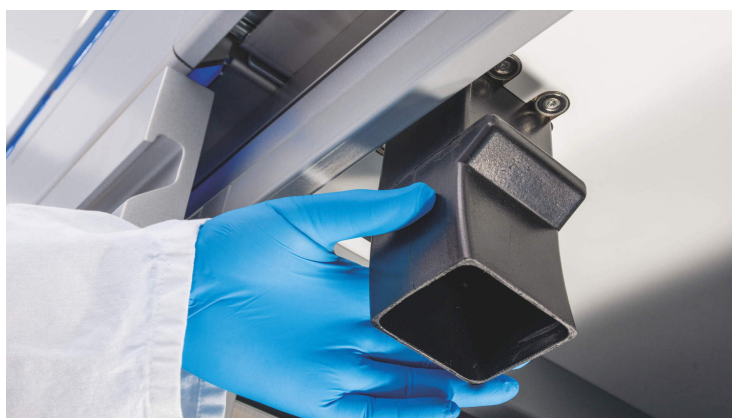
7.18.1. Removing the tip and waste chutes, and drop catcher for use with the cabinet

1. Open the "Waste" drawer of the QIASymphony Connect instrument.
2. Remove the tip chute from the "Waste" drawer.
Note: Residual liquid from the tip chutes and drop catcher may drip.
3. Open the hood.
4. Remove the drop catcher as shown in the image below.



Drop catcher.

5. Close the "Waste" drawer.
6. Open the "Waste" drawer of the QIA Symphony Connect Cabinet.
7. Remove the waste bin and discard the waste according to your local regulations.
8. Remove the waste chute by pulling it down.



Removing the waste chute.

7.18.2. Cabinet daily cleaning procedure

1. Soak the tip chute, waste chute, and the drop catcher in disinfection bath according to the manufacturer's instructions.
Then, rinse thoroughly with water to remove residues of the cleaning solution.
Let the tip chute, waste chute, and the drop catcher dry.
2. Wipe clean the tip disposal opening (where the drop catcher sits) with an alcohol-based disinfectant from above and below.
3. When the "Waste" drawer is opened, the tip chute may drip onto the surface of the QIA Symphony and/or Cabinet.
If necessary, wipe the surface with an alcohol-based disinfectant. Then, wipe with a cloth moistened with water or 70% ethanol.

7.18.3. Replacing the tip and waste chutes, and drop catcher

Inserting the waste chute

1. Open the Cabinet "Waste" drawer.
2. Hold the waste chute so that it curves towards the back and is directly underneath the tip disposal opening.

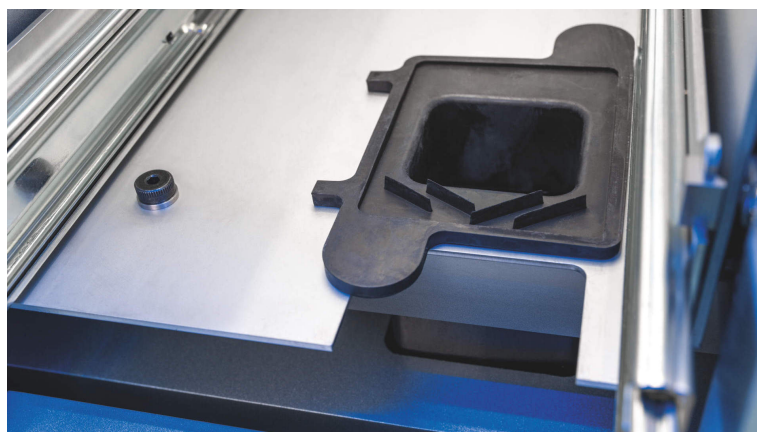


Correct position of waste chute.

3. Push the waste chute softly upwards, into the slot of the drop catcher.
4. The waste chute is held in position by magnets.
5. Place the waste bin directly underneath the waste chute at the front of the drawer.
6. Close the Cabinet "Waste" drawer.

Inserting the drop catcher

1. Open the hood.
2. Open the "Waste" drawer.
3. Insert the drop catcher as shown in the next page.



Inserted drop catcher.

Inserting the tip chute

1. Open the "Waste" drawer.
2. Insert the tip chute. Ensure that the notch, the imprinted arrow and "FRONT" faces forward, toward the front of the "Waste" drawer as shown below.
3. Close the "Waste" drawer.
4. Close the hood.



Imprinted "FRONT" label and arrow showing on Tip chute.

7.19. UV decontamination of the worktable

UV decontamination should be performed daily. It helps to reduce possible pathogen contamination of the QIA Symphony Connect worktable. The efficiency of inactivation has to be determined for each specific organism and depends, for example, on layer thickness and sample type. QIAGEN cannot guarantee complete eradication of specific pathogens.

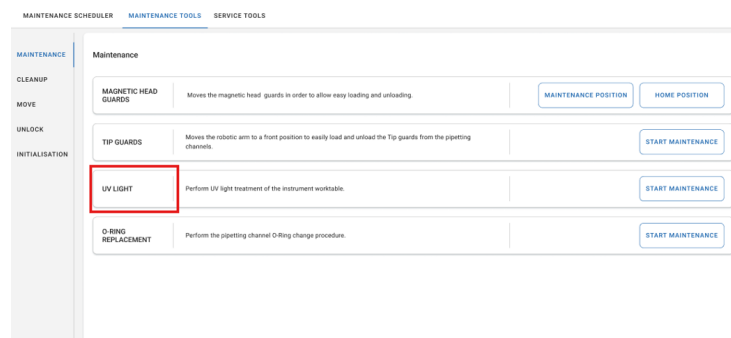
Note: Before starting the UV irradiation procedure, ensure that all samples, eluates, reagents, consumables and assays have been removed from the worktable. Close all drawers and the hoods. Once the UV irradiation procedure has been started, it will continue for the defined period of time, or until interrupted by the user.

We recommend using the following formula to calculate the duration of decontamination in minutes:

$$\text{Dose (mW} \times \text{s/cm}^2\text{)} \times 4.1 = \text{Duration (seconds)}$$

To start the UV decontamination procedure follow these steps:

1. Remove all removable items (tubes/plates, adapters, consumables, tip disposal chute) except for the liquid waste container from the drawers.
2. Enter the "MAINTENANCE" screen, then **MAINTENANCE TOOLS**.
3. Select **UV light** as shown below.



Selecting UV LIGHT in the “Maintenance Tools” screen.

- Set the duration of the decontamination in minutes. The default setting is 15 minutes. The UV irradiation time is dependent on the pathogen. Use the formula above to calculate the irradiation time and then enter the time into the input box. A message appears asking you to check whether all plasticware and consumables have been removed from the worktable
- Confirm that all removable items have been removed from the worktable by pressing **OK**.

The irradiation procedure starts and the robotic arm moves over the worktable surface for the set irradiation duration.

Note: To stop the UV irradiation procedure before the defined period of time has elapsed, press Cancel. The procedure will stop as soon as the robotic arm completes the current movement.

8. Troubleshooting

This section provides information about what to do if an error occurs when using the QIASymphony Connect system.

8.1. Contacting QIAGEN Technical Service

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

Website: support.qiagen.com

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

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

- QIASymphony Connect serial number
- QIASymphony Connect software version
- QIASymphony Connect Support Package
- Lot numbers of Consumables and Reagents
- Error code (if applicable)
- Description of instrument status after error (worktable, consumables, etc.) and photos if possible
- Timepoint when the error occurred for the first time
- Protocol used
- Frequency of error occurrence (i.e., intermittent or persistent error)

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

Note: Go to www.qiagen.com for information about the latest software and protocol versions. In some cases, updates may be available for addressing specific problems.

8.2. Supervisor password reset

Visit support.qiagen.com to find contact information for Technical Service in your country.

To set a new password using ONE TIME ACCESS:

1. On the Log in screen on the QIASymphony Connect, press **ONE TIME ACCESS >** in the bottom-right corner of the screen.
2. On the Supervisor password reset screen, enter the username of the supervisor who forgot the password.

Note: The username field is case-sensitive. Enter the username exactly as defined. You cannot change the username in the next step.

3. On the next screen, verify that the displayed username is correct. The username field is read-only. If the username is incorrect, press **BACK**. In the Changes not saved dialog, press **LEAVE**.
4. If the username is correct, contact QIAGEN Technical Service in your country. Be prepared to provide the device serial number and the control code displayed on the instrument touchscreen. After verification, QIAGEN Technical Service provides a security code.

Note: After you provide the device serial number and control code to QIAGEN Technical Service, do not leave the Supervisor password reset screen. If you leave the screen, the control code changes and the security code becomes invalid.

5. Enter the security code and press **LOG IN**.

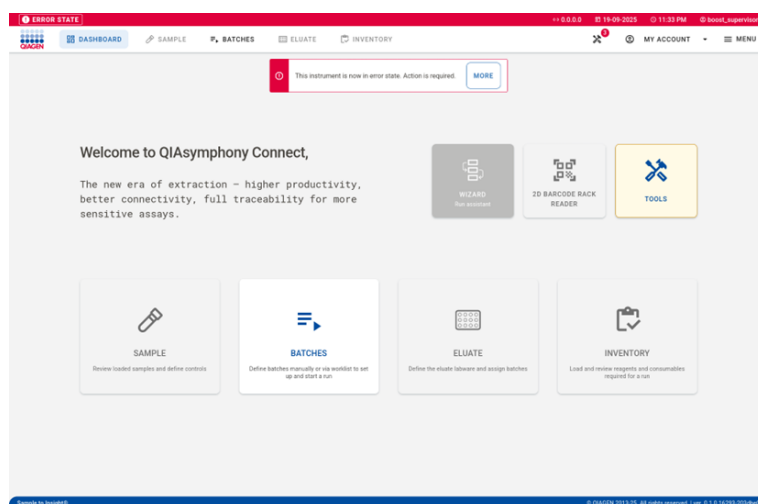
Note: If log in fails because the username is incorrect, repeat the procedure from the beginning. The instrument generates a new control code, and you must contact QIAGEN Technical Service again.

Note: If you enter an incorrect security code three times, ONE TIME ACCESS is temporarily locked. A notification message indicates when you can try again.

6. Enter a new password in the **New password** and **Confirm new password** fields, then press **SAVE**. After the password is changed, the instrument logs out.
7. Log in using the new password.

8.3. Error state

In certain situations, QIAsymphony Connect enters an “Error state” to prevent further sample processing. This is designed to avoid instrument damage, loss of biological material, or the generation of unreliable electronic records.



Error message popup.

You cannot do the following during an “Error State”:

- Define a new protocol run
- Scan eluate tube barcodes using the 2D Barcode rack reader.
- Perform inventory scans
- Run maintenance activities using maintenance procedures

- Run any other maintenance procedures that do not serve the purpose of recovery
- Change instrument configuration
- Manage users

You can do the following during an “Error State”:

- Log in and log out
- Check batch status
- Run maintenance procedures from the cleanup, unlock, and initialization groups
- Transfer files to and from a USB stick

The causes that trigger “Error State” are listed below.

Cause of the “Error state”	Description	Recovery
A critical error during the biological process caused by: • Hardware • Software • Consumables • Reagents • Sample material • Improper protocol run definition	The batch is aborted. Consumables may be misplaced on the workdeck. A new protocol run cannot be started until the workdeck is cleaned up and the instrument returns to normal operation.	1. Run the CLEANUP maintenance procedure (TOOLS > MAINTENANCE TOOLS > CLEANUP) and follow the onscreen instructions. 2. After successful workdeck cleanup, restart the instrument.
A critical error outside of the biological process caused by: • Hardware • Software • Connectivity	An issue that may impact the biological process or the electronic records. A new protocol run cannot be started until the instrument returns to normal operation.	Restart the instrument.
A paused batch stopped by the user.	Consumables may be misplaced on the workdeck. A new protocol run cannot be started until the workdeck is cleaned up and the instrument returns to normal operation.	1. Run the CLEANUP maintenance procedure (TOOLS > MAINTENANCE TOOLS > CLEANUP) and follow the onscreen instructions. 2. After successful workdeck cleanup, restart the instrument.

During instrument restart, the instrument modules (magnetic capture plate, lysis station, extractor, etc.) are initialized, which resolves the error state and moves the modules to their home position.

If the instrument continues to enter “Error state” after a restart, create a support package and contact QIAGEN Technical Service.

8.3.1. Cleanup

It is recommended to perform the Cleanup immediately after an error occurred and not after the QIAsymphony Connect instrument has been restarted, and if no changes were made to the consumables loaded on the worktable.

Important: Do not manually remove any consumables from the worktable unless instructed to do so. Ensure that safety instructions are followed. Dispose of liquid waste and used consumables according to your local safety regulations.

WARNING**Hazardous materials and infectious agents**

The waste contains samples and reagents. This waste may contain toxic or infectious material and must be disposed of properly.

Refer to your local safety regulations for proper disposal procedures.

To perform cleanup, proceed as follows:

1. Start the cleanup procedure by navigating to **TOOLS > MAINTENANCE TOOLS > CLEANUP**.
2. Select the appropriate branch of the cleanup (User interrupted run, Crash occurred, or Other). See the table below for more information. Press **OK** to continue

Note: If the QIAsymphony Connect was restarted, the Other branch is automatically selected.

Selection option	Description
User interrupted run	Select if the user paused and stopped the run and no error occurred. No manual intervention is required. Important: Cannot be used if an inventory scan was performed due to changed worktable layout after the batch was canceled/stopped, or if the QIAsymphony Connect instrument was restarted by the user. In these cases, use the Other branch of the automatic cleanup instead.
Crash occurred	Select if an error occurred. Cleanup is semi-automatic; some manual intervention is required.
Other	Select in all other cases not outlined by the "User interrupted run" and "Crash occurred". Cleanup is semi-automatic; some manual intervention is required.

Follow the instructions on the screens. They will guide the user step-by-step through the cleanup protocol.

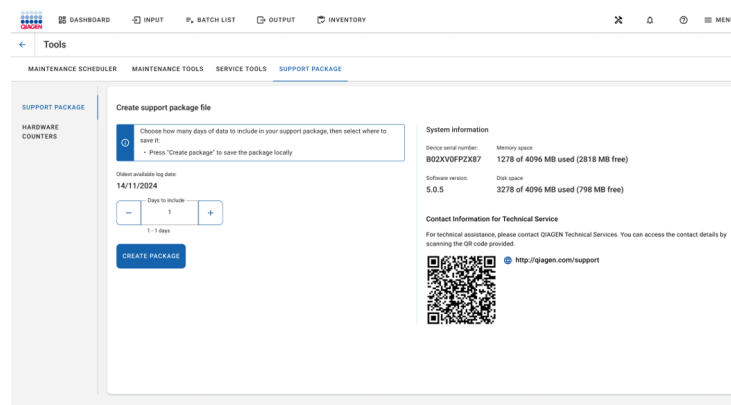
Note: By following the instructions on the screen, all used consumables will be removed from the magnetic head and worktable, and all liquids in sample prep cartridges will be discarded.

After cleanup, navigate to the "ELUATE" screen to confirm the removal of the eluate rack and perform an inventory scan of the Eluate drawer.

8.4. Creating a support package

To create a support package, proceed as follows:

1. Log in to the instrument.
2. In the **Tools** menu, select the **Support Package** tab. An overview tab of the support package menu appears and instrument data will be retrieved.



Creating a package in the Support Package tab.

3. Enter the number of days which you want the support package to cover. It is recommended to add at least one day extra to ensure that all relevant data is covered e.g. if the error occurred yesterday then 3 days should be selected. Press **Create Package**.
4. When the Support Package has been successfully generated, it can be downloaded to a USB stick via the "FILE TRANSFER" screen. See Section 6.20.4 Transferring files between the QIAsymphony Connect and a USB stick.

8.5. General operation errors

Errors	Comment and suggestions
Startup errors	
The startup screen does not appear and the status LEDs are not illuminated.	Contact QIAGEN Technical Service.
Initialisation steps are not completed and the login screen does not appear.	Restart the instrument. If the error persists, contact QIAGEN Technical Service.
Labware errors	
The labware is not visible in sample and eluate definition screens.	Ensure that the labware file has been transferred to the QIAAsymphony Connect instrument. Loaded Labware can be seen in the File Transfer menu.
Protocol errors	
Protocol is not displayed.	Make sure that the Protocol and Assay Control Set files were transferred to the QIAAsymphony Connect instrument. Loaded Protocols and Assay Control Sets can be seen in the File Transfer menu.
File handling errors	
USB stick or other USB device was not recognized.	Only use the USB stick and barcode scanner provided with the QIAAsymphony Connect instrument. Use of other USB sticks and devices may not be recognized and could cause further errors. Try connecting the USB stick or barcode scanner to another USB port. If error persists, restart the QIAAsymphony Connect instrument. Ensure that there is no encryption implemented on the USB stick. Encryption can prevent the device from being recognized by the QIAAsymphony Connect instrument and could cause further errors.
Signature invalid/Invalid checksum.	Ensure that the file was created and signed by QIAGEN.
Worklist could not be found.	Ensure that the correct worklist has been transferred to the QIAAsymphony Connect instruments before run definition. Ensure that samples have not previously been processed. Worklists are automatically deleted once all samples have been processed. Ensure that the worklist is still within the validity range specified in the configuration profile. Files that are older than the range specified are automatically deleted.
Inventory scan errors	
Run cannot be started because an inventory scan has to be performed.	Before the user can start a run, an inventory scan of each drawer must be performed. A scan of the "Sample" drawer is only required if an Internal Control is required. Navigate to the "BATCHES" screen and press Scan if an inventory scan is already scheduled. If no inventory scan is scheduled, one can be triggered by opening and closing the relevant drawer(s). If an inventory scan has already been performed, do not open the hood before starting the run. If the hood was opened after performing an inventory scan the scan has to be carried out again.
Inventory scan does not start	Ensure that the hood and all drawers are properly closed.

8.6. "Sample" drawer errors

Errors	Comments and suggestions
Sample carrier locks do not release and/or barcode camera does not move forward.	Make sure that the QlAsymphony Connect is switched on and the LEDs in the "Sample" drawer are illuminated green. Move the carrier up to the stop line and wait. If this does not resolve the problem, restart the QlAsymphony Connect instrument . Open the Maintenance Tools menu and select SAMPLE CARRIERS in the UNLOCK tab
Samples have been physically removed from the system but a report file cannot be downloaded.	In order to download a report file containing detailed information about the run, the removal of the eluate rack must be confirmed via a scan of the "Eluate" drawer. In the "ELUATE" screen, remove the corresponding elution rack by selecting the applicable slot and pressing Remove. Remove the elution rack and adapter physically from the "Eluate" drawer and perform an inventory scan.
Tube carrier was not recognized during loading.	Remove the carrier and insert again more slowly. Remember to pause at the stop line. Check the carrier for damage. Ensure that the magnets on the bottom of the carrier are both present
Sample barcodes are not read properly/not detected.	Only use compatible barcodes. Refer to Section 9.4. Barcode Specifications for Sample-in Module for detailed information about compatible barcodes. Check the print quality of the affected barcodes and look for any damage that may have occurred during handling of the tubes. Ensure that 2D barcodes have enough quiet zone. Be sure to position the barcodes at an appropriate height in the rack. Ensure that the barcode fits into the cut-out of the tube carrier. Ensure that the correct insert/tube combination is used to ensure the tube does not rotate or move during loading. Remove the carrier and insert again more slowly. Remember to pause at the stop line.

8.7. “Reagents and Consumables” drawer errors

Errors	Comments and suggestions
The “Reagents and Consumables” drawer cannot be opened.	The “Reagents and Consumables” drawer is locked during batch definition in the Wizard, during the inventory scan and during a run. If the drawer still cannot be opened after the run has finished, open the Maintenance Tools menu and select DRAWERS in the UNLOCK tab. Be sure that both piercing devices/reagent cartridges have been moved to the lower position. If not, open the Maintenance Tools menu and select the relevant slots in PIERCING DEVICE in the MOVE tab. If these actions do not work and there is no run in progress, restart the instrument. Do not attempt to open the drawer if any of the pipetting channels or the robotic gripper are in a lowered position in any reagent container or unit box. Do not use force to open the drawer.
The “Reagents and Consumables” drawer cannot be closed.	If the soft-close pin of the drawer is retracted, check that no objects are blocking the drawer path. Remove any obstruction if present. If no obstruction is found, gently close the drawer as far as it will go. Then apply a firm, steady push to fully close it. This should allow the soft-close mechanism to engage properly and restore normal drawer operation. If the issue persists, contact QIAGEN Technical Service.
Consumables are not recognized correctly by inventory scan.	Check that consumables (unit boxes, buffer bottle, tip racks, Accessory Trough, tip chute, etc.) are placed correctly on the corresponding drawer. Check that lids of unit boxes and buffer bottle have been removed. Only place Accessory Troughs into tip rack slots 5 and 12. These are the two slots on the left-hand side of the Reagents and Consumables drawer. Open and close the drawer and start the inventory scan again. Note: Do not refill partially used unit boxes.
Volume check of buffer bottle failed.	Make sure that the bottle contains sufficient volume of buffer. Ensure that the liquid does not reach the top rim of the buffer bottle.
Volume check of the Accessory Trough failed.	Make sure that the Accessory Trough contains sufficient volume of buffer. For more information, refer to the handbook of the QIA Symphony kit you are using. Ensure that the liquid does not reach the top rim of the Accessory Trough.
Reagent cartridge was not opened automatically by the system.	Make sure that a piercing lid was attached to the reagent cartridge. Note: If the inventory scan detects an unopened reagent cartridge, the reagent cartridge will be opened automatically before the first use in a protocol.
One or more buffers were not recognized.	Make sure that the Reuse Seal Strips have been removed from the troughs of the reagent cartridge and that the foil has been removed from the magnetic bead trough. Check the barcodes on the reagent cartridge. Ensure that they are clean and in good condition.

8.8. "Waste" drawer errors

Errors	Comments and suggestions
"Waste" drawer cannot be opened.	The "Waste" drawer is locked during batch definition in the Wizard, during the inventory scan and during a run. If the drawer still cannot be opened after the run has finished, open the Maintenance Tools menu and select DRAWERS in the UNLOCK tab. If these actions do not work and there is no run in progress, restart the instrument. Do not use force to open the drawer
"Waste" drawer cannot be closed.	Make sure to place the liquid waste container in the "Waste" drawer at the right-hand side of the drawer. Remove the lid of the liquid waste container before you place it in the "Waste" drawer. Check for tips or other obstacles in the drawer and around the tip chute. If the soft-close pin of the drawer is retracted, check that no objects are blocking the drawer path. Remove any obstruction if present. If no obstruction is found, gently close the drawer as far as it will go. Then apply a firm, steady push to fully close it. This should allow the soft-close mechanism to engage properly and restore normal drawer operation. If the issue persists, contact QIAGEN Technical Service.
"Waste" drawer is stuck and cannot be opened or closed	Check for tips or other obstacles in the drawer and around the tip chute. If the instrument is placed on a cabinet, check that the drop catcher is not caught on the locking mechanism on the underside of the drawer. The hook shaped lock can be manually moved if required to release it.
Tips are stacking in the tip chute.	Ensure that the tip disposal bag is empty and that it is not jammed between the drawer and the workbench. If the QIA Symphony Connect instrument is placed on a cabinet, check that the tip waste container is not full. Empty the tip waste after each run.
Tips are spilled in the lab.	Ensure that the tip disposal bag is correctly attached to the waste bag holder. Ensure that QIAGEN supplied tip disposal bags are used.
Liquid in the "Waste" drawer.	Check that the lid of the liquid waste container has been removed. Make sure to insert the liquid waste container in the correct orientation. Empty the liquid waste container after each run. If the liquid waste container overflowed, contact QIAGEN Technical Service to ensure that the liquid did not cause damage to the inside of the instrument.

8.9. "Eluate" drawer errors

Errors	Comments and suggestions
The "Eluate" drawer cannot be opened.	The "Eluate" drawer is locked during batch definition in the Wizard, during the inventory scan and during a run. If the drawer still cannot be opened after the run has finished, open the Maintenance Tools menu and select DRAWERS in the UNLOCK tab. If these actions do not work and there is no run in progress, restart the instrument. Do not use force to open the drawer.
The "Eluate" drawer cannot be closed.	If the soft-close pin of the drawer is retracted, check that no objects are blocking the drawer path. Remove any obstruction if present. If no obstruction is found, gently close the drawer as far as it will go. Then apply a firm, steady push to fully close it. This should allow the soft-close mechanism to engage properly and restore normal drawer operation. If the issue persists, contact QIAGEN Technical Service.
The elution drawer was opened while an inventory scan was running and the "Elution Rack" screen cannot be exited.	The scan of the "Eluate" drawer is queued and will be performed as soon as the current inventory scan has finished.
After opening and closing the "Eluate" Drawer without making any changes, the inventory scan of the "Eluate" drawer is required.	This is the correct behaviour. The "Eluate" drawer must be scanned after opening even if no changes were made to maintain traceability of eluate racks.
It is not possible to define an elution rack.	Open the "Eluate" drawer to enable the editable fields on the "ELUATE" screen.
The inventory scan of the "Eluate" drawer detects an adapter on "slot X" although no adapter has been placed there/Adapter barcode not readable.	If there is an unneeded adapter on the elution slot, be sure to remove it. If the adapter is required for a run, open the Eluate drawer and define the labware on the appropriate slot. The eluate scan will need to be repeated successfully to exit the eluate screen. Do not expose the QIAsymphony Connect instrument to direct sunlight as this can interfere with the inventory scan.
Filter-tips are bent or deformed after eluate transfer.	Be sure to define the correct type of eluate rack on the corresponding elution slot. Make sure that the elution rack is correctly positioned on the elution slot. Only use elution racks that are compatible with the specified adapter.
Tips/channels are incorrectly positioned on the elution slot during the elution step.	Make sure to place the elution rack onto the elution slot in the correct orientation. Be sure to insert and to define the same elution tubes or plate. Only use compatible elution tubes/ racks. For more information about tubes and racks refer to the applicable kit handbook.
Eluates are not in the corresponding elution rack as described in the result file.	Be sure to set up the elution rack with well A1 at the upper left corner. If using a rack that was previously used on another QIAsymphony Connect instrument, transfer the rack file from the other instrument to ensure that up to date rack contents information is available for subsequent runs. If no previous rack file is available ensure that the already used positions are locked during eluate rack definition to prevent them from being used in subsequent runs Confirm the elution positions in the Results Report.
Rack file could not be selected on the elution definition screen.	Ensure that the correct slot type is selected. Rack files for the cooled position (slot 1) will not be selectable on non-cooled positions (slots 2–4) Ensure that the rack file has been uploaded to the QIAsymphony Connect instrument. Ensure that the names of the rack files are correctly spelled and that there are no blank spaces at the beginning or the end of the names.
The barcode of an elution rack cannot be read using the handheld barcode scanner.	Make sure that the handheld barcode scanner is correctly connected to the QIAsymphony Connect instrument.

8.10. Errors that may occur when starting a batch/run

Errors	Comments and suggestions
Run button is inactive.	Make sure that the tube/plate carrier has been loaded and that the batch status is QUEUED.
Wrong sample IDs are shown in sample view.	Remove the carrier and check the barcodes visible in cut-out of the tube carrier. If multiple barcodes are visible on the tube, cover the ones which should not be scanned. Ensure that this does not cover any tube carrier or insert barcodes.

8.11. Errors that may occur while operating the QIAasympy Connect

Errors	Comments and suggestions
One or more channels had a Z-drive movement error.	Ensure that all lids and covers have been removed from items before loading them onto the instrument. Ensure that sample and eluate labware is correctly defined. Only use compatible tubes/racks. For more information, refer to the applicable kit handbook. Make sure that the tubes/plates are properly inserted in the tube carrier/adaptor. Use an appropriately sized tube or rack for the volume. If using an EMTR in the cooling position, ensure that the bottom has been removed for correct placement in the adaptor.
Touchscreen is black or unresponsive for an extended period.	If the instrument is processing samples, wait until the run is complete. Then restart the instrument.
Sample is not detected by the system and is flagged as "Invalid".	Ensure that the samples do not contain bubbles/foam, and that the liquid level is not at or above the rim of the container. Be sure to use at least the minimum volume of sample required for the protocol. For more information, refer to the applicable kit handbook.
Nothing happens when the Cleanup button in the Maintenance Tools menu is pressed.	Check that the hood and all drawers are closed.
8-Rod Cover or sample prep cartridges are still present on the robotic gripper after performing the Cleanup procedure	Switch off the QIAasympy Connect instrument while holding the 8-Rod Cover or sample prep cartridges. The loss of power should release them from the gripper. Be careful not to spill the contents of any used sample prep cartridges. Do not use force to remove 8-Rod Cover or sample prep cartridges from the gripper. If they cannot be removed manually, contact QIAGEN Technical Service.
Lysis timer exceeded the time limit.	The lysis time of the sample batch was exceeded. Do not pause the run during the lysis step.

8.12. Errors that may occur when performing maintenance tasks

Errors	Comments and suggestions
O-ring demounting position errors	The O-ring change tool may not be correctly aligned. Ensure that it is pushed to the bottom of the tip rack holder and restart the O-ring change procedure.

9. Technical Specifications

9.1. Environmental conditions

9.1.1. Operating conditions

Description	Requirement
Power	100–240 V AC, 50/60 Hz, 500VA
Overvoltage category	II
Air temperature	15–32°C (59–89.6°F)
Relative humidity	15–75% (noncondensing) Maximum 75% relative humidity for temperatures up to 31°C (88°F), decreasing linearly to 50% humidity at 32°C (89.6°F)
Altitude	Up to 2000 m (6500 ft.)
Place of operation	For indoor use only
Pollution level	2
Environmental class	3K21 (IEC 60721-3-3) 3M10 (IEC 60721-3-3)

9.1.2. Transportation conditions

Description	Requirement
Air temperature	–25°C to 70°C (–13°F to 158°F) in manufacturer's package
Relative humidity	Maximum of 75% (noncondensing)
Environmental class	2K2 (IEC 60721-3-2) 2K11 (IEC 60721-3-2) 2M4 (IEC 60721-3-2)

9.1.3. Storage conditions

Description	Requirement
Air temperature	5–40°C (41–104°F) in manufacturer's package
Relative humidity	Maximum of 85% (noncondensing)
Environmental class	1K21 (IEC 60721-3-1) 1M11 (IEC 60721-3-1)

9.2. Instrument size and weight

Description	Requirement
Width	130 cm
Height	105 cm
Depth	80 cm

Description	Requirement
Weight (fully loaded)	245 kg
Weight incl Cabinet (fully loaded)	420 kg

9.3. QlAsymphony Cabinet specifications

Description	Requirement
Width	130 cm
Height	86 cm
Depth	75 cm
Weight (fully loaded)	175 kg

9.4. Barcode specifications for sample-in module

Barcode types:

The system is able to read reliably the following 1D barcodes:

- EN797 (EAN)
- EN798 (Codabar)
- EN799 (Code 128 and sub-types)
- EN800 (Code39)
- EN801 (Code 2/5 Interleaved)

To ensure reliable barcode reading, the module width for 1D barcodes shall be 0.178–0.305 mm (7–12 mils).

Note: It is recommended not to use Interleaved 2 of 5 barcodes, as this barcode has a high information density and no checksum. It can therefore generate barcode recognition errors.

The system is able to read reliably the following 2D barcodes:

- Datamatrix (max. number of modules according to sample carrier window dimensions, square and rectangular)
- QR code (max. number of modules 21 × 21, module size 0.255 mm)
- PDF417 (max. number of modules according to sample carrier window dimensions)
- Aztec (max. number of modules according to sample carrier window dimensions)
- GS1 datamatrix (max. number of modules according to sample carrier window dimensions)

Note: To ensure reliable barcode reading, module width for 2D barcodes shall be between 0.255 mm and 0.383 mm (10–15 mils).

Note: Window dimensions depend on the type of insert being used. To ensure sufficient spacing, the instructions in the section “Barcode positioning and visibility” must be followed.

Barcode printing quality

Quality of printed barcodes shall be within ISO/IEC 15416 Grade 3.5 to 4.0 (formerly known as ANSI X3, 182-1990 Grade A) to ensure reliable barcode reading. If this grade cannot be reached, the barcodes should be printed in best possible quality and validated by the user. Low barcode quality can lead to unreadable barcodes or incorrect barcode decoding.

Barcode encoding for 2D barcodes

To ensure reliable barcode reading, Windows-1252 or ISO-8859-1, Latin 1 code page/alphabet must be used utilizing printable ASCII 128 characters for encoding of 2D barcodes. Using an incorrect code page may result in barcode decoding errors.

To ensure reliable barcode reading, the barcode should not be encoded with a maximum number of characters. It is recommended to encode the barcode only up to 70% of encoding capacity and use maximum possible error correction level.

Barcode positioning and visibility

When using primary tubes, 1D and 2D sample barcodes should be positioned within a window of 14-63 mm from the bottom of the tube to ensure reliable barcode reading (see image below as example for 2D and 1D barcodes). Barcodes should be attached to Sarstedt tubes so that the tube barcode is no higher than the insert barcode.

2D sample barcodes shall be fully visible when the barcoded sample tube is inserted into the tube carrier. A minimum distance of 1 mm ("quiet zone") between the barcode and the carrier/tube insert edge across the whole barcode area shall be present to ensure reliable barcode reading (see image below, tube position 2). When using primary tubes without insert, the width of the barcode shall not exceed 6 mm.



Upper and lower limits for positioning of 2D (left) barcodes and 1D (right) on sample tubes. The distance ("quiet zone") between the barcode and the carrier edge for 2D barcodes, is not required for 1D barcodes.

In contrast to 2D barcodes, for 1D barcodes no minimum distance is required between the barcode and the carrier/tube insert edge across the barcode area (see image on the right). It is recommended for 1D barcodes to have barcode width wider as visible barcode window (see image on the right).

Note: Maximum barcode length for 1D and 2D barcodes shall not exceed 50 mm.

Note: Rotation of the barcoded sample tube during/after tube insertion might damage the barcode or cause artifacts that affect proper barcode reading. Carefully insert the sample tube into the carrier to avoid tube rotation and barcode damage.

10. Glossary

Glossary terms are listed in alphabetical order.

Term	Description
Accessory Trough	Container providing additional reagents (e.g., ethanol), prefilled by the user, and placed into the “Reagents and Consumables” drawer in tip rack slot 5 and/or 12 (if required by the protocol).
Adapter / Eluate Adapter	Adapters being able to hold plates (MTPs, EMTRs, etc.) can be used on eluate drawer slot 1 and can be used for cooling. Adapters being able to hold tubes are available for cooled (eluate drawer slot 1) and non-cooled positions (eluate drawer slots 2–4), and on the Plate Carrier on SIM (not available yet)
Adjustment	An adjustment is conducted by a service technician during the installation or repair of the instrument to bring the instrument back within its specified tolerances. See also “Auto calibration”.
Application	A biological process starting from sample with the goal to extract nucleic acid. Parts of the process are performed manually by the user, other parts are automated (e.g., on the QIAAsymphony instrument). The automated process is defined by a Protocol running on the QIAAsymphony instrument.
Application process file	All application dependent files required to start a run (e.g., Protocol, Assay Control Set, Reagent Definition files, Labware File)
Aspiration	The process when a pipette sucks in liquid from a Container. The reverse of this process is Dispensing.
Assay control set	A file, containing a Protocol plus additional parameters, such as Internal Control.
Assay-specific IC	An internal control (IC) used during sample preparation that is specific for a particular assay.
Auto calibration	Automatic calibration of the worktable during the startup of the instrument. The optical sensor determines the position of the reference points on the worktable to adjust the XYZ movement.
Autoclaving	An autoclave is a machine used to carry out industrial and scientific processes requiring elevated temperature and pressure in relation to ambient pressure and/or temperature.
Barcode scanner (1D/2D)	The QIAAsymphony Connect instrument comes with 3 barcode scanners. One is mounted to the portal arm to identify the Reagent Cartridge and its content. The second one is located in the Sample Input Module to detect the 1D and 2D Barcodes on the sample tubes and carrier. The third scanner is located in the “Eluate” drawer to detect 2D barcodes on the bottom of racks.
(Handheld) Barcode scanner	A handheld device used to scan barcodes and convert them into data that is transmitted to the QIAAsymphony Connect instrument.
Batch	A set of Samples that are parameterized and processed together according to the chosen Protocol. A Batch can contain at least 1 and up to 24 samples. All samples of a Batch use the same protocol, eluate volume, and eluate slot (eluate format). A Batch can be composed of samples positioned on different sample drawer slots (depending on configuration of the system). Samples processed as part of a single Batch are transferred to adjacent well positions so that all samples are grouped together on the elution rack.
Batch definition	A selection of samples that are assigned to a protocol. The result of this action is a batch.
Batch ID	Each Batch has a system-wide unique identifier.
Batch status	Indicates the status of a Batch to the user.
Bead trough	Container where magnetic bead solution is stored.
Binding setting	Configuration settings that are defined by QIAGEN to follow QIAGEN Recommended workflow. The configuration can be changed by the user to create Customized (Run) or Batch definition.
Bioscript	Internal name for (Application) Protocol. The Protocol file is an application process file, required to process samples.
Buffer	Liquid provided by QIAGEN with defined physical and chemical constitution. Provided in containers Buffer is also known as “Reagent”.
Buffer bottle	Additional bottle of buffer that is placed into the “Reagents and Consumables” drawer (if required by the Protocol).
Calibration	Calibration is a comparison between measurements - one with known magnitude or correctness made or set with one device and another measurement made (using the same procedure) with a second device. In QIAAsymphony, calibration values align the mechanical tolerances between the individual modules (drawers, lysis, and extractor).

Term	Description
Capacitive liquid level detection, cLLD	Method to determine the height of a liquid surface: a weak electrical potential is created between the pipetting channel and the labware carrier; the capacitance of the created circuit is measured then (conductive tips and an ionic liquid must be used).
Carrier	Samples are introduced to the device using carriers (i.e., the "Sample Input Module SIM"). A carrier transports the tubes that hold the samples.
Cartridge	General term for Sample Prep Cartridge, Rod cover Cartridge, and Reagent Cartridge.
Consumables	Any plastic ware that is used when a sample is processed on QIAAsymphony (e.g., tips and rod covers).
Container	General term for tubes and wells.
Continuous Loading	Allows Batches to be added to a Run that was previously started and is still running.
Conveyor	Component of the QIAAsymphony Connect instrument: moves (during sample preparation) sample prep cartridges below the magnetic head.
Conveyor base tray	Removal cover under the conveyor. Must be cleaned on a regular basis.
Cooling (Eluate) Adapter	Transfers the cooling effect of the cooling module to the plates or tubes presented on Slot 1.
Cross-contamination	Samples contaminated by their neighboring samples during the pipetting process.
Customized (Run)	A batch running in a Customized configuration deviating from the QIAGEN recommended workflow.
Dead volume	The volume that remains in a container, which cannot be removed for physical reasons. This volume depends on the container type.
Diffusor panel	Located in the "Reagent and Consumables" drawer below the tip positions. It diffuses the light emitted by the illumination panel from below to allow tip recognition by ceiling camera.
Dispense velocity	Speed with which a pipette releases its content.
Dispensing	Releasing liquid from a filter tip attached to a pipetting channel.
Drawer	General term for the individual drawers of the system. These are four drawers in total: "Sample", "Reagents & Consumables", "Waste", and "Eluate".
Drop catcher (Cabinet)	The drop catcher is positioned beneath the closed "Waste" drawer of the QIAAsymphony Connect instrument. It has 2 primary functions: Keeps the tip and waste chute in close proximity to each other; and prevents droplets from contaminating the waste compartment of the Cabinet.
DSP protocols	Diagnostic Sample Preparation (DSP) protocol for use in diagnostic applications (IVD).
Eluate	Purified nucleic acid in liquid solution.
Eluate plate	See "Elution rack".
Eluate format	The labware which can be put in the eluate slot either directly or on an Adapter.
Eluate Slot	The system provides 4 eluate slots on the "Eluate" drawer where eluate formats (labware) can be placed, either directly or on specific Adapter (e.g., tubes).
Eluate tube	A tube used as eluate format on one of the eluate slots in an eluate adapter (cooled or uncooled).
Elution	The process in which nucleic acids are released from the magnetic beads into the liquid in a Sample Prep Cartridge to create the eluate.
Elution MicroTube Rack	The "Elution MicroTube Rack" (also known as EMTR) is an elution rack that is offered by QIAGEN and therefore best suited for QIAAsymphony.
Elution rack	Labware used as eluate format in one of the eluate slots (cooled on eluate adapter or uncooled without adapter) Synonym: eluate plate.
Enzyme rack	The enzyme rack consists of up to seven tubes that hold enzymes and other low volume reagents. It is attached to the reagent cartridge.
Error code	Code number, associated to a specific error that occurred on the QIAAsymphony instrument.

Term	Description
Extraction control	Processed with samples to verify the extraction process. It is placed on the sample carrier and emerges as eluate on the Eluate plate. EC- is the abbreviation for “negative extraction control”, not containing analyte. EC+ is the abbreviation for “positive extraction control”, containing analyte.
Extractor	Central part (sub module) of the QIAAsymphony Connect that consists of: (1) An array of 24 magnetic rods, which can move up and down (for mixing). The extractor head can take up a maximum of three 8-Rod Covers at the same time; (2) The conveyor, which moves the Sample Prep Cartridges from the start position (left) to the processing position (middle), and finally to the output position (right); and (3) The drop catchers, which hold the magnetic head guards that are used to prevent cross-contamination.
Extractor Consumables	Labware used for nucleic acid extraction on the QIAAsymphony Connect, comprising of Sample Prep Cartridges and Rod Covers. These items are single use only, and should be disposed of after the run is complete.
Filter-tip	Consumable that is picked up by a tip adapter (part of the pipetting channel) during operation of the QIAAsymphony Connect. Liquid is aspirated into and dispensed from a filter-tip. Synonym: Tip (frequently used).
Firmware	The software on the xNA processor. It includes the device application software and the device control software. Both are connected via a communication layer using a named pipe.
Format	Form, size, and design of labware (e.g., number of containers) and their form: 96 format, 384 format, etc.
Full Process Control	An Extraction Control that is also used as a control for assay setup and detection.
Graphical user interface (GUI)	Interface for human-machine-interaction; it is displayed on the touchscreen on the QIAAsymphony Connect.
Guided Mode (WIZARD)	The Guided Mode guides the user to perform the Batch Definition in a fixed step-by-step order. The Guided Mode is started on the Dashboard by pressing WIZARD .
Hood	QIAAsymphony Connect hood protects users from moving robotic arms and from potentially infectious material on the worktable.
Input format	The labware used to load samples into the sample input module.
Insert	Adapter which is used in the tube carrier to hold different sizes of tubes. The instrument can identify insert types by barcode.
Internal control (IC)	An IC is a secondary target in an assay that can be used to check for possible PCR inhibition in an extracted sample. The IC target can be an artificial template that is added to a sample during extraction process.
Inventory scan	An inventory scan is performed to confirm the contents of a drawer(s) and if items are correctly loaded (e.g., lid removed from buffer bottle). The inventory scan provides information for the system to determine if there is a sufficient number of required reagents and consumables for a Run to be started.
In Vitro Diagnostics (IVD)	(“In vitro” means “in glass” in Latin). “In vitro diagnostics” are tests used to detect diseases, conditions, or infections. “In vitro diagnostic tests” are medical devices intended to perform diagnoses from assays in a test tube, or more generally in a controlled environment outside a living organism.
Kit	Collection of reagents and consumables; required for a given protocol offered by QIAGEN.
L(L)D	Liquid (Level) Detection. Method to measure the level of liquids in tubes, wells, and similar containers. The robot unit can detect liquid surfaces using various techniques (e.g., cLLD and pLLD). The determined position of the liquid surface can be used to calculate present volume in the container based on the volume height curve.
Labware	Laboratory consumable such as tubes and plates. In general, labware is a vessel used to contain liquid. From a user point of view, it is a sample input and output container. For the system point of view, it also includes consumables specific for QIAAsymphony Connect such as SPC, Rod Cover, Reagent Cartridge, Buffer Bottle, and Accessory Trough.
Labware File	A Labware file is stored on the system and contains all information about a specific Labware Item. This includes: dimension, supplier, catalog number, adapter /insert or tip compatibility, LLD type allowed, Liquid height curve, and liquid capacity. For all racks, an additional labware file exists which details the allowed positions. This file is called “Slot Assignment”.
Labware List	The Labware List defines the labware recommended for a specific protocol as part of the instructions for use. The Protocol Labware Mapping (file) is the QIAAsymphony Connect internal counterpart.
Laser Scanner / Optical sensor	A sensor used to measure height of worktable components. Used for auto calibration points, checking tip chute, and checking presence of tips and labware.
Less sample handling	If the user provides less sample, then it is defined in the protocol that the sample is either processed as valid, unclear, or not processed depending on predefined thresholds in the protocol file.

Term	Description
LIMS / LIS	Laboratory Information Management System (LIMS) is a software system used in laboratories to manage and control workflows and processes (e.g., management of samples, laboratory users, instruments, standards, invoicing, plate management). Laboratory Information System (LIS) is similar to LIMS but is based on patient information concerning on patient sample, test, and result.
Liquid class	Defines the pipetting parameters for a given liquid, taking into account certain constraints (e.g., tip size and pipetting mode).
Load check	Part of the "Inventory scan" and includes all checks performed using a laser, ceiling, and/or barcode camera.
Log file	Data file(s) generated by the QIAAsymphony instrument that contain(s) general information about the instruments, user interactions, and details about the protocol being run.
Lysis	The breaking down of a cell, often by viral, enzymic or osmotic mechanisms that compromise its integrity. A fluid containing the contents of lysed cells is called a lysate.
Lysis station / Lysis module	Component of the QIAAsymphony Connect that accommodates sample prep cartridges and enables heating and shaking of sample/reagent mixes usually as part of the lysis step of a protocol. The module can hold up to 24 samples.
Magnetic beads	Polymer paramagnetic particles used within the purification process. The particles have a size within micrometers and consist of a magnetizable nucleus in a plastic matrix. They are functionalized with a wide range of chemical or biological molecules. Nucleic acids (DNA or RNA) bind to the magnetic beads and can be separated from other unwanted components in the lysate. The release of nucleic acid from paramagnetic beads is called an elution.
Magnetic head	Array of 24 Magnetic Rods for processing magnetic particles; part of the extractor unit.
Magnetic head guards	During sample preparation, the magnetic head guards move under the magnetic head and catch any drops that may fall from the 8-Rod Covers.
Magnetic rod	Part of the magnetic head, which is an essential component in the purification process. This separates paramagnetic beads from liquid. This is also protected by 8-Rod Covers to avoid direct contact of liquid.
O-Ring	Gaskets on the tip adapters that ensures that the tip fits tightly on the tip adapter and no air can be sucked in. Must be replaced on regular basis.
Piercing device	Device integrated in the "Reagents and Consumables" drawer that enables reagent cartridges in combination with the piercing lid to be automatically opened by the QIAAsymphony Connect.
Piercing lid	A lid with piercers that is placed on top of the reagent cartridge. Enables the reagent cartridge to be automatically opened by piercing device of the QIAAsymphony Connect. After the reagent cartridge is pierced, the piercing lid cannot be removed.
Pipetting channel	The pipetting channel is a component of the QIAAsymphony Connect instrument that contains a syringe pump to allow the aspiration, transport, and dispense of liquid. The portal arm has 4 pipetting channels.
Plate	Synonym for "Rack".
Portal arm	Robotic arm carrying a Robotic Gripper, UV LED, 2D barcode scanner, and optical sensor.
Power switch	Button located on the front, bottom-right corner of the QIAAsymphony Connect. Used to switch the QIAAsymphony instrument on and off.
Primary tube	Tube in which sample material arrives in the laboratory, e.g., the tube used at the doctor's cabinet when obtaining blood. Sometimes, this must be divided as it is necessary to perform various tests with this material. A fraction of the material is then filled into a secondary tube.
QIASphere	QIASphere is a platform intended to be used for connecting QIAGEN instruments for remote monitoring, notifications, and other connectivity services using cloud or local network connection. QIASphere can be connected to QIAGEN instruments and services to collect data. The user can view and submit reports from the QIASphere dashboard.
QIAAsymphony	QIAAsymphony is a robot family. The QIAAsymphony SP module is used for purifying nucleic acids from biological samples. The successor is called the QIAAsymphony Connect. The QIAAsymphony AS module prepares assays for a following PCR. The QIAAsymphony AS is discontinued with the release of the QIAAsymphony Connect.

Term	Description
QIAsymphony cabinet	Cabinet that is designed to position the QIAsymphony Connect instrument on top of it. The cabinet comprises a waste compartment replacing the Tip Disposal Bag and storage for QIAsymphony Connect components such as adapter, and inserts.
QIAsymphony instrument	QIAsymphony hardware.
QIAGEN LIMS Connector	Software package that is external to the QIAsymphony system that facilitates the transfer of information (e.g., worklists) between the QIAsymphony Connect and a customer's LIMS.
QIAGEN Recommended	QIAsymphony Connect flags a run as "QIAGEN Recommended" if all parameters of a Batch Definition are according to the restrictions set by QIAGEN developers. This includes for example configuration settings and the labware recommendations stated in the PLM.
Rack	Part of the labware. Carrier for the liquids, which are placed in individual wells.
Rack file	File that contains information about racks used on the eluate drawer (i.e., rack ID, eluate volumes, labware type). Rack files can be generated manually or automatically
Rack type	Type of rack that will be used on the worktable.
Reagent box adapter	A holder for a reagent container (box/cartridge) in the instrument that ensures its correct position and orientation.
Reagent cartridge	Labware that contains a magnetic bead trough, up to 7 reagent troughs, and an optional enzyme rack. A reagent cartridge is prefilled with reagents usually good for 48, 72, 96, or 192 samples. Reagent cartridges are sold in kits with different filling volumes and contents depending on application.
Reagent Cartridge – in-use stability	Partially used reagent cartridges can be stored upright at room temperature, enabling cost-efficient reuse of reagents and more flexible sample processing. If a reagent cartridge is partially used, the user has to replace the cover of the trough containing the magnetic particles and seal the reagent cartridge with the provided Reuse Seal Set immediately after the end of the run to avoid evaporation.
Reagent Cartridge – open time stability	During Reagent Cartridge – in-use stability the reagent cartridge must not be open longer than defined open time stability to avoid reagent evaporation (including run times) at maximum environmental conditions. Incorrect storage of the kit components can lead to accelerated aging of buffers.
Reagent Cartridge – shelf-life stability	Shelf life is the length of time that a reagent cartridge may be stored closed at environmental conditions without becoming unfit for use. Each reagent of a reagent cartridge carries a barcode with shelf-life stability (MM-YY).
Report file	Data file that is generated by the QIAsymphony for each elution rack. The file contains general information, batch-related information and information about the reagent cartridge.
Reuse Seal Set	Reuse Seal Set consists of Reuse Seal Strips to close reagents and Bead troughs on the reagent cartridge to prevent evaporation of the reagents when not loaded on the QIAsymphony.
Robotic gripper	A component of the QIAsymphony portal arm that transfers Extractor Consumables during sample preparation to the required position on the worktable. The robotic gripper consists of a weight, two rods, and a L-drive to fixate the disposables.
Rod Cover	Extractor disposable with an array of 8 rod covers that covers the magnetic rods of the magnetic head. They are provided in unit boxes and can be transferred by the robotic gripper.
Run	A run is the process of sequential execution of defined Batches. At least one Batch is required to start a run.
Sample	Biological material which can be processed by the QIAsymphony Connect, e.g. blood, sperm, or serum. Defined by each application
Sample input module, SIM	Component of the QIAsymphony Connect that accommodates the carrier holding the samples. The SIM includes a barcode camera to read sample barcodes.
Sample prep cartridge	A vessel with 8 wells that is used by the QIAsymphony for purification of nucleic acids or proteins.
Sample tube	A tube for holding a sample containing nucleic acids to be purified.
Secondary tube	See "Primary tube".
Slot	A worktable position on the QIAsymphony Connect.
Tip	The exchangeable tip that is automatically picked up by the pipette channel of the portal. It is a consumable that is automatically discarded after use. Synonym: filter-tip.

Term	Description
Tip adapter	Each pipetting channel is equipped with a tip adapter which picks up the disposable tips from the tip rack.
Tip guard	Attached to the pipetting channel and positioned below the disposable tip to avoid aerosol contamination.
Tip park station	Located in the "Waste drawer", that allows used tips to be temporarily stored on the worktable for reuse in a later protocol step.
(Tube) Carrier	A carrier that can accommodate up to 24 sample tubes.
USB file transfer	Data transfer via the USB interface.
UV LED	Light source for ultraviolet light, used to decontaminate the worktable.
Well	A single well on a rack, tube cartridge or reagent cartridge that can hold liquid.
Worktable	The surface of the QIA Symphony where nucleic acid extraction takes place.
Z-movement	Vertical movement of the pipettors.

Appendix A

Waste Electrical and Electronic Equipment (WEEE)

This section provides information about disposal of waste electrical and electronic equipment by users.

The crossed-out wheeled bin symbol (see below) indicates that this product must not be disposed of with other waste; it must be taken to an approved treatment facility or to a designated collection point for recycling, according to local laws and regulations.

The separate collection and recycling of waste electronic equipment at the time of disposal helps to conserve natural resources and ensures that the product is recycled in a manner that protects human health and the environment.



Recycling can be provided by QIAGEN upon request at additional cost. In the European Union, in accordance with the specific WEEE recycling requirements and where a replacement product is being supplied by QIAGEN, free recycling of its WEEE marked electronic equipment is provided.

To recycle electronic equipment, contact your local QIAGEN sales office for the required return form. Once the form is submitted, you will be contacted by QIAGEN either to request follow-up information for scheduling collection of the electronic waste or to provide you with an individual quote.

The QIAsymphony Connect instrument should also be decontaminated before shipping and disposal.

The QIAsymphony connect should also be decontaminated before shipping back to QIAGEN. In this case a decontamination certificate must be completed to confirm that the decontamination procedure has been carried out. Refer to Section 7 Maintenance for more details.

FCC Declaration (US) and Compliance with ICES (Canada)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For Canada, this is a Class B digital apparatus compliant with Canadian ICES-003 "Information Technology Equipment (including Digital Apparatus)" standard.

Liability clause

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

Ordering information

Note: Only use accessories supplied by QIAGEN.

Product	Contents / description	Cat. no.
QIASymphony Connect System	Versatile nucleic acid purification instrument providing high-quality nucleic acids compatible with most common downstream assay technologies.	9003450
QIASymphony Cabinet	Optional accessory for a safe positioning of the QIASymphony Connect instrument; includes a consumables storage drawer and a waste container drawer.	9027985
Accessories and Consumables		
Sample Prep Cartridges, 8-well (336)	8-well sample prep cartridges for use with the QIASymphony Connect	997002
8-Rod Covers (144)	8-Rod Covers for use with the QIASymphony Connect	997004
Filter-Tips, 200 µL (1024)	Sterile, Disposable Filter-Tips, racked; (8 × 128)	990332
Filter-Tips, 1500 µL (1024)	Sterile, Disposable Filter-Tips, racked; (8 × 128)	997024
Tip Disposal Bags (15)	For use with the QIASymphony Connect	9013395
Accessory Trough (10)	For use with the QIASymphony Connect	997012
Reagent Cartridge Holder (2)	For use with the QIASymphony Connect. Required to load reagent cartridges	997008
Tube Carrier (1)	Tube carrier for sample input; for use with the QIASymphony Connect	
Tube Insert 1A, 13 mm, sample carrier, Qsym (24)	Primary tube adapter (13 mm, with tube insert 1A) for use with the QIASymphony Connect tube carrier	9242058
Tube Insert 2A, 11 mm, Revision, sample carrier, Qsym (24)	Primary tube adapter (11 mm, with tube insert 2A) for use with the QIASymphony Connect tube carrier	9242057
Tube Insert 3B, 2.0 mL v2, samplecarr. (24), Qsym	Secondary tube adapter (for 2 mL screw-cap tubes, tube insert 3B) for use with the QIASymphony Connect tube carrier	9242083
Tube Insert 5A SnapCap Tube (24)	Secondary tube adapter (for 1.5 and 2 mL snap cap tubes, tube insert 5A) for use with the QIASymphony Connect tube carrier	9244701
Adapter, tubes, 2 mL, v2, Qsym	Non-cooling adapter for 2 ml screw-cap tubes.	9021670
Cooling Adapter, 2 mL, v2, Qsym	Cooling adapter for 2 mL screw-cap tubes; for use with the QIASymphony Connect instrument	9020674
Cooling Adapter, EMT, v2, Qsym	Cooling adapter for EMT racks; for use with the Connect instrument	9020730
Cooling Adapter, MTP, RB, v2, Qsym	Cooling adapter for round bottom microplates (MTP); for use with the QIASymphony Connect instrument	9020729
Cooling Adapter, PCR, v2, Qsym	Cooling adapter for PCR plates; for use with the QIASymphony Connect instrument	9020732
Cooling adapter , tubes, 1.5 mL, v2, Qsym	Cooling adapter for holding snap cap tubes; for use with the QIASymphony Connect instrument.	9020731
Cooling Adapter, SBS Universal, Qsym	Adapter for holding microplates; for use with the QIASymphony Connect instrument	9243384

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 Service or your local distributor.

Appendix C – Consignes de sécurité

Avant d'utiliser le QIAsymphony Connect, il est impératif de lire attentivement ce manuel et de porter une attention particulière aux consignes de sécurité. Afin de garantir un fonctionnement de l'appareil en toute sécurité et de maintenir l'appareil en bon état de marche, il est impératif de suivre les instructions et consignes de sécurité fournies dans le présent manuel d'utilisation.

Les types d'informations de sécurité suivants sont fournis tout au long du manuel.

AVERTISSEMENT



Le terme AVERTISSEMENT signale des situations risquant d'entraîner des accidents corporels dont l'utilisateur, ou d'autres personnes, pourraient être victime.

Les détails concernant ces circonstances sont donnés dans un encadré identique à celui-ci.

ATTENTION



Le terme ATTENTION signale des situations risquant d'entraîner des détériorations de l'appareil ou de tout autre matériel.

Les détails concernant ces circonstances sont donnés dans un encadré identique à celui-ci.

Les conseils donnés dans ce manuel ont pour but de venir compléter les exigences de sécurité habituelles en vigueur dans le pays de l'utilisateur, et non de s'y substituer.

Appendix D - Sicherheitshinweise

Lesen Sie dieses Handbuch sorgfältig durch, bevor Sie den QIASymphony Connect benutzen. Beachten Sie dabei insbesondere die Sicherheitshinweise. Die Gebrauchsanweisungen und Sicherheitshinweise im Handbuch müssen befolgt werden, um einen sicheren Betrieb des Geräts zu gewährleisten und das Gerät in einem sicheren Zustand zu erhalten.

In diesem Handbuch werden die folgenden Kategorien von Sicherheitshinweisen verwendet:

WARNUNG



Der Begriff „WARNUNG“ („WARNING“) weist Sie auf Situationen hin, in denen eine Verletzungsgefahr für Sie selbst oder andere Personen besteht.

Nähere Einzelheiten über diese Situationen werden in einem Textfeld wie diesem beschrieben.

ACHTUNG



Der Begriff „ACHTUNG“ („CAUTION“) weist Sie auf Situationen hin, in denen das Gerät oder andere Geräte beschädigt werden könnten.

Nähere Einzelheiten über diese Situationen werden in einem Textfeld wie diesem beschrieben.

Document Revision History

Revision	Changes
R1, July 2026	Initial release.

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