cobas® infinity central lab

cobas® infinity general lab module

User Guide

Publication version 6.5

Software version 3.03

Publication information

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1.1	2.0	June 2016	New features of software version 2.0
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2.0	2.1	May 2017	New features of software version 2.1
2.1	2.1.2	July 2017	New features of software version 2.1.2
2.2	2.1	November 2017	Software version changed to include all 2.1 patches
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Revision history of User Guide

Edition notice

This publication is intended for operators of the **cobas**® **infinity** central lab.

Every effort has been made to ensure that all the information contained in this publication is correct at the time of publishing. However, the manufacturer of this product may need to update the publication information as output of product surveillance activities, leading to a new version of this publication.

Where to find information

The **User Assistance** contains all information about the product, including the following:

- Safety

- Routine operation
- Configuration information

The **User Guide** focuses on routine operation. The chapters are organized according to the normal operation workflow.

⚠ **General attention**

To avoid incorrect results, ensure that you are familiar with the instructions and safety information.

- Pay particular attention to all safety notices.
- Always follow the instructions in this publication.
- Do not use the software in a way that is not described in this publication.
- Store all publications in a safe and easily retrievable place.

Training

Do not carry out operation tasks or maintenance actions unless you have received training from Roche Diagnostics. Leave tasks that are not described in the user documentation to trained Roche Service representatives.

Images

The images in this publication have been added exclusively for illustration purposes. Configurable and variable data, such as tests, results, or path names visible therein must not be used for laboratory purposes.

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Any customer modification to the system renders the warranty or service agreement null and void.

For conditions of warranty, contact your local sales representative or refer to your warranty contract partner.

Always leave software updates to a Roche Service representative, or perform such updates with their assistance.

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A list of all Roche affiliates can be found at:

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eLabDoc

Electronic user documentation can be downloaded using the eLabDoc e-service on Roche DiaLog:

dialogportal.roche.com

For more information, contact your local affiliate or Roche Service representative.

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Table of contents

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Intended use

cobas® **infinity** central lab software is intended to be used for:

- the configuration and connectivity management of instruments and software systems
- the management of data regarding
  - Samples
  - Technical validation including automatic release
  - Quality control (both qualitative and quantitative)
  - Test results and their entry (offline workplaces)
- the management and storing of information, such as
  - Samples Archiving Storage information
  - Rule engine for technical validation
  - Notifications from any part of the system
  - Reagent and Calibrator management
  - Turn Around Time management
  - Production statistics

In addition to the above intended use, the **cobas**® **infinity** central lab software is intended for:

- the management of data regarding
  - Order Data
  - Patient Data for Clinical Labs
    For Blood/Plasma Donor Screening Labs this functionality can be used to manage blood donor sample data
  - Medical Validation support for Clinical Labs
    For Blood/Plasma Donor Screening Labs this functionality can be used to support two step validation processes/schemes
  - Result Consolidation and Reporting
  - Billing support
- the management and storing of information, such as
  - General statistics (Data Warehouse)
- Microbiology workflows and data for (Microbiology module):
  - Human samples

cobas® **infinity** central lab is intended for Clinical Laboratories.

cobas® **infinity** central lab is intended for Blood/Plasma Donor Screening Laboratories (Excluding U.S.).

Use environment and intended users

cobas® **infinity** central lab is intended for Clinical Laboratories.

cobas® **infinity** central lab is intended for Blood/Plasma Donor Screening Laboratories (Excluding U.S.).

You can find different user profiles using the **cobas**® **infinity** central lab software.

Lab Technician

Lab technicians utilize the solution to perform technical validation on patient and QC results, manually edit orders (add or remove tests, edit patient-demographic data), enter patient and QC results that have been obtained from offline workplaces, print patient and QC reports, archive samples, retrieve samples from the archive, etc. Access level depends on specific user rights.

Lab Physician/Director

Lab Physicians/Directors utilize the solution to check technically validated results, search for samples or test results on patient results, and add comments to the results or order.
Access level depends on specific user rights.

Lab IT Administrator

Lab IT Administrators maintain users and authorization, and maintain tests and senders.
Access level will depend on specific user rights.

GP/Hospital doctor/Hospital nurse/ Community nurse

These users are not employees of the laboratory; thus their access is restricted to the Lab Link module only. They enter orders manually within the Lab Link module, release printouts of barcode labels for the tubes for positive patient/sample identification, release printouts of reports for the patient for blood drawing, and view and print the patient result report of their patients.

Phlebotomist

These users are employees of the laboratory, but their access is restricted to the Lab Link module only. Phlebotomists confirm in the software that the samples have been taken according to the order.

IT Manager

- Network and security configurations
- WLAN device configuration security type EAP
- EAP Settings management (EAP settings and EAP settings assignment)

Roche Service representative (global and local)

Roche Service representatives configure the system and master data (test, test groups, senders, instruments, reports, interfaces, etc.) according to specific requirements of the customers with regards to connected hosts, instruments, and sample workflow. Access level depends on specific user rights.

Symbols and abbreviations

Product names

Except where the context clearly indicates otherwise, the following product names and descriptors are used.

Product name	Descriptor
cobas® **infinity** central lab	software
cobas® **infinity** general lab	module
cobas® **infinity** emergency lab	module
cobas® **infinity** lab flow	module
cobas® **infinity** lab link	module
cobas® **infinity** microbiology	module
cobas® **infinity** total quality management	module
cobas p 312 pre-analytical system	pre-analytical instrument
cobas p 512 pre-analytical system	pre-analytical instrument
cobas p 612 pre-analytical system	pre-analytical instrument
cobas® 8100 automated workflow series	pre-analytical instrument
Roche PVT pre-analytical systems	pre-analytical instrument
MODULAR PRE-ANALYTICS **EVO**	pre-analytical instrument
cobas® **prime** Pre-analytical System	pre-analytical instrument
cobas e 801 module	analytical module
cobas® 6000 analyzer series	analytical instrument
cobas® 6500 urine analyzer series	analytical instrument
cobas® 8000 modular analyzer series	analytical instrument
cobas® 6800/8800 Systems	analytical instrument
LIAISON® XL LAS Analyzer	analytical instrument
cobas p 501 post-analytical unit	post-analytical instrument

Product names

Product name	Descriptor
cobas p 701 post-analytical unit	post-analytical instrument
cobas p 702 post-analytical unit	post-analytical instrument
CCM Address Extension Unit	transport system module extension
cobas® connection modules (CCM)	transport system module extension
LIAISON® XL Connection Module	transport system module extension
Add-On-Buffer Unit	instrument buffer

Product names

Product names

Except where the context clearly indicates otherwise, the following product names and descriptors are used.

Product name	Descriptor
cobas® infinity central lab	software
cobas® infinity general lab	module
cobas® infinity emergency lab	module
cobas® infinity lab flow	module
cobas® infinity lab link	module
cobas® infinity microbiology	module
cobas® infinity total quality management	module

Product names

Symbols used in the publication

Symbol	Explanation
●	List item
	Related topics containing further information
	Tip. Extra information on correct use or useful hints.
▶	Start of a task
	Extra information within a task
→	Result of an action within a task.
	Frequency of a task.
	Duration of a task.
	Materials that are required for a task.

Symbols used in the publication

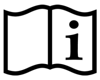
Symbol	Explanation
	Prerequisites of a task.
	Topic. Used in cross-references to topics.
	Task. Used in cross-references to tasks.
	Figure. Used in figure titles and cross-references to figures.
	Table. Used in table titles and cross-references to tables.
$\sqrt{xy}$	Equation. Used in cross-references to equations.
	Code example. Used in code titles and cross-references to codes.
	Context search. Used on the context search tab.
	Search. Used on the search tab.
	Table of contents. Used on the table of contents tab.
	Hardware explorer. Used on the hardware explorer tab.
	History. Used on the history tab to show previously viewed topics.
	Favorites. Used on the favorites tab and on the content panel.
	Enlarge. Button used on images.
	Settings. Button used to open the settings dialog.
	Contact. Used in the User Assistance. Functionality currently unavailable.
	Tip. Extra information on correct use or useful hints.
[ ]	Square bracket. Used in the items name as defined by your software administrator.

Symbols used in the publication

Symbols used on product

Symbol	Explanation
GTIN	Global Trade Item Number
	Date of manufacture

Symbols used on product

Symbol	Explanation
	Manufacturer
	Consult instructions for use on this website: *dialogportal.roche.com*
	Consult the instructions for use for important cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the medical device itself.

Symbols used on product

Abbreviations

The following abbreviations are used.

Abbreviation	Definition
ANSI	American National Standards Institute
EN	European standard
n/a	not applicable
QC	Quality Control
SD	Standard deviation
UPS	Uninterruptible Power Supply

Abbreviations

Safety classifications

The safety precautions and important user notes are classified according to the ANSI Z535.6 standard. Familiarize yourself with the following meanings and icons.

These symbols and signal words are used for specific hazards:

⚠ WARNING!

Warning...

- ...indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION!

Caution...

- ...indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE!

Notice...

- ...indicates a hazardous situation that, if not avoided, may result in damage to the system.

Important information that is not safety relevant is displayed as the following icon:

Tip...

...indicates additional information on correct use or useful tips.

System safety information

Roche Diagnostics has established a series of recommendations with the aim of allowing the user to work with the software under safe conditions and guaranteeing the correct operation and proper performance of the communication network in which this product has been installed.

Read the following recommendations carefully for the correct operation of the software.

Security

WARNING!

Secure infrastructure

Risk of privacy violations.

- A secure infrastructure must be established for the software network and security policies must be defined to address potential problems or system failures.
- Access is controlled by a login. Every access to the software is registered and logged, including the unsuccessful ones.
- Pay special attention when configuring the number of logon attempts, the password expiry period, and session management.

Enabled security parameters

All security parameters (profiles, access restrictions, etc.) are enabled by default. Remember that disabling security parameters may lead to potentially major risks, e.g. unqualified staff may change instruments or system configurations, or unauthorized users may access confidential information.

UPS

⚠ **WARNING!**

UPS usage and software shutdown

Risk of data becoming lost or corrupted in the event of a power failure.

- It is strongly recommended to use a UPS and to perform regular UPS maintenance.
- It is strongly recommended to keep the journaling feature activated.
- There should be a standard procedure to shut down the software. You must exit the software before shutting down the computer on a daily basis. Having a UPS that can perform a safe shutdown installed mitigates the risk of data loss due to power failure.

⚠ **CAUTION!**

UPS usage

Risk of data loss in the event of a power failure.

- It is strongly recommended to use a UPS.
- It is strongly recommended to keep the journaling feature activated.

User settings

⚠ **WARNING!**

Restricting access to critical functions

Risk of confidential information being accessed.

- It is recommended to grant users the minimum rights necessary to perform their tasks to protect confidential data and configuration items in the database.

⚠ WARNING!

Access to the software and user accounts

- Access to the software should only be granted to users who have been trained and assigned a user name and password. The password must be confidential and must comply with the usual security principles. It must be changed periodically to prevent unauthorized parties from gaining access.
- There must be one account per user. Do not create generic user accounts to be used by more than one person. Create a different account for each user, even if they have the same access rights.
- It is recommended that you develop a Standard Operating Procedure (SOP) to ensure that only qualified staff access the software.
- Be careful when granting permissions to users. A user with more permissions than necessary may release incorrect or not validated information.

⚠ WARNING!

Passwords, access, and system shutdown

- For security reasons and for patient confidentiality, all users must exit the software or lock their computer before leaving their workplace.
- It is recommended to correctly configure the automatic log-off time.

⚠ CAUTION!

System performance

Risk of delayed results.

- To ensure the operation of the system at full capacity, avoid connecting more users or instruments than your infrastructure supports.

System configurations

The preconfigured settings in the system must only be used as a reference. It is recommended that they are not used as default settings since they should be modified to suit the system and the health center requirements.

General

⚠ CAUTION!

Failure to understand the software icons and symbols

Delay in the processing of an order, or the generation of user errors through poor understanding of the software

- Get accustomed to the iconography used in the software prior to first usage.
- Hover over icons to display the icon tooltip, or optionally, use the User assistance shortcut (F1).

⚠ WARNING!

Regional settings

- Make sure that the configuration of the software matches the regional settings and the local requirements.

⚠ CAUTION!

Servers and software performance

Risk of delayed results.

- Use servers that are correctly dimensioned to the needs of your installation to guarantee the best performance of the software.
- It is recommended to configure the servers using a high availability and data redundancy system. The existence of a second server prevents data loss in the event of severe or critical failures in the system.

⚠ CAUTION!

Alarms on validation screens and reports

Risk of incomplete results that could lead to a wrong diagnosis.

- To prevent users from validating results without taking into account important information, always configure alarms for validation screens and reports.

⚠ CAUTION!

Barcodes

Risk of delayed results.

- It is strongly recommended to have appropriate Standard Operating Procedures (SOP) to avoid an incorrect handling of tubes.
- It is recommended to use barcodes for tubes and trays to easily identify and locate samples.

All the changes made in the software are recorded using an audit trace.

CAUTION!

Errors in identification of orders, tubes or patients and wrong or incomplete synchronization between the internal and external database

Risk of wrong results or delayed results or loss of information.

- If the archived database is not available, do not use the local database.

Backups and updates

WARNING!

Backups and updates

- Before updating the software, make backups of all databases and system configurations.
- After updating the software, check the proper functioning of all system features, especially those that require a greater complexity of configuration.

Instruments and reading devices

WARNING!

Repeated values

Results may be misinterpreted if instruments do not show the time when results were sent, or if the same results are received for the same test with the same timestamp.

- Keep in mind that, in this case, results could be repeated simply due to data being transmitted twice and not because a test was repeated.

Reading devices

Risk of results being misinterpreted.

- It is recommended that you use reading devices (optical readers, barcode readers, card readers, etc.) to take results. Check the reading devices are operating correctly before using them in real environments.

Results

⚠ WARNING!

Result format

Risk of results being misinterpreted or wrong results.

- To prevent the software to misinterpret results, do not use separators for thousands when entering results. Only decimal separators must be used.
- Ensure that instruments and hosts are also configured to not use separators for thousands.

21 CFR Part 11 compliance

The Food and Drug Administration (FDA) of the United States under Title 21 of the US Code of Federal Regulation Part 11 (21 CFR Part 11) establishes the requirements to ensure that electronic records and electronic signatures are trustworthy, reliable, and equivalent to paper records with traditional handwritten signatures.
cobas® infinity central lab provides the capability to meet the requirements of part 11 compliance if the system is configured and used properly within the customer's processes. This section describes the steps and settings that are necessary to ensure that the software is configured to meet the requirements of this regulation.
The final responsibility of 21 CFR Part 11 compliance relies on the adequate implementation by the customer ensuring both procedural controls (that is, Standard Operating Procedures, training) and administrative controls.

In case customers need to be compliant with 21 CFR Part 11 regulatory requirements, the software should be configured according to the customer’s policies and needs. Otherwise, the following configurations are recommended:

General parameters

Administration > General > General parameters

ID	Parameter	Description	Recommended value
1	**Accessing the application via Direct Access without having to log on**	When accessing the software using a link or externally, this parameter allows you to access only the screens marked as accessible without having to enter the password and user name on the logon screen.	No (default value)

Parameter configuration for 21 CFR Part 11 compliance

ID	Parameter	Description	Recommended value
3	**Session timeout (min)**	This parameter allows you to specify how long the session is kept open (in minutes) since activity was last detected. Once this time is exceeded, the software logon screen appears, and the user name and password must be entered again.	15
4	**Direct access session timeout (min)**	This parameter only applies to sessions accessed from an external environment. This parameter allows you to specify how long the session is kept open (in minutes) since activity was last detected. Once this time is exceeded, the session closes.	15
5	**Days configuration trace is kept**	Indicates the number of days the configuration trace will be kept before deleting it.	9999
6	**History retention period (d)**	Days before the deletion the order traces.	9999
7	**Delete the orders and patients from the recycle bin after (hours)**	When deleting orders and patients, the application sends them to the recycle bin. These orders / patients remain in the recycle bin until they exceed the number of hours set in this parameter. The system then proceeds to permanently delete these items from the database via the end of day process.	24 (default value)
8	**Number of logon attempts before the user is blocked**	Indicates the number of consecutive mistakes that you can make when logging in.	5
9	**Password renewal period (d)**	Period of time when the system will request to change the password for a user.	90 (default value)
10	**Password expiry warning (d)**	Period of time when the system will start reminding you to change the password before the password renewal period.	10
11	**Minimum number of uppercase letters in password**	Minimum number of uppercase letters that the password must contain.	1 (default value)
12	**Minimum number of digits or symbols in password**	Minimum number of digits or symbols that the password must contain.	1 (default value)
13	**Minimum password length**	Minimum length required for the password.	6 (default value)
14	**Request password when accessing the validation screen (positive user identification) and the rule engine administration screen**	Indicates if the password for the user will be requested when entering the validation screen or Rule Engine validation screen.	Yes
15	**Enable automatic data removal in database**	Indicates if the system will remove order data automatically from the database.	No (default value)
16	**Add comment when editing validated tests** (for all required applications: General Lab, Emergency Lab and Microbiology)	When enabling this parameter, the application forces the user who edits validated results and wants to save them, to enter a comment. The callout that appears for entering the comment cannot be left empty. It is possible to enter a coded comment. These comments do not appear by default in the report. If you want to view them there, the check box of the Imp./Host column on the Comments screen should be selected.	Yes
17	**Request confirmation when changing results** (for all required applications: General Lab and Emergency Lab)	If this parameter is enabled, the system requests you to confirm whether the test result change should actually be saved in the database. This option helps you avoid mistakes.	Yes

Parameter configuration for 21 CFR Part 11 compliance

Reports **Administration > Reports > Definition**

ID	Configuration	Procedure
18	Report configuration includes the user that validates the result.	1. Choose the corresponding report. 2. Choose the **Design** button. 3. Include the **Validation user name list** field in the report.

Report configuration for 21 CFR Part 11 compliance

The following settings must be properly configured to comply with this regulation:

ID	Configuration
19	Check Backup List (Database configuration)
20	Check Backup Task (Database configuration)
21	The communication channel uses SSL or HTTPS between client and server

Backup and communication configuration for 21 CFR Part 11 compliance

To ensure that these settings are properly configured, contact your Roche Service Representative.

⚠ WARNING!

- It is recommended that customers keep evidence of this configuration according the required regulations.

Data privacy information

Roche Diagnostics provides a guide that explains the EU GDPR provisions to help your laboratory or medical organization comply with its requirements while using **cobas® infinity** central lab. In order to get the latest available version of the guide please contact your Roche Service representative.

Software description

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Software overview

In this chapter **1**

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About the General Lab Module

The **General Lab** module allows you to manage and monitor the routine tests results sent from the instruments and the ones entered manually. It also allows you to validate the results, either manually or automatically. You can also print the results for the physician to see or send them to the host.

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Interface overview

In this chapter

2

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Accessing the software

In this section

Logging on to the software

You need to log on to the software to carry out any tasks.

⚠ WARNING!

Browser configuration

Risk of wrong user or unauthorised users accessing the system.

- Browsers must be configured to not save the user name nor the password in the log in.

- ☐ A compatible browser
- ☐ A valid user name and password

To log on to the software

1. Open the software or type the server address provided by your administrator.

   ⓘ If the installation is performed on an unvalidated operating system or if you are using an unvalidated browser, a warning is displayed on the logon screen and on the software status bar indicating that the server operating system is not validated.

2. If you are working with LDAP, from the **Domain** drop-down list, choose an option.

   ⓘ The first time that you log on to the software, in the **Domain** field, you must enter the domain of the server that you are using for LDAP authentication.

3. On the logon screen, enter the following fields:
   - **User name**
   - **Password**

4. Choose the **Confirm** button.

   ⓘ If you exceed the number of logon attempts available, contact your system administrator.

5 If a Java callout appears, choose the [Allow] option to be able to detect printers later on.

Logging off the software

For safety reasons, you need to exit the software after completing your task.

To log off the software

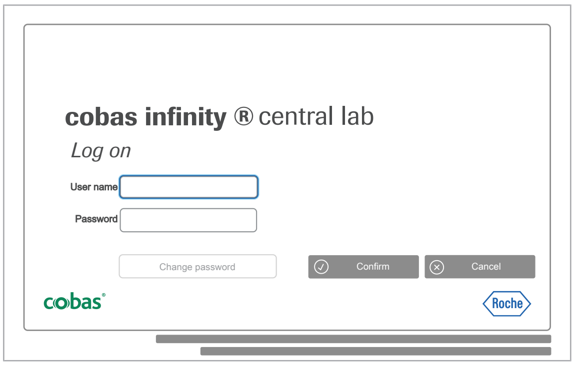
1 From any screen, choose the **Log off** button located in the information area.

2 To confirm that you want to exit the software, choose the **Yes** button from the callout.

Changing the password

You can change the software password whenever you want, whenever the system requires it, or when your current password is about to expire or is no longer safe.

To change the software password



1 On the logon screen, enter the **User name** field, and then press the Tab key.

2 Choose the **Change password** button.

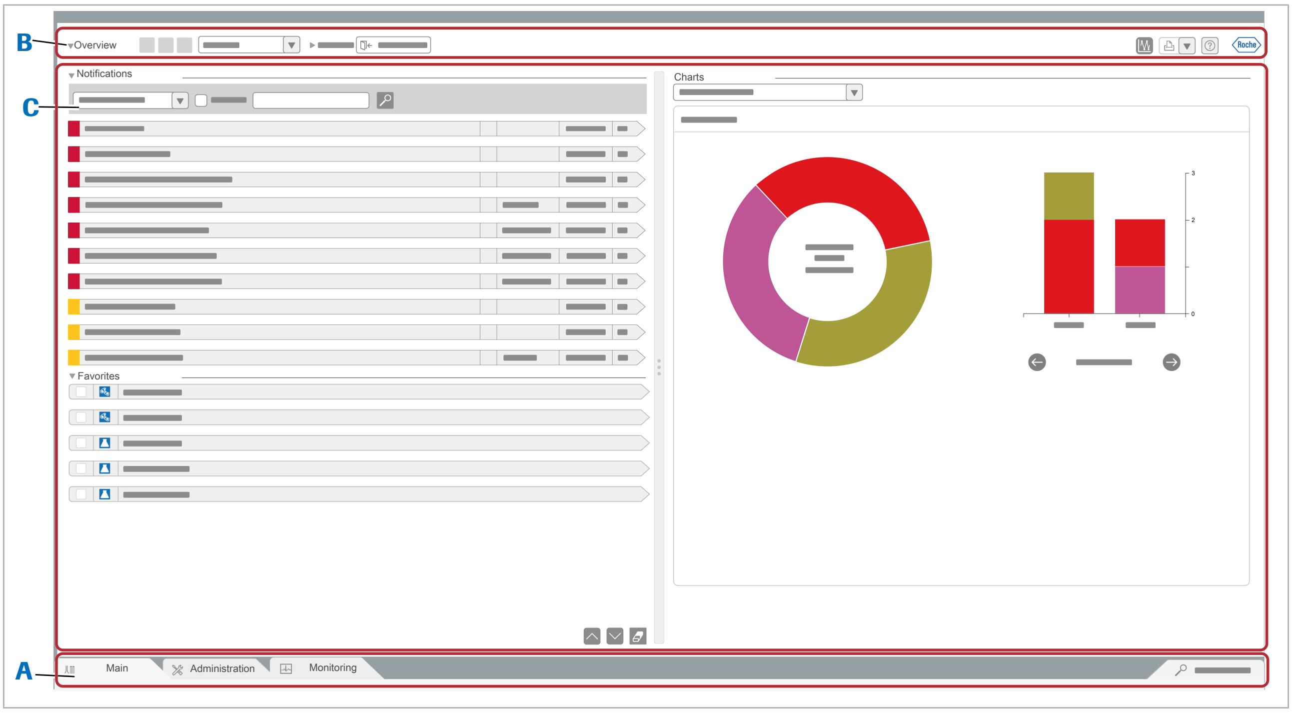
3 In the dialog box, enter your current password, enter your new password twice, and then choose the **Confirm** button.

4 Log onto the software using your new password.

ⓘ If you have forgotten your password, contact your system administrator.

About the software framework

The software framework consists of different areas that allow you to perform several tasks.



A Global information area

B Overview area

C Working space

Software framework

Global information area

From this area, you can do the following:

- Change the software module
- Change the user profile
- Change the profile location
- Export tables
- Print barcode labels

Overview area

From this area, you can do the following:

- View notifications
- Assign and manage shortcuts
- View work area and monitoring charts

Working space

From this area, you can do the following:

- Perform a quick search
- Navigate through tabs, menus, and screens

Related topics

- Changing the software module (35)
- Changing the user profile (35)
- Changing the profile location (36)
- Exporting tables (49)
- Printing barcode labels manually (61)
- Viewing notifications (39)
- Assigning and managing shortcuts (42)
- Searching for general information (44)
- Navigating through tabs, menus, and screens (43)

Performing basic tasks in the software

From the main page, you can access the various modules and tabs of the software and perform some basic tasks.

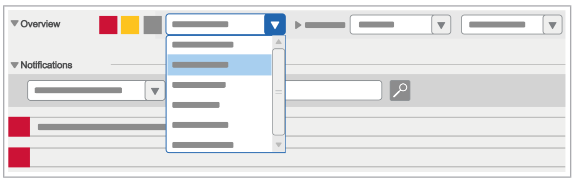
In this section

Changing the software module

If you need to perform any tasks in a different module, you can switch to the module without logging off the software.

For example, to print both General Lab and Microbiology worklists, you can easily switch from one module to the other, if you have access rights.

▸ To change the software module



1 From the drop-down list located in the global information area, choose the required module.
   → The **Main** tab menu is refreshed with the options available for the selected module.
2 If you log off the software and log on again, the last module used is displayed.

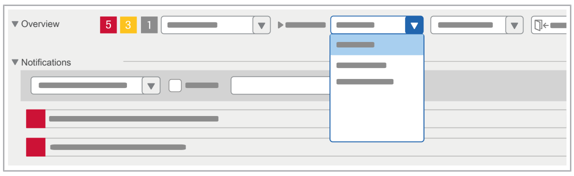
Changing the user profile

You can switch to a different user profile to perform some tasks without logging off the software.

Your user ID can be associated with more than one profile with different access and work rights. You can easily switch from a profile to another to carry out some tasks in the software.

☐ More than one profile assigned to your user ID

To change the user profile



1 On any screen, look for the profile drop-down list located in the global information area.

2 Open the drop-down list and choose the desired profile.

   If you log off the software and log on again, the last profile used is displayed.

Related topics

- Changing the profile location (36)

Changing the profile location

If you are working in multiple health centers or in different services, you can choose one of the locations associated with your profile.

When you log on to the software, the last location used is displayed.

☐ More than one location assigned to your user ID

To change the profile location

1 On any screen, look for the location drop-down list located in the global information area.

2 Open the drop-down list and choose the desired location.

   → The **Main** tab menu is displayed.

Related topics

- About location and multisite (37)

About location and multisite

A multisite environment allows you to access patient information from any of the locations you are working in.

About location

A multisite environment consists of having patient information accessible from different locations. A location can be a laboratory area or a hospital service and each user profile can log on to one or more locations.

In the software, a location is a configurable demographic that can have one or more values. Consider the following:

- All the user profiles must be associated with at least one location.
- All the tests and orders in the database must be assigned a location.
- All instruments and hosts must be assigned a location.

In **Main > Queries > Order traces**, you can check the location of orders and tests at any time.

Selecting the profile location

If your profile is associated with more than one center or service, you can choose the location you are working in. This affects the assignment of location to orders and tests.

Changing the profile location (36).

Manual or automatic location assignment to orders and tests

When you perform manual tasks, such as entering orders, tests, or test results, a location is assigned to orders and tests. In some cases, you can change the order location.

Some automatic actions performed by hosts, instruments, or by the rule engine also result in the assignment of a location to orders, tests, and test results.

If you are not working in a multisite environment, you do not have any location associated with your profile. In this case, all the tests and orders in the database are automatically assigned to the default location Laboratory1.

Type of task or action	Task or action	Location assignment	Reference
Creating orders	You create an order from **Main > Order entry > Order entry**.	• The order gets the profile location. However, you can change the order location by selecting it from the **Location** drop-down list in the **Demographics** group box (if displayed). • All the tests entered at this time get the same location as the order.	Refer to the related topics.
	You create a pre-order from **Main > Order entry > [Pre-order entry]**.	• The order gets the profile location. However, you can change the location by selecting it from the **Location** drop-down list in the **Order details** group box (if displayed). • All the tests entered at this time get the same location as the order.	Refer to the related topics.
	You retrieve a pre-order in **Main > Order entry > Collection**.	The order gets the pre-order location and cannot be edited.	Refer to the related topics.
	An instrument sends an order.	The order and all its tests get the instrument location.	Contact your Roche Service representative.
	A host creates an order.	The order and test locations depend on the host configuration.	Contact your Roche Service representative.
	The rule engine creates an order based on an existing order.	The new order and all its tests get the location of the existing order.	Contact your system administrator.
Adding tests	You add a test to an existing order in **Main > Order entry > Order entry**.	The added test gets the profile location, regardless of the order location.	Refer to the related topics.
	You add a test to an existing order from a validation screen.	The added test gets the profile location, regardless of the order location.	Refer to the related topics.
	You retrieve a test affected by a rejection rule.	The retrieved test gets the order location.	Refer to the related topics.
	The rule engine adds a test to an existing order.	The added test gets the order location. This action also applies in the case of rejection rules.	Contact your system administrator.
Entering or editing test results	You enter or edit the results of a test from a validation screen.	The test gets the profile location. If you relate the test result to an instrument, the test gets the location of the instrument.	Refer to the related topics.
	You enter or edit results of a test from a worklist.	The test location does not change and you can only enter or edit results from tests with the same location as your current location.	Refer to the related topics.
	The rule engine reruns a test with dilution or assigns an automatic result to a test.	The test location does not change.	Contact your system administrator.
	The rule engine enters or edits the results of a test.	The test location does not change.	Contact your system administrator.
	An instrument sends test results or makes a query.	The test gets the instrument location.	Contact your Roche Service representative.

Manual or automatic location assignment to orders and tests

Type of task or action	Task or action	Location assignment	Reference
	A host sends the results of a test.	The test location depends on the host configuration.	Contact your Roche Service representative.

Manual or automatic location assignment to orders and tests

Filtering work areas by location

Since all the orders and tests have an assigned location, you can use this demographic to filter your work area items. This way, you can narrow down the number of items displayed.

Filtering and printing worklists

Since all worklists are assigned to at least one location, you can use this demographic to filter your worklists. The software considers the locations assigned to the worklists and your current location to display or print worklists. If you have more than one location assigned, you can choose the location to consider when adding tests in the worklist.

Filtering QC results by location

Since all analyzers are assigned to one location, you can use this demographic to filter your QC results. The software considers the locations assigned to the analyzers and the locations you can access.

Related topics

- Entering results from a worklist (134)
- Printing a worklist (119)
- Creating an order (101)
- Creating a pre-order (99)
- Collecting a sample (114)
- Editing an order (106)
- Entering control or calibrator results manually (279)
- Filtering work area items (125)
- Adding/deleting tests to/from an order (153)
- Rejecting or retrieving tests (112)
- Entering and editing results manually (133)

Viewing notifications

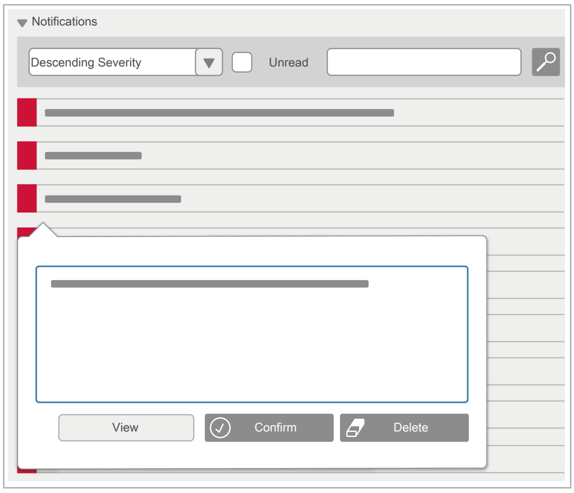
In the **Overview** area, you can view the alarms, proactivity alarms, and warnings issued by the system when the events configured as notification and alarm triggers take place (orders are not validated, instruments get disconnected, **Full QC report** is created, **QC error** and **AON error** occur, etc.).

☐ Notification severity conditions configured by your system administrator

▸ To view notifications

1 From the global information area, choose the **Overview** button to display all the available notifications.

2 To filter the notifications, do one of the following:
   - Enter a search term in the search field.
   - Select the **Unread** check box.



3 Choose the required notification to see its description, and then do one of the following:
   - To access the screen where the error is detected and solve the issue, choose the **View** button, if enabled.
   - To confirm that you have read the notification, choose the **Confirm** button.
   - To delete the notification, choose the **Delete** button.

   ℹ The masking alarms cannot be deleted using the **Delete** button. This kind of notifications can only be deleted unmasking the corresponding instruments or targets.

   → If you choose the **Confirm** button, the notification is marked as read and the notification icon is displayed without any number or with the number of remaining pending notifications.

   → If you choose the **Delete** button, the notification disappears.

Viewing work area and monitoring charts

When a work area is created, **cobas® infinity** central lab automatically creates the corresponding chart in the overview area. If more than one work area is configured, you can choose the one you want to display. Charts have the prefix WA and their associated name.

Once you choose the work area, the main chart displays the associated tests. The work area group charts are displayed below and, depending on the work area configuration, the turnaround time as well.

The pie charts show the status of all the orders associated with the work area. The full pie chart corresponds to 100% of the orders related to the work area, and the different colors indicate the different statuses of the orders (in %).

The colors are coded as follows:

1. White: no tests.
2. Purple: pending tests.
3. Red: tests pending technical validation.
4. Light brown: tests pending medical validation.
5. Olive: tests waiting to be printed.
6. Green: printed tests.
7. Cyan: completed.

- ☐ Configured turnaround time
- ☐ Configured monitoring charts

To view the work area chart information

1 Choose the **Overview** button.

2 From the **Charts** drop-down list, choose the chart that you want to be displayed:

- **WA**: Pie charts displaying the status of the configured work areas tests, groups, and turnaround time.
- **MC**: Monitoring charts displaying statistics about the turnaround time for processing tests, orders, etc.

3 Optionally, do the following:

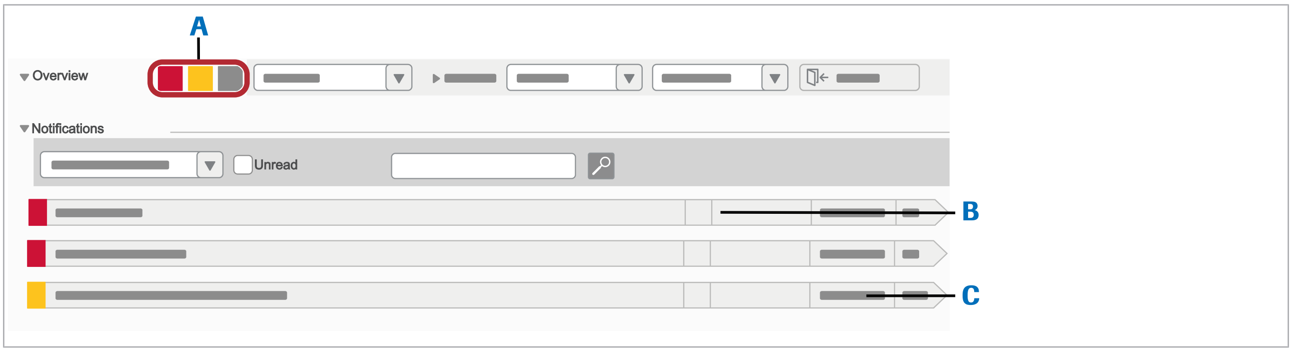
- From the **Filter** drop-down list, choose a filter previously created in the corresponding work area.
- Select the **Status without including delayed tests** check box to exclude delayed tests, such as sent-out tests, from the charts.
- If applicable, the software displays the same pie charts as groups configured in the monitoring charts, showing only the tests that belong to the groups. You can choose the requested pie chart to get more details.

A group selector is shown when more than 3 groups have been chosen in the work area. By default 3 pie charts are displayed. If you choose a different group, a new pie chart is shown on the bottom left side.

4 On the pie chart, choose the slice corresponding to the results you want to display.
  → A bar chart with associated tests is displayed with visual information about the status of each test.

About the Notifications screen

From the **Notifications** screen, you can view the number and type of pending notifications, as well as any related comments.



A Number of unread notifications of each type:
- Red: high-severity notifications
- Orange: medium-severity notifications
- Gray: low-severity notifications

B Check box indicating that the notification has been read.

C Number of items affected by the corresponding notification.

Notification screen

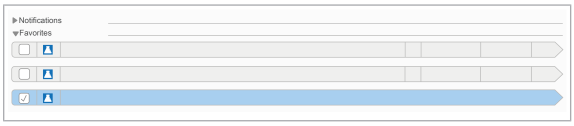
Assigning and managing shortcuts

You can assign up to 25 shortcuts to your most frequently used screens to be able to access them quickly from the **Overview** screen.

To assign or delete a shortcut

1 Go to the screen that you want to assign to your favorites list, and then choose the icon.
  → A bookmark for the selected screen is displayed in the **Favorites** panel of the **Overview** screen.
  → The star icon turns black.

2 To delete the shortcut, choose it from the **Favorites** panel in the **Overview** screen, and then choose the button.



To sort shortcuts

1 In the **Overview** screen, go to the **Favorites** panel.

2 Select the check box of the item that you want to move.

3 Choose the buttons to move it up or down in the list.

Related topics

- List of common icons (51)

Navigating through tabs, menus, and screens

You can navigate through tabs, menus, and working screens to perform tasks.

You can access the tabs, menus, and screens associated with your user profile. Therefore, some of the described items may not be visible to you.

Tabs

The working space includes four tabs to perform different actions:

- **Main**: it allows you to perform daily tasks, such as entering, processing, and printing orders.
- **Administration**: it allows you to perform configuration tasks.
- **Monitoring**: it allows you to check the software performance.
- **Search**: it allows you to quickly find orders and patients.

Keyboard shortcuts for tab and menu navigation

Use the following keyboard shortcuts to navigate through tabs and menus:

Item	Key	Action
Tabs	Ctrl+Page Down	Move to the right tab
Ctrl +Page Up	Move to the left tab	
Menus	Up Arrow	Move to the upper menu point
Down Arrow	Move to the lower menu point	
Right Arrow	Open the submenu	

Keyboard shortcuts to navigate through tabs and menus

Item	Key	Action
Left Arrow	Close the submenu	
Enter	Access the selected screen	
Esc	Close the menu	

Keyboard shortcuts to navigate through tabs and menus

Searching for general information

You can search for patients and orders from the main screen without needing to access the corresponding submenus.

To search for general information

1 From the working space, choose the **Search** tab.

2 From the **Menu** drop-down list, choose one of the following options:

- **Patient search**: search for a given patient in the software.
- **Order search**: search for a given order in the software.
- **Patient history**: search for orders and tests associated with a given patient.
- **Order traces**: check the actions performed on a given order or on all the orders of a given patient.
- **Epidemiological record**: search for existing epidemiological records, declared microorganisms, etc.
- **Sent/received**: search for samples already sent or pending to be sent to health centers, as well as sample results received by health centers.

Related topics

- Searching for a patient (67)
- Searching for an order (73)
- Viewing a patient's history (69)
- Viewing order traces (76)
- Declaring results (147)

Viewing cobas® infinity central lab information

To know the software version, build number, intended use, database version, licenses, or installed language packs, you can consult the **About cobas infinity** screen.

- ☐ A compatible browser
- ☐ A valid user name and password

To view cobas® infinity central lab information

1 Choose **Main > About cobas infinity**.

2 Choose one of the following tabs:

- **Software version**: To view general information about the software version, copyright, and intended use.
- **Licenses**: To view licenses information.
- **Language Pack**: To view the installed language packs.

Filtering

Several screens in the software include tables displaying orders, patients, and tests, among others. Also, some drop-down lists contain long lists of items to choose from. You can filter the items on such tables or drop-down lists to find the information you need more easily.

Wild-card characters in filter fields

When entering text in filter fields, you can use the following wild-card characters:

- * matches one or more characters. For example, in the **Order ID** filter field, enter GL201307* to obtain the available Order IDs starting with this sequence number, such as GL20130710 and GL20130711.
- ? matches a single character. For example, in the **First name** filter field, enter J?an if you do not know if the patient's name is Joan or Juan.

In this section

Filtering drop-down list values

You can reduce the values displayed in drop-down lists to find the desired value easily.

To filter drop-down list values

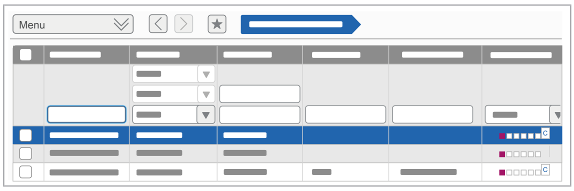
1 From any drop-down list, enter the desired characters to narrow down your search.
   - If you are uncertain about some characters, enter wild-card characters.

2 Press Enter.

Filtering information

You can reduce the information displayed on tables to see only the items that you need.

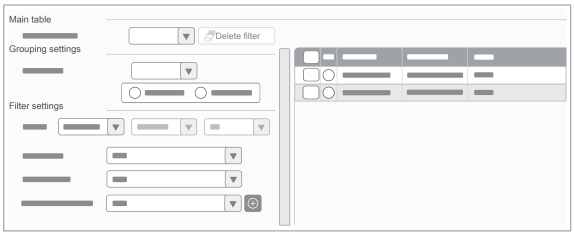
Depending on the screen, you can filter the information in two ways. Choose the desired procedure:



▸ To filter information via table

1 From the screen, choose the **Filter** button.
  ➔ The available filter fields and drop-down lists are displayed.

2 Choose the desired filters, and then choose the **Apply** button.



▸ To filter information via panel

1 In the **Filter settings** panel, from the drop-down lists, choose the relevant options.
  - Alternatively, from the **Available filters** drop-down list, choose a saved filter.

  ⓘ If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

2 Optionally, to add more fields, choose the ⊕ button.
  - Alternatively, to delete additional fields, choose the ⊖ button.

3 Choose the **Apply** button.

Saving/deleting a filter

You can save, edit, and delete frequently used search configurations to easily apply them when you access the screen again.

Choose the procedure corresponding to the filtering area:

▸ To save a filter via table

1 From any screen, choose the desired filters. Then, choose the **Apply** button.

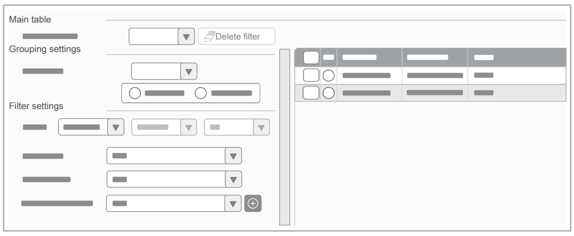
2 Choose the **Capture filter** button.

3 In the callout, enter the following:
  - **Name** of the filter.
  - **By default** check box: the filter is automatically applied whenever you access the screen.
  - **View orders without tests** check box and **Application** drop-down list (only for work areas): the filter shows the orders belonging to the selected module that do not contain tests.

4 Choose the **Confirm** button.

➔ The new filter is displayed in the **Filter** drop-down list.

To save a filter via panel



1 From any screen with a **Filter settings** panel, use the drop-down lists to choose the relevant options.

   ⓘ The **Parameter time** option in the **Date** field depends on configuration.

2 Optionally, to add more fields, choose the button.

   ▪ Alternatively, to delete additional fields, choose the button.

3 Choose the **Save filter** button.

4 In the dialog box, enter a name in the **Filter name** field.

5 Optionally, to define the filter you are saving as a default filter, select the **Default filter** check box.

   ⓘ This filter is automatically applied when you enter the corresponding screen.

6 Choose the **Save** button.

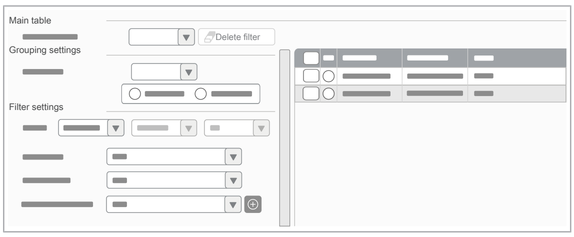
To delete a saved filter via table

1 From any screen, use the **Filter** drop-down list to choose the filter you want to delete.

2 Choose the **Clear filter** button, and then confirm that you want to delete the filter.

   ⓘ The **Clear filter** button can be displayed in a drop-down list depending on the type of screen.

To delete a saved filter via panel



1 From any screen with a **Filter settings** panel, use the **Available filters** drop-down list to choose the filter you want to delete.

2 Do one of the following:

   ▪ To clear the fields defined for that filter, choose the **Clear fields** button.

   ▪ To delete the filter, choose the **Delete filter** button.

Sorting and exporting table information

Several screens in the software, such as work areas or validation screens, include tables displaying orders, patients, and tests, among others. You can sort the items on such tables in certain ways, such as displaying only the information you need, as well as export them to a convenient format.

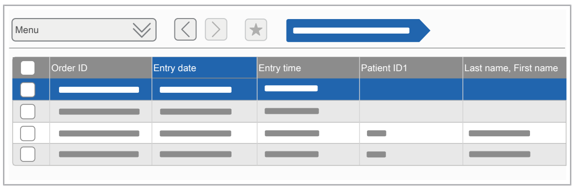
In this section

Sorting table information

You can quickly sort table items in ascending or descending order.

Table items are sorted using the ASCII-code order. Therefore:

- Digits come before letters.
- Numbers are sorted as strings. For example, 02, 2, 10 are sorted as follows: 02, 10, 2.
- Non-ASCII characters, such as *ñ*, are placed at the end.



To sort table items

1 Choose the column header to sort the desired items in ascending order.

2 Choose the column header again to sort the items in descending order.

Exporting tables

From the global information area, you can export the information displayed on a table to different file formats.

To export tables

1 From the global information area, choose the  drop-down list.

2 From the **Grid** group box, choose one of the following options:
- **Export to** TXT: to produce a text file using the current browser.
- **Export to** HTML: to produce a web file using the current browser.
- **Export to** PDF in **Vertical** or **Horizontal** format: to produce a PDF file using the current PDF viewer.
- **Export to** CSV: the exported file is in CSV format. Each line of this file corresponds to a row from the grid. In the **General parameters** screen, you can define the character that separates the data within each cell.

ℹ The button performs the last selected action. To print tables again, choose it or press F5.

→ The table is exported with the information sorted as displayed on the screen.

If a table in the **Query/Validation by test** screen, **Validation** screen, or **QC result review** screen contains **cobas e** flow main tests, all their embedded tests and calculated QCs are exported even if they are not displayed on the screen.

About the common interface items

In this section

List of common function keys

Use your keyboard to perform a series of actions in the software.

Common function keys

You can use these function keys to perform tasks throughout the software.

Screen-specific function keys are described in the corresponding tasks.

Key	Corresponding buttons	Action
F1	-	Opens the User Assistance.
F2	**Confirm** or **Save** buttons	Saves data.
F3	**Delete** button	Deletes data.
F4	**Cancel** button	Undoes changes.
F5	button	Performs the last action selected from the drop-down list, that is, printing labels or tables.
F6	button	Returns to the previous screen.
F7	**Add** button	Enables the configuration area to assign a new item in the **Administration** tab.
F8	**Filter** and **Apply** buttons	Enables or applies filters.
F9	-	Enables the configuration area to edit a new item in the **Administration** tab.
F10	**Menu** drop-down list	Opens and closes the main menu.

Common function keys

List of common icons

Module icons

These icons indicate that the adjacent item belongs to a specific software module.

Icon	Description
	General Lab module
	Microbiology module
	Shared between the General Lab and the Microbiology module
	Emergency Lab module
	Lab Flow module
	Total Quality Management module

Module icons

Routine tasks

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General tasks

In this chapter

3

Viewing and assigning comments

You can provide additional information about a patient, order, or test to a Microbiology tree item so that it is taken into account when validating results.

You can assign comments from various screens in the software, such as the **Order entry** or **Validation** screens. Such information can be accessed whenever the relevant comment icon is displayed.

In this section

Assigning coded comments

You can quickly assign standard comments, previously configured, to tests, orders, patients, culture media, samples, and isolates.

You can assign comments from various screens in the software, such as the **Order entry** or **Validation** screens. Such information can be accessed from one the following comment icons: , , .

To assign coded comments

1 Choose the **Comment** button.

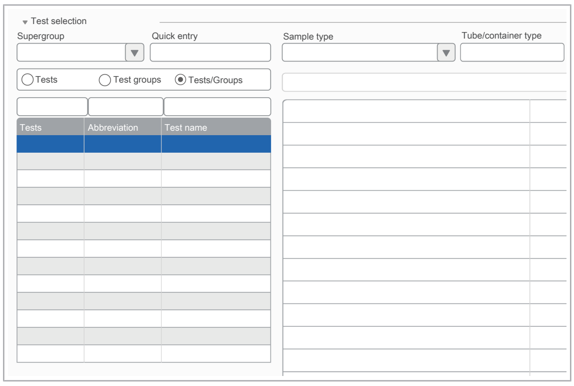
2 From the **Comment** screen, choose one of the following options to decide where the comment is assigned:

- **Patient**
- **Order**
- **Test**

  or, only for Microbiology:
- **Culture medium**
- **Sample type**
- **Isolate**

This option will be automatically filled according to the icon you choose to enter the screen.

3 If necessary, choose the button to search for the specific item you want to assign the comment to.



4 From the **Supergroup** drop-down list, choose the relevant comment supergroup.
   → The **Available test groups** and **Available comments** group boxes display the available comments.

5 Double-click the comment you want to assign.
   - Alternatively, in the **Selected comments** field, enter the code of the coded comment and press Enter.

6 Optionally, to attach a file from the server or local PC, choose the button, choose the required file and choose the **Confirm** button.

7 Do one of the following:
   - To save the comment and return to the working screen, choose the **Accept and back** button.
   - To save the comment and perform other actions, such as assigning another comment, viewing the comment attachment, sending the comment to the printer or host, and so on, choose the **Confirm** button.

Assigning rich-text comments

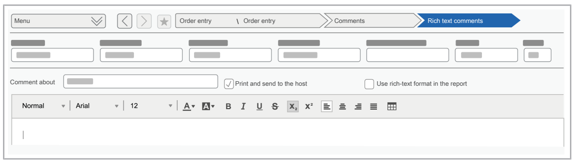
You can enter free-text comments or customize available coded comments.

You can assign comments from various screens in the software, such as the **Order entry** or **Validation** screens. Such information can be accessed whenever the relevant comment icon is displayed.

▸ To assign rich-text comments

1 Depending on your configuration, choose one of these buttons:
   - **Comment**: proceed with the next step.
   - **Rich text comments**: proceed with step 5.

2 From the **Comment** screen, choose one of the following options to decide where the comment is assigned:
   - **Patient**
   - **Order**
   - **Test**
   or, only for Microbiology:
   - **Culture medium**
   - **Sample type**
   - **Isolate**



ⓘ This option will be automatically filled according to the icon you choose to enter the screen.

3 If necessary, choose the button to search for the specific item you want to assign the comment to.

4 Choose the **Rich text comments** button.

5 Do one of the following:

- In the comment panel, enter your free-text comment and edit its format.
- If you want to edit an available coded comment, choose the **Cod. comments** button, double-click the desired comment, and then choose the **Confirm** button.

6 Optionally, select the following check boxes:

- **Print/Send to host**: To print the comment and send it to the host.
- **Use rich-text format in the report**: To display rich text format in the printed report.

7 Optionally, to attach a file from the server or local PC, choose the button, choose the required file and choose the **Confirm** button.

8 Choose the **Confirm** button to save the comment and return to the **Comment** screen.

List of comment icons

Comment icons are displayed next to the order, test or patient ID, or in the **C** or **Type** columns if shown on a table.

Choose the relevant comment icon to access the **Comment** screen and assign a new comment or display the ones already available. You can also place the mouse pointer over the relevant comment icon to display a tooltip with the full comment.

Icon	Action performed or meaning	Screens where it can be found
	Assigns a comment to an order.	**Validation** screens
	Assigns a comment to a patient.	**Validation** screens.
	Assigns a comment to a test.	**Validation** screens.
	Displays the order comment and allows you to assign a comment to an order.	**Validation** and **Queries** screens.
	Displays the patient comment and allows you to assign a comment to a patient.	**Validation** and **Queries** screens.
	Displays the test comment and allows you to assign a comment to a test.	**Validation** and **Queries** screens.

Comment icons

Icon	Action performed or meaning	Screens where it can be found
	Displays the test, sample type, culture medium, or isolate comment when you hover over it.	**Seeding**, and **Validation** screens.
	Indicates that the comment comes from an instrument.	**Type** column on the **Comment**, and **Validation** screens.
	Indicates that the comment has been entered manually by a user.	**Type** column on the **Comment**, and **Validation** screens.
	Indicates that the comment has been entered automatically by the system.	**Type** column on the **Comment**, and **Validation** screens.

Comment icons

Printing barcode labels manually

⚠ CAUTION!

Errors in identification of orders, tubes or patients

Wrong results or delayed results.

- Be careful when printing labels and/or sticking them on the tubes.

From the global information area, you can manually print or reprint barcode labels for a batch of orders, tubes, or trays at any time.

You can also manually print barcode labels for the orders, tubes, or trays you are working with from other screens in the software.

In this section

Printing order labels manually

From the global information area, you can manually print or reprint barcode labels for a single order or a batch of orders at any time.

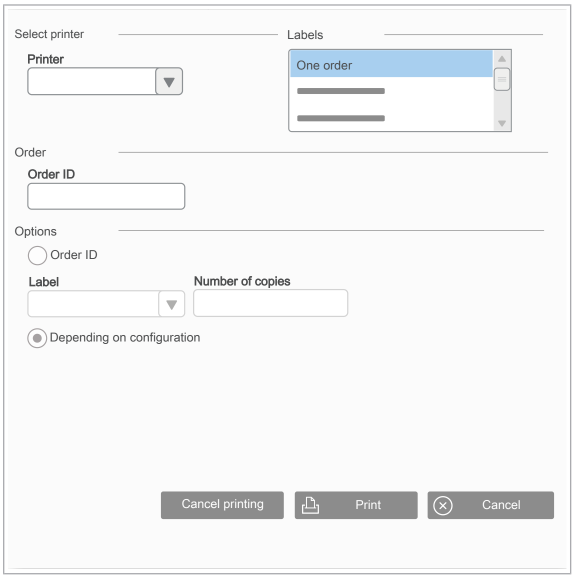
You can choose if you want to print the labels of a single order or a batch of orders, regardless they exist or not. You can also choose to print only the labels of existing orders.

When printing existing orders, the software only considers the ones that are open.

- ☐ Label printers and label printing options configured by the administrator

To print a single order label

1 From the global information area, choose the button.



2 From the **Printer** drop-down list, choose the desired printer.

3 From the **Labels** group box, choose the **One order** option.

4 In the **Order ID** field, enter the desired order ID to be printed in the label.

> ℹ You can enter a maximum of 20 characters. The following characters are not allowed: | ^ ~ & \ " ' and the spaces entered before or after the value are not considered.

5 In the **Options** group box, do one of the following:

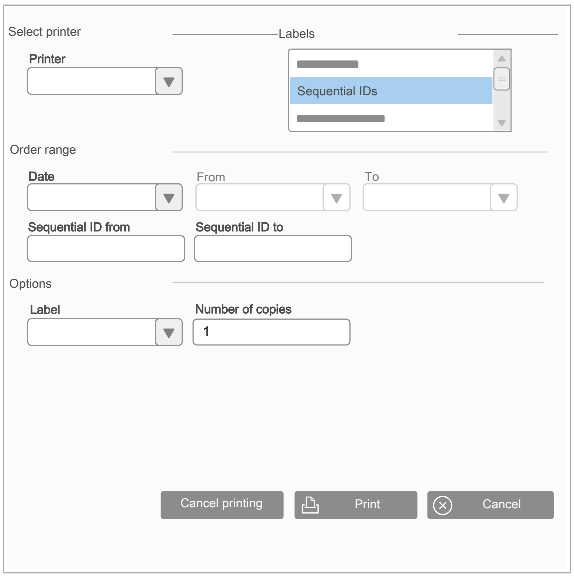
- To define the type of label and the number of copies to be printed, choose the **Order ID** option.
- To print the type of label and the number of copies configured by the administrator, choose the **Depending on configuration** option.

> ℹ The first option only prints order labels, whereas the latter option allows you to print order and container labels, as well as labels for Microbiology items, such culture media, secondary tests, and so on.

6 Choose the **Print** button.

> ℹ You can cancel the printing process at any time by choosing the **Cancel printing** button.

To print order labels by sequential ID



1 From the global information area, choose the button.

2 From the **Printer** drop-down list, choose the desired printer.

3 From the **Labels** group box, choose the **Sequential IDs** option.

4 From the **Order range** group box, choose the date and sequential order ID ranges.

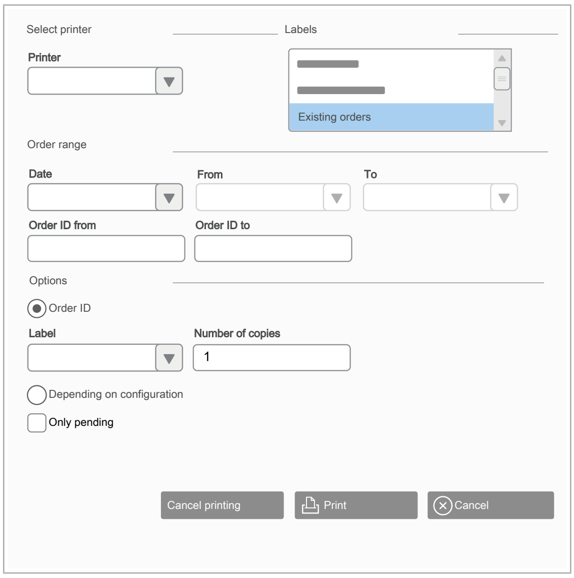
> ℹ In the **Sequential ID from** and **Sequential ID to** fields, you must enter sequence numbers, instead of full order IDs.

5 In the **Options** group box, do the following:

- From the **Label** drop-down list, choose the type of label to be printed for each order.
- In the **Number of copies** field, enter the number of copies to be printed for each order.

6 Choose the **Print** button.

> ℹ You can cancel the printing process at any time by choosing the **Cancel printing** button.



To print labels of existing orders

1 From the global information area, choose the button.

2 From the **Printer** drop-down list, choose the desired printer.

3 From the **Labels** group box, choose the **Existing orders** option.

4 From the **Order range** group box, choose the date and order ID ranges.

   In the **Order ID from** and **Order ID to** fields, you must enter sequence numbers, instead of full order IDs.

5 In the **Options** group box, do one of the following:
   - To define the type of label and the number of copies to be printed for each order, choose the **Order ID** option.
   - To print the type of label and the number of copies configured by the administrator, choose the **Depending on configuration** option.

   This latter option allows you to print order and container labels, as well as labels for Microbiology items, such culture media, secondary tests, and so on.

6 Optionally, to print labels only for pending orders, choose the **Only pending** option.

7 Choose the **Print** button.

   You can cancel the printing process at any time by choosing the **Cancel printing** button.

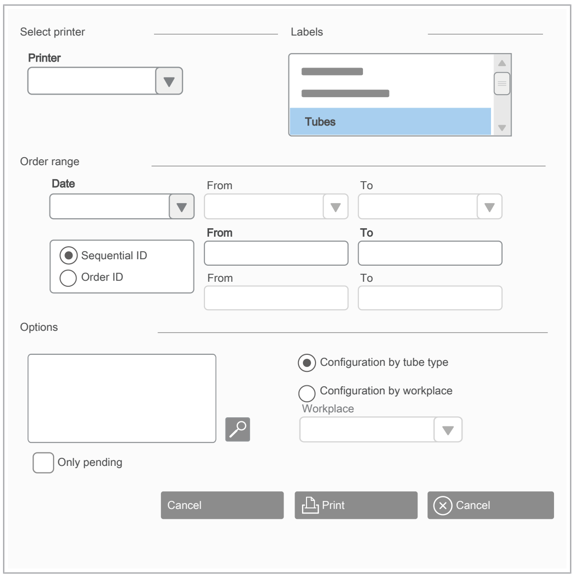
Related topics

- List of manual print options for barcode labels (65)

Printing tube labels

From the global information area, you can manually print or reprint tube labels for existing orders.

- ☐ Label printers and label printing options configured by the administrator
- ☐ Workplaces configured by the administrator (for some options)



To print tube labels manually

1 From the global information area, choose the button.

2 From the **Printer** drop-down list, choose the desired printer.

3 From the **Labels** group box, choose the **Tubes** option.

4 In the **Order range** group box, choose a date range and then do one of following:

- To define a range based on order sequence numbers, choose the **Sequential ID** option and enter the **From** and **To** fields.
- To define a range based on full order IDs, choose the **Order ID** option and enter the **From** and **To** fields.

The latter option allows you to define an alphanumeric range. That is, that you can also enter any prefix, suffix, or fixed text included in the order ID.

5 To select the types of tube to be labeled, choose the button.

6 Choose one of the following options:

- **Configuration by tube type**: To print labels according to the configuration performed by the administrator for order entry.
- **Configuration by workplace**: To print labels according to the configuration performed by the administrator for the selected Lab Flow workplace.

7 Optionally, to print labels only for pending tubes, choose the **Only pending** option.

8 Choose the **Print** button.

You can cancel the printing process at any time by choosing the **Cancel printing** button.

Printing tray labels

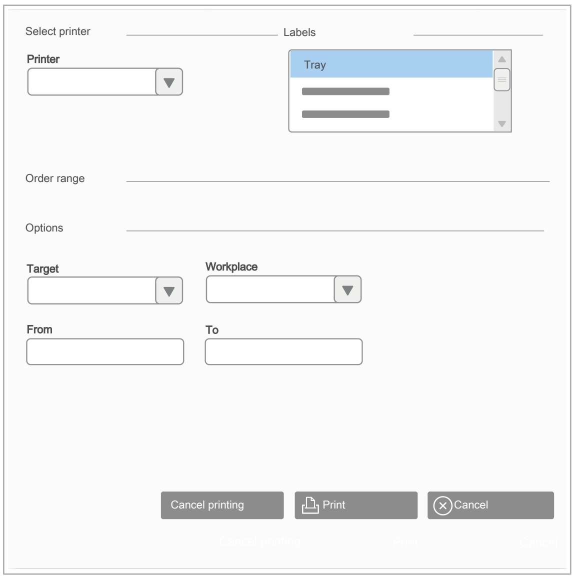
From the global information area, you can manually print or reprint tray labels for the desired target and workplace.

☐ Label printers configured by the administrator

To print tray labels manually

1 From the global information area, choose the button.

2 From the **Printer** drop-down list, choose the desired printer.



3 In the **Labels** group box, choose one of the following options:
- **Tray**: To print Lab Flow tray labels
- **Sample workflow tray**: To print sample workflow engine tray labels

4 From the **Target** and **Workplace** drop-down lists, choose the target and workplace for which tray labels are printed.

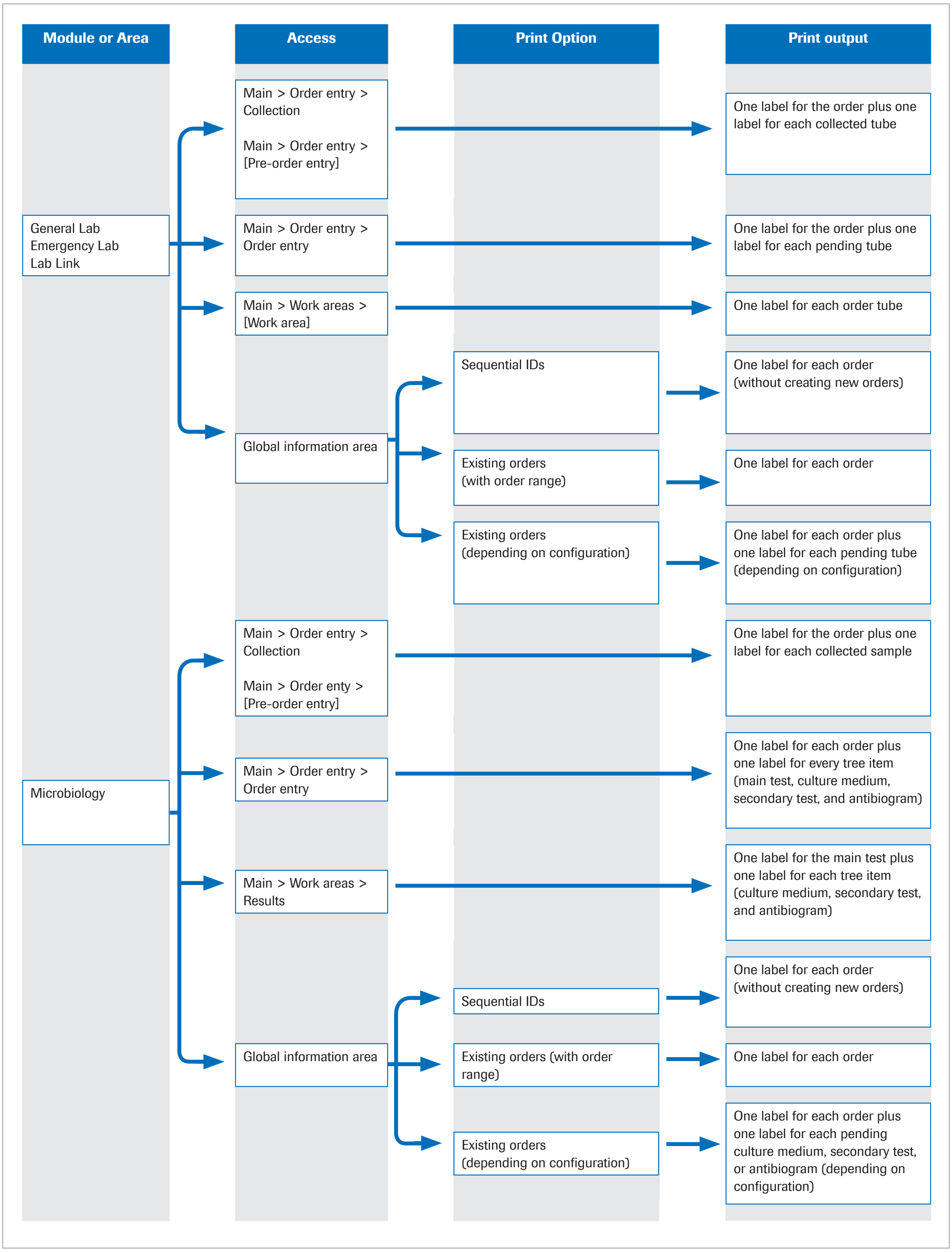
5 In the **From** and **To** fields, enter the tray barcode range to print.

6 Choose the **Print** button.

You can cancel the printing process at any time by choosing the **Cancel printing** button.

List of manual print options for barcode labels

You can manually print barcode labels for the orders, tubes, and samples you are working with in different ways, depending on the module and screen you are in.


Module or Area
Access
Print Option
Print output
General Lab
Emergency Lab
Lab Link
Main > Order entry > Collection
Main > Order entry > [Pre-order entry]
One label for the order plus one label for each collected tube
Main > Order entry > Order entry
One label for the order plus one label for each pending tube
Main > Work areas > [Work area]
One label for each order tube
Global information area
Sequential IDs
One label for each order (without creating new orders)
Existing orders (with order range)
One label for each order
Existing orders (depending on configuration)
One label for each order plus one label for each pending tube (depending on configuration)
Microbiology
Main > Order entry > Collection
Main > Order enty > [Pre-order entry]
One label for the order plus one label for each collected sample
Main > Order entry > Order entry
One label for each order plus one label for every tree item (main test, culture medium, secondary test, and antibiogram)
Main > Work areas > Results
One label for the main test plus one label for each tree item (culture medium, secondary test, and antibiogram)
Global information area
Sequential IDs
One label for each order (without creating new orders)
Existing orders (with order range)
One label for each order
Existing orders (depending on configuration)
One label for each order plus one label for each pending culture medium, secondary test, or antibiogram (depending on configuration)

Patient management

Each patient must have a record in the database before tests can be performed. Creating a record means that patient information is there for future reference, allowing you to monitor how tests results and diagnoses evolve.

In this section

Creating a patient record

Before tests can be performed, you or the host must create a record in the database for each patient. In exceptional cases, this step may be delayed until after the tests are performed.

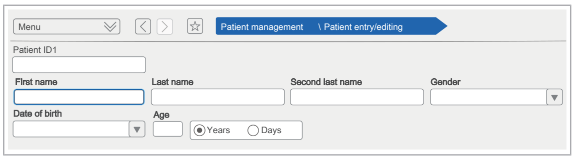
⚠ WARNING!

Entering patient data manually

Risk of incorrect or delayed results.

- Take special care when entering data manually.

To create a patient record

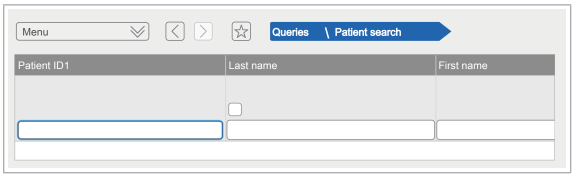


1. Choose **Main > Patient management > Patient entry/editing**.
2. Fill in at least the mandatory fields marked with an asterisk (*).
3. Choose the **Confirm** button.

Searching for a patient

You can search for patients to edit their record, check their details, patient ID, order information, or results.

▸ To search for a patient

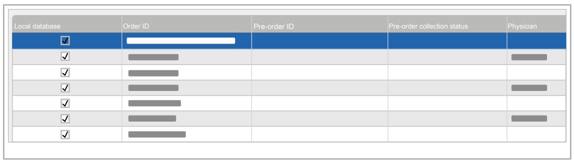


1 Choose **Main > Queries > Patient search**.

2 Enter the patient demographics you have available, and then press Enter.

   - Optionally, select the check box above the Last name field to search for all patients whose first name or last name match the entered patient demographics.

   ⓘ It is recommended that you use wild-card characters.



3 Choose the desired patient.

   → The bottom part of the screen displays the orders and pre-orders information belonging to that patient.

4 To view an order from that patient, select it and choose the **Results** button.

   → Depending on your rights, you can access the order in edit or read-only view.

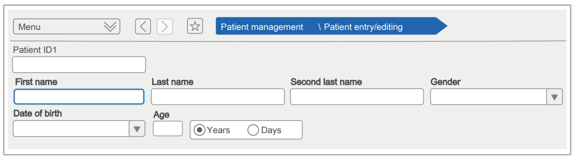
Related topics

- Filtering information (46)

Editing a patient record

It is important to keep patient records up to date. You can correct data e.g. a changed address, or fill in missing information in a record.

▸ To edit a patient record



1 Choose **Main > Patient management > Patient entry/editing**.

2 Enter the patient ID, and then press Enter.

3 Edit the desired information, and then choose the **Confirm** button.

   → The patient record is updated.

Merging patient records

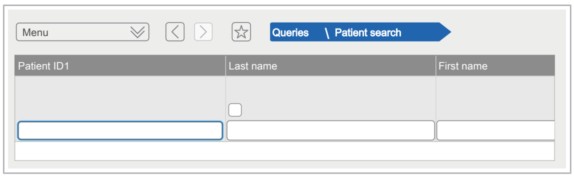
Occasionally a patient may have more than one record due to error or a change in name. These records can be merged, creating one record.

⚠ WARNING!

Patient merging

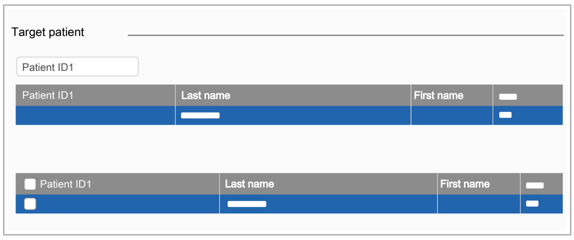
Risk of unintentional data loss or patient demographics being confused with another patient's demographics.

- Merging patient demographics to form a single patient record is a potentially dangerous action and must only be performed by qualified staff.



To merge patient records

1. Choose **Main > Queries > Patient search**.
2. Enter the patient demographics you have available, and then press Enter.
3. Select the patient that you want to keep, and then choose the **Merge** button.
4. To search for the patient record or several records you want to merge, from the required drop-down lists, choose one of the following options:
   - **All**: To search all data without filters.
   - **None**: To search for data that is different from the target data.
   - **Complete match**: To search for data that is identical to the target data.
   - **Similar**: To search for data that is similar to the target data.
   - **No accent**: To search data, ignoring any accents e.g. José is the same as Jose.
   - **Blank**: To search for other patient records where this field is also empty.
5. Choose the **Apply** button.



6. From the results shown, select the target patient you want to merge with the current patient.
7. Choose the **Merge** button.
8. Choose the **Yes** button.
   → The records are merged to form one record.

When patients are merged, all their open orders are devalidated.

Viewing a patient's history

You can consult a patient's history to see tests, test statuses, and evolution charts. You can only view records stored on the daily database.

To view a patient’s history

1 Choose **Main > Queries > Patient history**.

2 To view all orders belonging to that patient, enter the patient ID, and then press Enter.

3 Optionally, choose one of the following buttons:
   - **View marked** button: to view the selected order.
   - **View all** button: to view all the orders belonging to the patient.

Related topics

- Viewing the patient’s evolution chart (156)

Checking connections

In this section

Checking the host connection

Occasionally you may need to check the connection between hosts and the software. In most cases, you can fix connection problems yourself.

To check the host connection

1 Choose **Monitoring > HCA > Host status**.

2 To view the status of each host, look at the **Enabled** column.

- If there is a icon, the host is connected and you do not have to do anything.
- If there is a icon, the host is waiting to establish the definitive connection. Stop the connection and start again.
- If there is a icon, double-click the instrument to enable it.

Checking the instrument connection

Occasionally you may need to check the connection between instruments and the software. In most cases, you can fix connection problems yourself.

To check the instrument connection

1 Choose **Monitoring > ICA > ICA monitoring**.

2 To view the status of each instrument, look at the **Enabled** column.

- If there is a icon, the instrument is connected and you do not have to do anything.
- If there is a icon, the host is waiting to establish the definitive connection. Stop the connection and start again.
- If there is a icon, double-click the instrument to enable it.

A red cross ✕ icon means the target is disabled. Tubes are not sent to disabled analyzers.

Order management

In this section

Searching for a pre-order

You may need to check a pre-order to see which tests were ordered, which samples were extracted and when, and which samples are pending.

To search for a pre-order

1 Choose **Main > Queries > Pre-orders search**.

2 To search for a pre-order, press Enter or choose the **Apply** button.

- Optionally, fill in the information fields to search for an specific pre-order.

In the **Collect. status** column, you can check the status of the pre-order.

3 Optionally, to check the details or update the status of a pre-order, choose the desired pre-order and then choose the **Collection** button.

Related topics

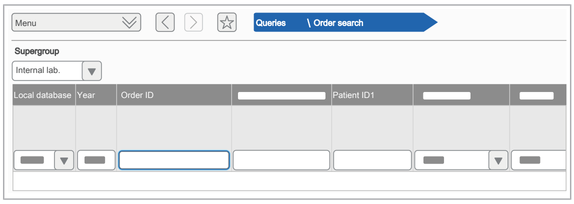
- Collecting a sample (114)

Searching for an order

You can check information and the status of a previously created order to see which tests were performed and which are pending.

To search for an order

1 Choose **Main > Queries > Order search**.



2 From the **Supergroup** drop-down list, choose the supergroup the order belongs to.

3 Enter the year the order was created.

   ⓘ By default the current year shows up. You can edit it if necessary.

4 Enter either the order ID, patient ID, tube ID, or container ID and then press Enter.

   ⓘ If you are unsure of the data, enter an asterisk (*) in any of these fields so all the filter information is displayed. The container ID is part of the Tube ID. It is an incremental sequential number that indicates the tube number within a specific configuration. It has no leading zeros.

5 To view the desired order, select it and choose the **Results** button.

   ⓘ Depending on your rights, you can access the order in edit or read-only view.

6 Optionally, to view the QC results related to the tests in the order, choose the **QC trace** button.

   → A report is generated with the QC information.

Accessing closed orders

If an order is closed, apart from just viewing it, you can also re-open it and apply changes to it.

You can access a closed order in one of the following modes:

- Edit mode: The order is re-opened and you can apply changes to it.
- Read-only mode: The order is not re-opened and you cannot apply changes to it.

☐ Rights to **Access to results from query screens**

☐ Rights to edit orders

☐ Rights to **Open/close orders**

▸ To access closed orders

1 Choose **Main > Queries > Order search**.

   - Alternatively, choose **Main > Queries > Patient search** or go to the **Sample tracking** screen.

2 Select the order you want to access and choose the **Results** button.

   - Alternatively, choose the **Micro. result** button to access a Microbiology order.

3 In the dialog box, choose either the **Edit** button to re-open the order, or the **View** button to access the order without re-opening it.
→ The order is displayed in your configured **Validation** screen.
→ In the Microbiology module, the order is displayed in the **Results** or the **Order preview** screen, depending on your rights.

If you want to access another **Validation** screen, contact your software administrator.

Related topics

- Entering and editing results manually (133)

About locked orders

Sometimes you want to work on an order, but it is being edited by another user. Therefore, the order is temporary locked and you cannot make any changes, however you can consult it.

You can consult locked orders in **View** mode from:

- **Main > Queries > Order search**
- **Main > Queries > Patient search**
- **Main > Workflow > Sample tracking**
- **Main > Work areas > [Your work area]**
- **Main > Validation > [Your validation screen]**

To be able to access locked order in **View** mode, you must have one of the following rights:

- **Access to results from query screens** (for **Queries** screens and **Sample tracking**)
- **Consult orders by demographics** (for **Work areas** or **Validation** screens)

When an order is locked by another user, in the **Locked** column of the **Monitoring** screen of your work area, the ⃠ icon is displayed. Additionally, you can consult the user that is editing the order and the date and time when it was locked by placing the cursor on top of the icon.

Related topics

- Searching for an order (73)
- Searching for a patient (67)
- Entering and editing results manually (133)

Viewing order traces

You may need to consult the order traces to view the status of an order or see which analyzers the samples passed through. You can also check if any errors occurred during any part of the process.

Additionally, in the **User ID** column you can see who performed each action. When the software performs the action, it displays one of the following options:

- "SYSTEM_RULENGINE": actions performed by rule engine
- "SYSTEM_DAILYPROC": actions performed by the end-of-day process
- "~SYSValDaemon~": validation actions performed automatically
- "SYS_ICA_*DriverID*" or "CSUSER": actions performed by an instrument
- "SYS_HCA_*HostName*": actions performed by a host
- "~System~": other actions performed by the software, e.g. formula calculations

⚠ WARNING!

Release of non-validated tests

Risk of wrong results and privacy violation.

- If you have doubts about whether certain information has been sent or printed, consult the **Order traces** screen or the **Communication traces** screen.

⚠ WARNING!

Order traces

Risk of wrong results or delayed results.

- If the **Order traces** screen does not work correctly, you can consult all the information of a given order on the **Validation** screen by printing the corresponding report or by consulting the **Communication traces** screen. You can also check the information about the sample location in the **Sample tracking** screen.

To view order traces

1 Choose **Main > Queries > Order traces**.

2 Enter the patient and/or order demographics you have available, and then press Enter. Select also one of the following actions to be displayed:
   - **All**: All actions.

- **Without CON**: All actions except for the consulting actions.
- **ACT**: Open order.
- **ADD**: Adding actions.
- **CON**: Consult demographics which have not been automatically assigned by the software.
- **DIS**: Close order.
- **DEL**: Delete order.
- **MOD**: Modifying actions. Includes the change of location.
- **REC**: Order retrieved from recycle bin.
- **PREJ**: Test pending rejection.
- **REJ**: Rejected test.
- **DPER**: Order deleted permanently.
- **PRW**: Previewed order. To preview an order, choose the **Preview** button, or choose the **Overview** button in Microbiology module.

You can track tubes at test level by viewing the **[Location]**. The **[Location]** lets you know where the test is performed.

Related topics

- About location and multisite (37)
- About test rejection (110)
- List of result entry and validation screen items (184)

Releasing tests or orders

Processing an order from any screen in the software can cause one or several tests to become disabled. The software allows you to release the orders or tests that are automatically locked.

☐ **Work with orders by demographics** rights

To unlock tests or orders

1. Choose **Monitoring > Order release**.
2. In the **Order** field, enter the order ID of an order with locked tests.
3. Choose the **Apply** button to display the locked order and its tests.
4. Select the check box next to the desired order or test, and choose one of the following buttons:
   - **Release order**: to restore the order.
   - **Release**: to restore the selected tests.

   Remember that the released tests or orders can be processed by both the first user accessing them after their release and the user who caused them to become locked.

Masking

For lab maintenance, lack of reagent or cost control, etc. you may want to avoid performing certain tests or sorting tubes to certain instruments or targets at specific times. To do so, a masking actor must mask or unmask tests, instruments, targets, or a combination of all.

⚠ CAUTION!

Unintended instrument unmasking

Risk of incorrect results.

- Pay particular attention when configuring rules that permit the unmasking of instruments.

In this section

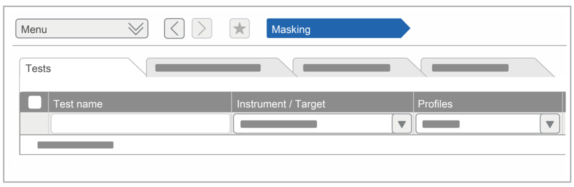
Masking and unmasking manually

You may want to avoid performing certain tests or sorting tubes to certain instruments or targets at specific times. To do so, you must mask or unmask tests, instruments, targets, or a combination of all according to your needs.

- ☐ The parameter to use the **Masking** screen configured
- ☐ Instruments, targets, and tests configured

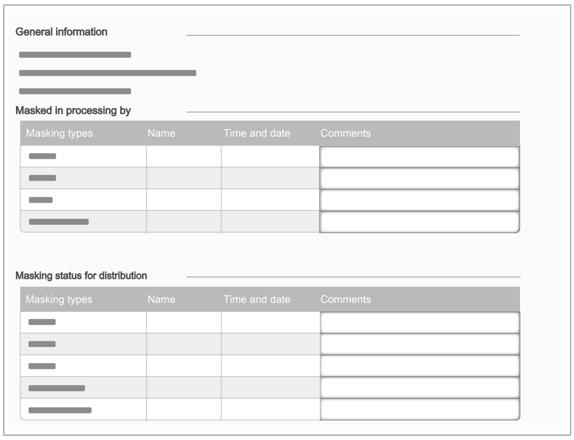
To mask manually

1 Choose **Monitoring > Masking**.



2 Choose the tab corresponding to the item type you want to mask, and then choose the specific item.

  ℹ On the **Tests** tab, you can mask more than one test at the same time by selecting the check box next to the tests.



3 To mask an item associated with a workflow, choose one of the following options:
  - **Mask processing**: The target is considered in the workflow calculation and the sample is distributed there. However, the software does not send any information to the target, and therefore, the sample is not processed and the tube continues with the workflow.
    This option can be used when an item is temporarily unavailable, e.g. due to QC.
  - **Mask distribution**: The target is closed, therefore it is not considered in the workflow calculation and the sample is not distributed to that target.
    This option can be used when an instrument or a test is down for the whole day.

  → The software automatically adds the name of the user that masked the item and date of the masking in the corresponding grid.

4 To mask an item not associated with any workflow, choose the **Mask processing** button.

  ℹ When the item masked is an instrument, all its tests are masked.

  → The software automatically adds the name of the user that masked the item and date of the masking in the corresponding grid.

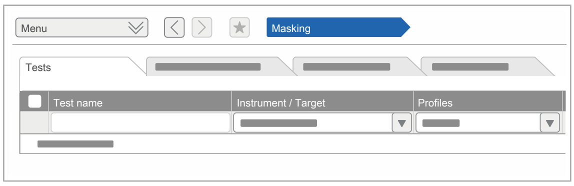
5 Optionally, in the **Comments** area, enter a comment.

  ℹ If multiple tests are selected, the comment is added to all of them.

6 Choose the **Save** button.

▸ To unmask manually

1 Choose **Monitoring > Masking**.



2 Choose the tab corresponding to the item type you want to unmask and then choose the specific item.

  ℹ On the **Tests** tab, you can unmask more than one test at the same time by selecting the check box next to the tests.

3 To unmask the item, choose one of the following options:
  - **Unmask processing**
  - **Unmask distribution**

4 Optionally, if a test has been masked by rule engine or by QC, choose the **Override** button to undo all maskings manually.

  ℹ This option is only available for tests.

5 Choose the **Save** button.

Related topics

- About the Masking screen (81)

About the Masking screen

In the **Masking** screen, you can manage the masking or unmasking actions and monitor the masking status of tests, targets, instruments, and profiles.

> In the **Notifications** screen, you can check if a profile, test, instrument, or target is masked directly. In a multisite environment, it considers the items in any location configured in the software.
> If this information is not displayed, contact your software administrator.

Masking actors

Masking actions can be performed by the following actors:

- QC: When a QC rule configured with **Error (with masking by processing)**, **Error (with masking by distribution)**, or **Error (with masking by both)** warning level has been violated.
- Rule: When an **Order**, **Instrument**, **Distribution**, or **Rejection** rule configured with the **Mask channel for processing**, or **Mask channel for distribution** action is triggered.
- Instrument:
  - When the instrument sends an instrument status message with a status configured as **Masked status** or a test availability message, the instrument or test is masked for both processing and distribution.

    This option is available for any instrument configured with Communication Server that can send this type of message. This option is also available if you had a previous software version and a **cobas**® 8000 modular analyzer series configured through ICA with driver version 2.
  - When the connection with an instrument is disabled, the instrument is masked only for distribution. Depending on the instrument, the following behaviors are possible:
  - Instruments not associated with any workflow: Tests can be performed, but no information is sent to the software.

  - Instruments associated with a workflow: Tubes are not distributed there as the instrument is not considered in the workflow calculation.
- **Pre-analytic**: When the **cobas**® 8100 automated workflow series pre-analytic sends a masking message of a reformatter related to a target, the corresponding target is masked for distribution.
- User: When the user masks an item from the **Masking** screen.

Unmasking actions can be performed manually (by the user), by instrument or by pre-analytic.

List of masking actor icons

Icon	Description
	Item masked manually (by the user)
	Item masked by instrument
	Item masked by a QC rule
	Item masked by rule engine
	Item masked by reformatter

List of masking actor icons

Direct masking

The masking actor masks an item. The actor's icon is displayed in black on the tab corresponding to the type of item masked.

Relation between masked items and direct actors:

	User (manually)	Rule	QC	Instrument	Reformatter
Test	Yes	Yes	Yes	Yes	--
Instrument	Yes	--	--	Yes	Yes
Target	Yes	--	--	Yes	Yes
Profile	Yes	--	--	--	--

Direct masking item-actor relation

Indirect masking

The masking actor does not mask the item itself, but another item which is related. The actor's icon is displayed as gray in all the tabs where the item appears.

Profiles can indirectly mask tests, instruments, and targets. Additionally, a test can also be indirectly masked by an instrument.

Relation between masked items and indirect actors:

	User (manually)	Rule	QC	Instrument	Reformatter
Test	Yes (by profile)	--	--	Yes	Yes
Instrument	Yes (by profile)	--	--	--	--
Target	Yes (by profile)	--	--	--	--
Profile	--	--	--	--	--

Indirect masking item-actor relation

Tabs

The different types of items that can be masked are classified in tabs.

The counter in each tab shows the number of items directly masked versus the total amount of items available in that category.

> If an item is masked for processing and distribution, it is only counted once.

Depending on the **Define the screen to mask/ unmask instruments not associated with any workflow** parameter, the items displayed in each tab differ. If the parameter is set to the **'Masking' screen from Monitoring** option, the software displays the instruments, targets, and tests associated with the sample workflow engine, and the instruments not associated with any workflow. Otherwise, only the items associated with a sample workflow engine workflow are displayed.

All the items in each tab are sorted first by masking status, processing and distribution, and then alphabetically.

Tests

It displays all tests mapped in each instrument or associated with the virtual targets available in the current location.

Instruments

It displays all the enabled analyzers available in the current location.

When an instrument is masked, the corresponding icon only appears next to the instrument, but not next to all the tests associated with it.

Targets

It displays all instrument buffers, pre-analytical and post-analytical instruments, manual archives, virtual targets, recappers, and decappers available in the current location.

Profiles

It displays all the profiles available in the current location.

You can right-click a profile to edit it or create a new one.

When a profile is masked, the 👤 icon only appears next to the profile, but not next to all the items contained in it.

> If the **Define the screen to mask/unmask instruments not associated with any workflow** parameter is set to **'Disabled tests' screen from ICA monitoring**, a warning is displayed below the table. The only action available if you right-click the profile is to view the profiles.

Right panel

The right side of the screen displays general information about the different items and their masking status.

The **General information** area displays the name of the item, and the profiles, instruments or other items related to the selected item.

Depending on the type of masking, distribution or processing, the last masking status is displayed in the **Masking status for processing** table or in the **Masking status for distribution** table.

Depending on the last masking actor, the corresponding table displays the following information:

- If masked manually, it displays the user name, the time and date, and the comment, if filled.
- If masked by rule engine, it displays the name of the first rule that masked the test and the time and date. The comment field is only filled with the user name when there is an **Override** action.
- If masked by QC, it displays the name of the QC rule that triggered the masking and the time and date. The comment field is only filled with the user name when there is an **Override** action.

- If masked by an instrument, it displays the name of the instrument that triggered the masking and the time and date. Depending on the instrument, the comment field is filled with the following information:
  - For instruments configured through Communication Server: Description of the status that masked the item or for **cobas**® 6800/8800 Systems, the instrument module.
  - For **cobas**® 8000 modular analyzer series configured through ICA: Description of the message type.
- If masked by a reformatter, it displays the name of the pre-analytical target that sent the masking message and the time and date. The name of the reformatter is displayed in the comment field.

On the **Tests** tab, a notice is displayed below the tables to show that an item is masked directly in the **Profiles** tab or in the **Instruments** tab.

Monitoring Average of Normals results

The Average of Normals (AON) is a method of quality control based on data from patients in which an error condition is signaled if the average of selected consecutive data exceeds the control limits for the mean of the selected data.

In this section

Reviewing AON results

You can view detailed information about an AON result, review the patient results that are considered to calculate the result, and the ones affected by it. Additionally, you can add comments to it.

When selecting AON results, it is recommended not to select more than 50, otherwise performance issues may occur.

To change the settings of an AON profile or filter, contact your software administrator.

- ☐ **View results** right
- ☐ **View order tests** right
- ☐ **View order demographics** right

To review AON results

1. Choose **Main > Average of normals > Result review**.
2. In the **Filter settings** area, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.
   - Alternatively, from the **Available filters** drop-down list, choose a saved filter.

ⓘ If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the check box of the required AON results, and do the following:
   - To display information about the results, choose the **Details** tab.
   - To see all actions performed on them, choose the **History** tab.
   - To see the patient results affected by the AON results selected, choose the **Affected results** tab.
   - To see the patient results considered to calculate the selected AON results, choose the **Considered results** tab.

   ⓘ You can view the affected and/or considered patient results of more than one AON result at once. Up to 2000 AON and patient result linkages are displayed.

4 Additionally, from the **Affected results** and/or the **Considered results** tabs, to see the details of each affected or considered patient result, choose the **Validation screen** button.

5 Optionally, choose the **Comment** tab and do the following:
   - To add a free text comment, enter it.
   - To assign a coded comment, choose the **Cod. comments** button. In the callout, double-click the required ones, and then choose the **Confirm** button.

6 Choose the **Confirm** button.

Related topics

- Displaying AON results on the Levey-Jennings chart (88)
- Rejecting AON results (87)
- Configuring the AON Result review screen (91)
- List of AON Result review screen items (92)

Rejecting AON results

When you do not consider an AON result acceptable, you can reject it. This way, the result is not considered for patient result validation.

☐ **AON: Reject result** rights

To reject an AON result

1 Choose **Main > Average of normals > Result review**.

2 In the **Filter settings** area, from the drop-down lists, choose the relevant options, and the choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the check boxes of the AON results you want to reject, and then choose the **Reject res.** button.

Once you reject a result, you cannot accept it back.

→ The AON status for that instrument-test-profile combination is recalculated.

Related topics

- Reviewing AON results (86)
- List of AON Result review screen items (92)

Displaying AON results on the Levey-Jennings chart

You can display a graphic overview of the progress of AON results calculated in a given time interval.

You can display up to 12 instrument-test AON results in both the **Main table** area and the **Levey-Jennings chart** area.

To display AON results on the Levey-Jennings chart

1 Choose **Main > Average of normals > Result review**.

2 In the **Filter settings** area, from the drop-down lists, choose the relevant options, and the choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

---

3 In the table, select the round check boxes of those results you want to display.

You can select the results of up to 12 instrument-test-profile combinations.

→ All the results for that instrument-test-profile combination are selected and displayed in the **Levey-Jennings chart** area.

4 In the **Levey-Jennings chart** area, you can filter by the following options:

- **Grouping period**:
  - **No group**: It displays one point for each control result.
  - **Daily**: It displays one point for all the results obtained on the same day.
  - **Weekly**: It displays one point for all the results obtained on the same week.
  - **Monthly**: It displays one point for all the results obtained on the same month.
- **Show rejected results** check box: Select it to display rejected control results, indicated with ✕ icons over the result points.

If the **Show rejected results** check box is selected, rejected results are also displayed in the chart and in the report. However, they are not considered in the table statistics.

5 Optionally, choose one of the following displaying options:

- To display the number of standard deviations, choose the **SD values** option.
- To display the measurement unit used for the test, choose the **Absolute values** option.

6 Optionally, choose one of the following displaying options:

- To display all selected results in a single chart, choose the **One chart** option.
- To display each selected results in its own chart, choose the **Multiple charts** option.

7 To display a specific AON result information, hover the mouse over the required measurement point.

- If you have grouped the results, the displayed information is slightly different.

8 Optionally, to obtain a report with the Levey-Jennings chart information, choose the **Print** button.

- Additional information about the selected controls and expected values is included.

Related topics

- Reviewing AON results (86)
- Rejecting AON results (87)
- Configuring the AON Result review screen (91)
- List of AON Result review screen items (92)

Resetting an AON profile

You can reject all results related to a profile to restart the calculation of AON profile values.

☐ **AON: Reject result** rights

To reset an AON profile

1 Choose **Main > Average of normals > Result review**.

2 In the **Filter settings** area, from the drop-down lists, choose the relevant options, and the choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

- If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the round check boxes of those results you want to display.

- You can select the results of up to 12 instrument-test-profile combinations.

→ All the round check boxes for that test-instrument- profile are selected and displayed in the **Levey-Jennings chart** area.

4 In the **Statistics values** area of the **Levey-Jennings chart** area, choose the profile whose values you want to reset, and then choose the **Reset profile** button.
   - If applicable, enter the reason why you are resetting the profile, and then choose the **Reset** button.

   ⓘ This action cannot be reverted.

   → All results related to that profile are rejected.

Related topics

- List of AON Result review screen items (92)

Configuring the AON Result review screen

You can customize the fields of both the **Main table** and the **Statistics table** in the **Result review** screen to display the desired information. Additionally, you can also customize the size of the columns.

▸ To configure the tables in the AON Result review screen

1 Choose **Main > Average of normals > Result review**.

2 Choose the **Screen settings** button.

3 In the **Table configuration** area, choose the table you want to edit.

4 From the **Available columns** area, double-click the field that you want to add to the table.
   - Alternatively, to delete a field from the table, in the **Selected columns** area, double-click it.

   ⓘ The mandatory fields marked with an asterisk (*) cannot be removed.

5 To change the order in which columns are displayed in the table, choose the required column and choose the ∧ or ∨ button to place it where you find appropriate.

6 In the **Button configuration** area, choose the validation screen in which you want to view affected or considered patient results.

7 Choose the **Save** button.

8 Additionally, in the **Main table** area, drag and drop the edge of a column to resize its width.

   ⓘ These changes are automatically saved and are available the next time you access the screen.

Related topics

- List of AON Result review screen items (92)

List of AON Result review screen items

The **Result review** screen displays extensive data on AON results, as well as on the AON status.

The **Result review** screen main table displays the number of records configured in the **Maximum number of records per search** general parameter. When filtering, even if the amount of results associated to the AON profile is bigger than the amount of results in the table, only the ones in the **Result review** table are displayed in the **Levey-Jennings chart**.

About the Main table columns

The columns displaying AON results and the AON status are the following:

AON status

Indicates the status of the AON profile for that result. The status is set as correct or incorrect according to the threshold levels defined for that profile. The AON status affects the validation of the related patient results.

The following icons may appear in this column:

Icons	Description
	The AON status is correct.
	The AON status triggers an alarm because it exceeds the warning level defined for that profile.
	The AON status triggers an alarm because it exceeds the error level defined for that profile.

AON status column icons

Range

Compares the actual result with the target value.

The following icons may appear on this column:

Icons	Description
	The AON result is within range, i.e. between the minimum and maximum values. The white bar indicates the target value.

Range column icons

Icons	Description
◂✖	The AON result is below the minimum value.
✖▸	The AON result is above the maximum value.

Range column icons

You can check the defined ranges in the tooltip.

Affected patients' results

Indicates the number of patient result affected by this AON result.

Review status

Indicates whether the AON result is accepted or rejected (either automatically or manually).

The following icons may appear on this column:

Icons	Description
🟢	The AON result has been automatically accepted.
🔴	The AON result has been manually rejected.

Review status column icons

About the Levey-Jennings chart

This chart monitors the progress of the AON results calculated for a certain instrument-test-profile combination during a specific period of time.

Accepted results and rejected results can be included in the chart, but displayed differently. The ✕ icon represents rejected AON results.

Statistics values

This table displays the statistic values calculated for a series of results of an instrument-test-profile combination.

To calculate the statistic values, the software only considers accepted AON results.

The following columns can be configured:

- **N**: Number of accepted AON results for a specific instrument-test-profile combination. It is used to calculate the mean and SD.
- **Target value**: Target value for that instrument-test-profile combination.

- **Mean**: Mean of the **N** values.
- **SD**: Standard deviation.

Result markers

If, from the **Grouping period** drop-down list, you choose any grouping other than the **No group** option, the software calculates an average of the following values:

- **Group mean**: Mean calculated for the grouped results.
- **Group SD**: SD calculated from all the results in the group.
  Only available for symmetric profiles.
- **SD index**: SD calculated for the results included in the group.
  Only available for symmetric profiles.

Pre-analysis

In this chapter

4

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Order and pre-order management

Pre-orders and orders must be created for patients existing in the database before tests can be performed. If tests are required urgently, you can create orders without patients but these tests cannot be medically validated until a patient is assigned.

⚠ CAUTION!

Order IDs

Risk of patient results being confused with another patient's results.

- The system allows you to define the fields forming the order ID (fixed texts, dates, prefixes...) and the modules where they are used. To enter and retrieve orders correctly, remember to use the specified format for the module you are in.

Remember that the software stores leading zeros and blank spaces, however it omits them. Therefore, 00015 and 015 are considered the same number.

Due to the recycling of order IDs, you may get more than one result when you enter an order ID. A callout displays any matching orders in chronological order. Choose the desired order to continue.

⚠ CAUTION!

Reusing tube IDs

Risk of results being confused.

- It is recommended that you define a different tube ID for each sample.
- Tube IDs can only be reused once the maximum time period configured in the automatic order closing parameter is exceeded, otherwise patient information and results could become confused.

⚠ CAUTION!

Conflicting Tube ID with another open order

New order rejection, with original container deactivated.

- Avoid potential errors in container identification such as poor labeling or configuration errors in the Order ID and Tube ID settings that could lead to the same Tube ID applied to different orders.
- If the archived database is not available, do not use the local database.

A callout warning is displayed if an order entry conflict is detected associated with a current open order.

⚠ WARNING!

Entering erroneous order demographic data

Risk of delayed or wrong results.

- Ensure that the mandatory demographic fields are entered correctly.

⚠ CAUTION!

Deleting orders

Risk of results and data being confused with results and data belonging to another patient.

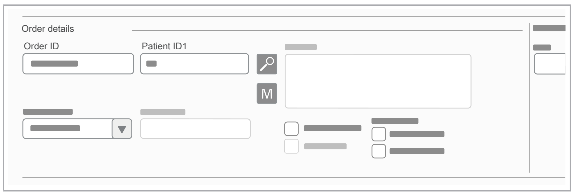
- When deleting an order, all samples and tubes belonging to this order must also be removed from the laboratory and the system.

It is recommended that you use reading devices (optical readers, barcode readers, card readers, etc.) to enter data. Check these devices are operating correctly before using them in real environments.

In this section

Creating a pre-order

Physicians must give patients a pre-order with the list of tests to be performed. This form is delivered to the laboratory so the samples can be collected.



To create a pre-order

1 Choose **Main > Order entry > [Pre-orders]**.

2 To fill in the **Patient ID1** field, do one of the following:

- Enter the patient ID, and then, press Enter.
- Enter the patient surname, and then choose the button.

Depending on configuration, you can register new patients in the software.

3 In the demographics tab, enter the order demographics.

4 Choose each of the remaining tabs, and then enter the corresponding test information.

- If applicable, answer the questions concerning the patient.

Depending on the configuration in your center, the remaining tabs may vary.

5 To give the patient a printout of the form, select the **Patient's form** check box.

This form is presented to the phlebotomist before collection.

6 Choose the **Save** button.

Editing a pre-order

If you want to assign more tests, delete any unnecessary tests, or change information in a pre-order, you can edit it.

To edit a pre-order by pre-order ID

1 Choose **Main > Order entry > [Pre-orders]**.

2 Enter the pre-order ID, and then press Enter.

3 In each tab, assign or delete the necessary tests, and then choose the **Save** button.

To edit a pre-order by Patient ID1

1 Choose **Main > Order entry > [Pre-orders]**.

2 In the **Patient ID1** field, enter the patient ID and press Enter.

→ The **Patient pre-orders** screen opens.

3 Choose the pre-order you want to edit and choose the **Select** button.

→ The pre-order information is loaded.

4 In each tab, assign or delete the necessary tests, and then choose the **Save** button.

Canceling a single pre-order

Sometimes samples cannot be extracted or a patient forgets to bring a sample and so you decide to cancel the pre-order. You can only cancel open pre-orders. Once extractions are performed, the pre-order is closed.

To cancel a single pre-order

1 Choose **Main > Order entry > [Pre-orders]**.

2 Fill in the Order ID field, and then press Enter.

3 Choose the **Delete** button.

Deleting or restoring pre-orders

If a pre-order could not be completed because not all of the samples could be collected, you can delete it. Save time by deleting several as a batch. If you need to check information in a deleted pre-order e.g. the samples requested, patient information, you can restore it.

▸ To delete or restore pre-orders

1 Choose **Monitoring > Delete/restore orders**.

2 In the **Application** field, select the module where the pre-orders were created.

3 Indicate the status of the pre-orders by choosing at least one of the following options:
- **Not collected**: no samples were collected.
- **Partly collected**: some samples were collected.
- **Fully collected**: all samples were collected.

4 Indicate whether the pre-orders are open or closed.

5 If you chose the **Closed orders** option in step 4 , choose one of the following options:
- **Local database**: if the pre-orders are stored locally.
- **History**: if the pre-orders were moved to the historical database.

6 Enter the date or range of dates that the pre-orders were created on.

7 Choose one of the following options:
- **By batches**: to delete or restore several pre-orders.
- **Specific**: to delete or restore a specific pre-order.

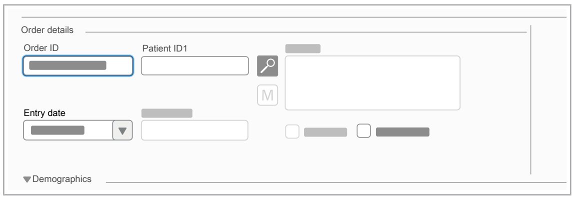
8 If you chose the **By batches** option in step 7 , enter the initial and final sequence number of the pre-orders to be deleted or restored.

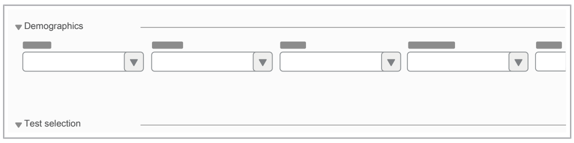
9 If you chose the **Specific** option in step 7 , enter the order ID, and then choose the button.

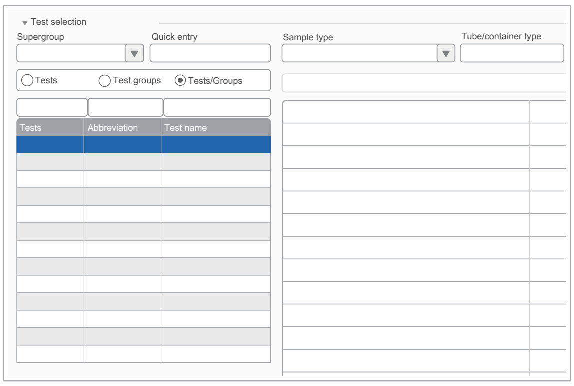
10 Choose one of the following options:
- **Delete**: to delete the select pre-orders.
- **Restore**: to restore the selected pre-orders.

Creating an order

You must create an order for a patient who is already registered in the database to be able to order tests.







To create an order

1 Choose **Main > Order entry > Order entry**.

2 Enter the **Order ID** field or leave the one assigned by default.

You can define a maximum of 20 alphanumeric characters.
The following characters are not accepted:
| ^ \ / " ' > < ª : ? # * ~ & º

Spaces entered before or after the value are not considered.

3 Enter the patient ID if you know it and the patient's name and/or surname, and then press Enter.

- If the patient exists in the database, choose the button, and then choose the **Apply** button.
- If it is a new patient, assign a patient ID and press Enter. In the fields marked with an asterisk (*), enter the corresponding data, and then choose the **Confirm** button.

4 Enter at least the mandatory demographics marked with an asterisk (*).

- In the **Entry date** drop-down list, today's date is displayed by default but you can change it if necessary.

5 Optionally, to define an order priority different than the one automatically assigned, from the **Order Priority** drop-down list, choose the required one.

6 The **Location** drop-down list is automatically filled in with the location assigned to you. This location is populated in all tests assigned to the order.

You can change the location by selecting the **Location** drop-down list.

7 Double-click the tests you want to run for this order.

8 Choose the **Save** button.

If one of the selected demographics is set to have a specific order ID, the software displays a dialog box suggesting to change it. It is strongly recommended that you accept the suggested ID.

Related topics

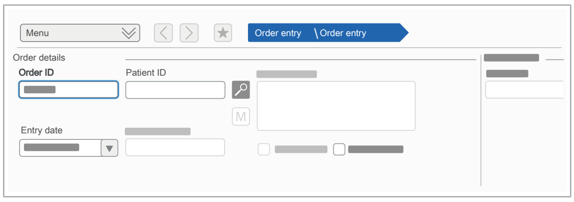
- About location and multisite (37)

Creating an order using panels

You must create an order for a patient to be able to order tests. Using panels is a faster and more visual process as it contains a template where you can view all the tests. You can also record a patient's answers to any questions you ask them before tests are run. These answers could explain certain results and potentially increase or decrease the number and type of tests needed.

▸ To create an order using panels

1 Choose **Main > Order entry > [Order by Panels]**.



2 Enter the order ID or check the one assigned by default.

3 Fill in the patient ID, if you have this information, the patient's name and/or surname, and then press Enter.

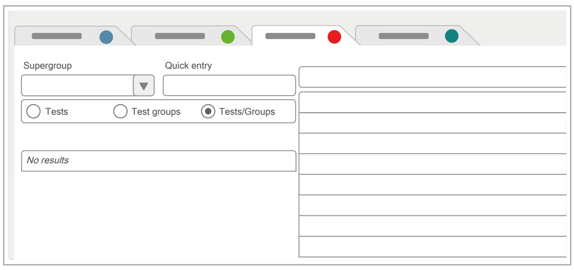
- If the patient exists in the database, search for the patient ID by choosing the 🔍 button and then choose the **Apply** button.
- If it is a new patient, assign a patient ID, and then press Enter. In the fields marked with an asterisk (*), enter the corresponding data and choose the **Confirm** button.

4 Enter at least the mandatory demographics marked with an asterisk (*).

- In the date field, today's date is displayed by default but you can change it.

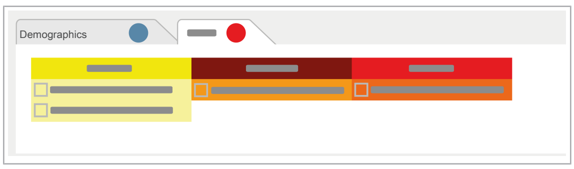
5 In the demographics tab, enter the order demographics.

6 In the Microbiology tab, select the check box of the desired tests.



7 Depending on the configuration in your center, the remaining tabs you see may vary. Choose each remaining tab, and then select the desired tests.

- If you select a test by mistake, double-click it to cancel your choice.
- If applicable, answer the questions regarding the patient.



8 In the Microbiology tab, select the check box of the desired tests. If you select a test by mistake, select it again to cancel your choice.

9 Choose the **Save** button.

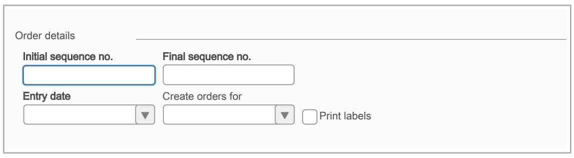
Creating orders by batch

If the same tests are performed for several orders, you can create a batch of orders to save time.

☐ Order entry by batch configured in your center

To create orders by batch

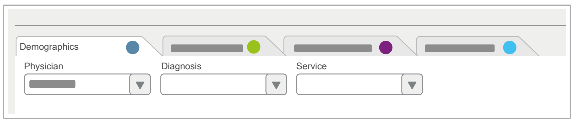
1 Choose **Main > Order entry > [Order entry by batch]**.



2 Enter the initial sequence number and the final sequence numbers, the date, and any other mandatory fields marked with an asterisk (*).

The sequence number depends on the configuration of your center.

3 If you want to print labels for the orders, select the **Print labels** check box.



4 Choose the demographics tab, and then enter the order demographics.

5 Depending on the configuration in your center, the remaining tabs you see may vary. Choose each remaining tab and then select the tests you need for these orders.

- If you select a test by mistake, select it again to cancel your choice.
- If applicable, answer the questions regarding the patient.

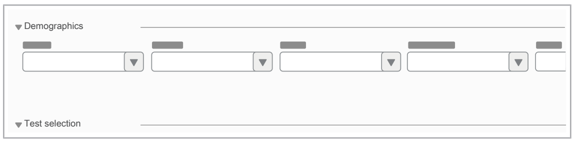
6 Choose the **Save** button.

Creating an order without a patient

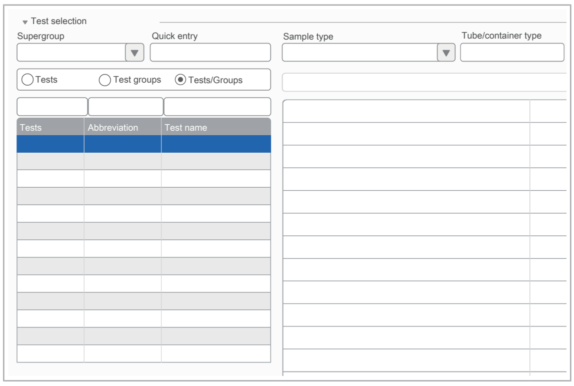
In exceptional circumstances, you can create an order without a patient e.g. if a serious accident occurs and you must perform test immediately. The patient demographics can be entered later.

To create an order without a patient

1 Choose **Main > Order entry > Order entry**.



2 Enter the mandatory patient demographics marked with an asterisk (*).



3 In the test selection section on the bottom left of the screen, double-click the tests to be performed.

4 Choose the **Save** button.

Merging data for an unsolicited tube

A tube ID can be created by a pre-analytical instrument or in a manual archive. However, the software handles it as an unsolicited tube because it is not registered yet. Then, if an order is received, you need to merge the data from the unsolicited tube's order with the new order.

When working with alphanumeric IDs, the software assigns the tube ID as the order ID.

Once you add some information to an unsolicited tube, it ceases to be unsolicited.

- ☐ The order created for the unsolicited tube

To merge data for an unsolicited tube

1 Choose **Main > Order entry > Order entry**.

2 Enter the order ID, and then press Enter.

The order ID search field, not only searches for order IDs, but also for tube IDs in the General Lab module and container IDs in the Microbiology module.

3 Do at least one of the following:

- Add a patient to the order.
- In the **Demographics** area, enter a demographic value.
- Add a test to the order.
- Delete a test from the order.

4 Choose the **Save** button.

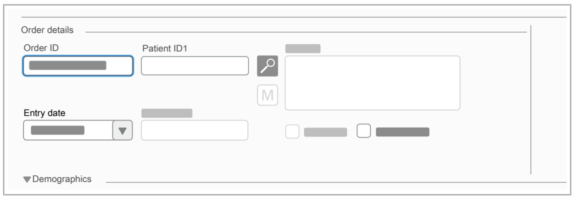
→ The tube is no longer unsolicited.

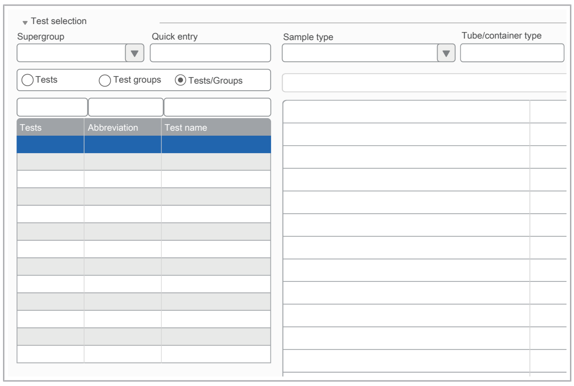
Related topics

- Editing an order (106)

Editing an order

You can update or change information in an order e.g. if new tests are necessary or the wrong demographic was assigned.





▸ To edit an order

1 Choose **Main > Order entry > Order entry**.

2 Enter the order ID, and then press Enter.

   ⓘ The order ID search field, not only searches for order IDs, but also for tube IDs in the General Lab module and container IDs in the Microbiology module.

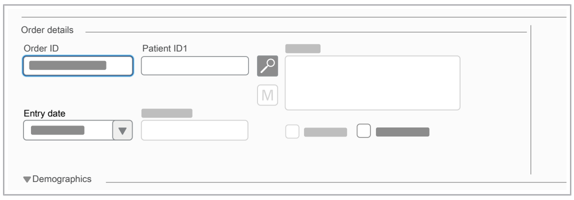
3 To delete the tests, double-click them.

4 Choose the **Save** button.

Deleting a single order

If an order was created incorrectly or the samples no longer require analysis, you can delete this order from the system.

Permanently deleting an order means the internal ID assigned to it becomes available again. All samples and tubes belonging to this order must also be deleted, otherwise samples and tubes belonging to the previous order may be analyzed. This action would produce incorrect results for the new order.



▸ To delete an order

1 Choose **Main > Order entry > Order entry**.

2 Enter the order ID, and then press Enter.

3 Choose the **Delete** button.

Deleting or restoring orders

You can delete orders that no longer need to be stored in the system, or save time by deleting several orders as a batch. If you made a mistake on deleting orders, you can restore them.

Permanently deleting an order means the internal ID assigned to it becomes available again. All samples and tubes belonging to this order must also be deleted, otherwise samples and tubes belonging to the previous order may be analyzed. This action would produce incorrect results for the new order.

To delete or restore orders

1 Choose **Monitoring > Delete/restore orders**.

2 From the **Application** drop-down list, choose the module where the orders were created.

3 Select whether the status of the orders is open or closed.

4 If you chose the **Closed orders** option in the previous step, indicate where the orders are stored:
   - **Local database**: if the orders are stored locally.
   - **History**: if the orders were moved to the historical database.

5 Select the range of dates when the orders were created.

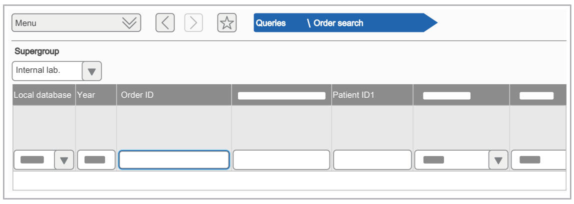
6 Choose one of the following options:
   - **By batches**: to delete or restore a batch of orders
   - **Specific**: to delete or restore a specific order.

7 If you chose the **By batches** option in the previous step, enter the initial sequence number and final sequence number of the series of orders to be deleted

8 If you chose the **Specific** option in the previous step, enter the order ID, and then choose the button.

9 Choose one of the following buttons:
   - **Delete**: to delete the orders.
   - **Restore**: to restore deleted orders.

Viewing the status of an order



You can consult the status of orders to see what information is pending.

▸ To view the status of an order

1 Choose **Main > Queries > Order search**.

2 Enter the order ID, and then press Enter.

3 The following order statuses are possible
   - Open: the order was created.
   - Closed: the order is finished, validated, and a final report was printed.

Test management

In this section

Assigning a test to an existing order

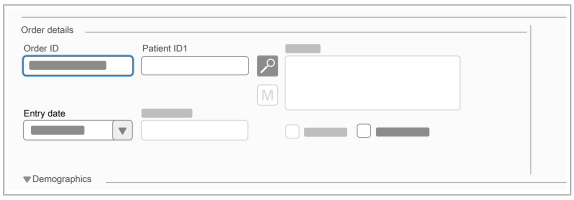
Depending on the results received from other tests, you might want to assign additional tests to an order.

Note that the location of the added tests matches that of the user adding the test and not necessarily the location of the order.

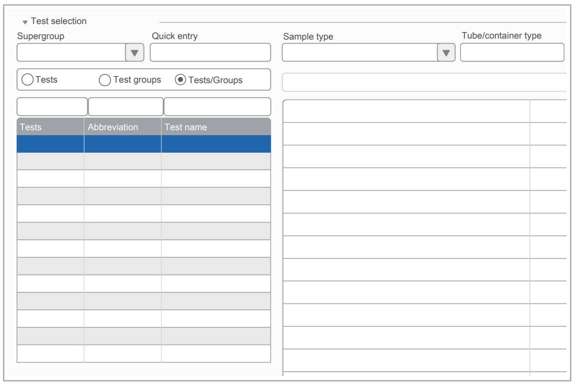
To assign a test to an existing order

1 Choose **Main > Order entry > Order entry**.

You can also add new tests to an existing order from a validation screen by using the **Sel. tests** button.



2 Fill in the order ID of the order you want to assign a test to, and then press Enter.



3 Search for the desired test by filling in the relevant following fields:

- **Supergroup**: from the drop-down list, choose the supergroup that the test belongs to.
- **Quick entry**: enter the test ID directly in this field if you know it.
- **Sample type**: from the drop-down list, choose one of the available options
- **Tube/container type**: from the drop-down list, choose one of the available options.

→ A list of available tests matching the data entered are displayed in the table

4 Choose the **Save** button.

→ The order is now updated.

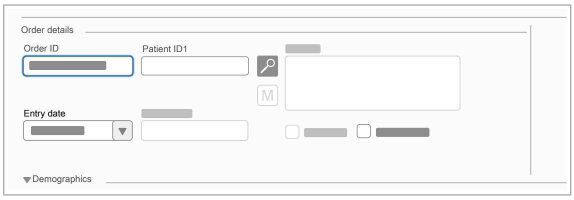
Assigning function tests

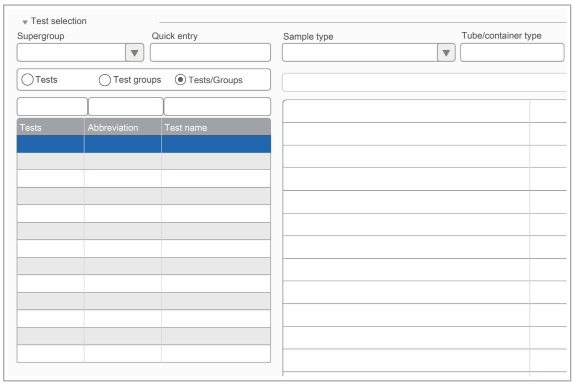
Function tests analyze substances at different intervals after the patient has taken stimulation. This process involves collecting samples in different moments to monitor how the results evolve.

To assign a function test

1 Choose **Main > Order entry > Order entry**.

2 Fill in the order ID, and then press Enter.





3 From the test selection section, choose the **Tests** option.

4 Search for the previously configured function test, by filling in the relevant fields.

5 Double-click the desired test, and then choose the **Function tests** button.

6 Select the check box for that test, and then choose the **Confirm** button.

→ The function test changes color to distinguish it from regular tests.

7 Choose the **Save** button.

Test rejection

In this section

About test rejection

You can review the tests affected by a rejection rule and decide whether to discard them permanently or not.

Test rejection overview

Your administrator can configure one or more rejection rules, that is automatic processes that determine whether a test should be removed from an order based on certain conditions.

For example, a rule can be configured in order to reject the HIV test if:

- this test has ever returned a positive result for that patient, or
- this test has returned a negative result for that patient in the last 21 days.

If the test meets the configured conditions, the system rejects the test. The system can be also configured so that you can manually revise the test before rejecting it. You can then decide to discard it permanently or, alternatively, to retrieve it.

Test rejection icons

Those tests that have been affected by a rejection rule display a status icon on the **Rejection review** screen. Some of these icons can also be displayed on work areas, order entry screens, and so on.

Icon	Status column	Test status
	Pending manual revision	The test meets the rejection rule conditions and needs to be reviewed by a user.
	Not evaluated	The rejection rule conditions could not be evaluated.
	Pending demographic	The test is missing a patient or a demographic.
	Not rejected	▪ The test does not meet the rejection rule conditions, or ▪ The test meets the rejection rule conditions, but it has been retrieved by a user and added to the order.
	Rejected and excluded	The test has been rejected and removed from the order.
	Rejected and included	The test has been rejected, but it has been added to the order with an automatic result (for example "Rejected") for tracking purposes.

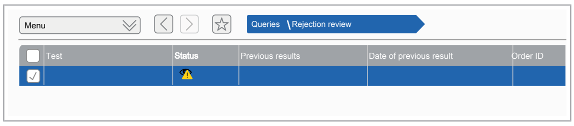
Test rejection icons

You can access the **Rejection review** screen from work areas, order entry screens, and so on. Take into account that, in each case, different filters are applied by default.

Reviewing rejected tests

You can review the tests that have been affected by a rejection rule.

▸ To review a rejected test



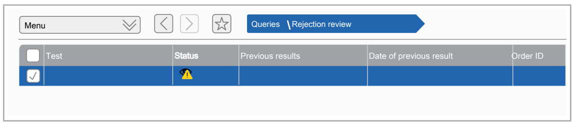
1 Choose **Main > Queries > Rejection review**.
   → The **Pending manual revision** filter is applied by default.
2 To display tests with a different status, filter the **Status** column.
3 Select the test you want to review, and do one of the following:
   - To consult the patient’s history, choose the **History** button.
   - To access the validation screen, choose the **Detail** button.

Rejecting or retrieving tests

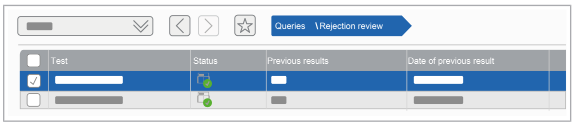
After reviewing the tests affected by a rejection rule, you can decide to discard them permanently or retrieve them.

☐ **Validate medically** rights
☐ At least one test with **Pending manual revision** status

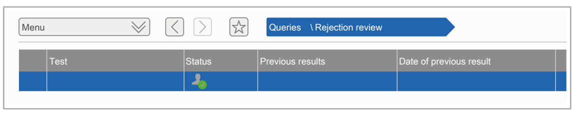
▸ To reject or retrieve a test



1 Choose **Main > Queries > Rejection review**.
   → All the tests matching the **Pending manual revision** status are displayed.



2 If you want to remove a test permanently, select it and choose the **Reject** button.
   → The test is rejected according to the configured rule.
   → The test status changes to **Rejected and included** or **Rejected and excluded**. It is displayed on the **Rejection review** screen until the corresponding order is closed.



3 If you want to retrieve a test and add it to the order, select it and choose the **Do not reject** button.
   → The test is added to the order.

→ The test status changes to **Not rejected**. It is displayed on the **Rejection review** screen until the corresponding order is closed.

Handling samples

In this section

Collecting a sample

Samples must be collected from patients according to the tests ordered by the physician. At the time of collection, you must enter the patient information in the system. Additionally, you can close the pre-order.

Depending on the configuration, the software suggests a tube ID or you must enter or scan the desired tube ID.

⚠ CAUTION!

Reusing pre-order IDs

Risk of the ID being linked to the patient who was previously assigned this ID instead of the current patient, producing incorrect results.

- Choose the **Collect** button before printing and attaching sample labels.
- It is recommended that you refresh the screen to ensure you are viewing the most up-to-date data.

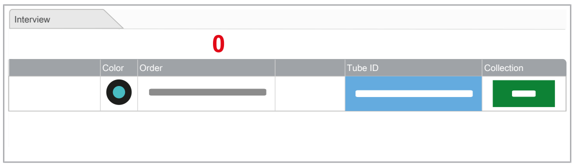
If you create a pre-order with a test associated with a tube, and afterwards you create a different version of this test associated with a different tube, the test created with the pre-order will still be associated with the first tube.

To collect a sample

1 Choose **Main > Order entry > Collection**.

2 Scan the barcode label or enter the pre-order ID, and then press Enter.
   - If the software does not automatically load the tube ID in the **Tube ID** column, enter or scan a tube ID.

   → The status of the tube in the **Collection** column is automatically changed to green.



3 The boxes displayed in the **Collection** column indicate the status of the sample. If necessary, choose each box to change its color to one of the following:

- Green: Sample collected.
- Red: Sample not collected.
- Gray: Sample already collected. This option cannot be modified.

4 To save the samples' status and print the labels of the collected samples, choose one of the following buttons:

- **Collect**: the same pre-order is reloaded with the updated information. The status of samples marked as collected is displayed in gray.
- **Collect and next**: the information of the pre-order is cleared and you can proceed with the next pre-order.

ⓘ You might be asked to answer open questions concerning the patient. Enter the answers, and then choose the **Collect** button

5 Optionally, choose the **Relabel** button to reprint the labels.

6 Optionally, choose the **Add issue** button to report any issues in the **Total Quality Mgt.** module.

Marking samples as received

The technician must check that the right amount of samples are received to perform the tests requested by the doctor.

Depending on the configuration, the software suggests a tube ID or you must enter or scan the desired tube ID.

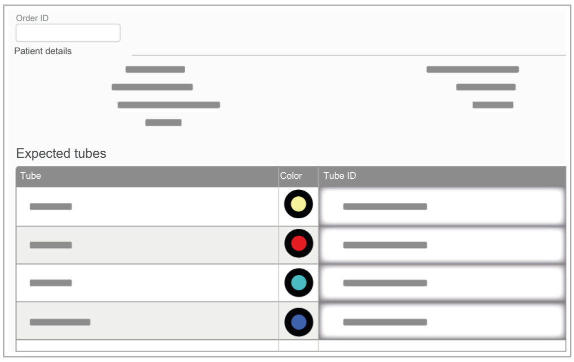
> Some instruments or workflows cannot process different tubes or sample types with a shared identifier. To differentiate them, you can assign a different tube ID and print a label for each sample received.

☐ At least one order
☐ Configured printer

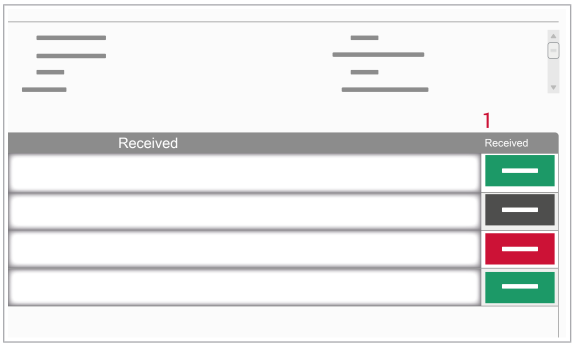
▶ To mark samples as received

1 Choose **Main > Order entry > Reception**.

ⓘ You can also access this screen from the **Main > Order entry > Order entry** screen by choosing the **Save & Reception** button.



2 Scan the barcode label or enter the order ID, and then press Enter.
  - If the software does not automatically load the tube ID in the **Tube ID** column, enter or scan a tube ID.
  - → The status of the tube in the **Received** column is automatically changed to green.



3 The boxes displayed in the **Received** column indicate the status of the tube. If necessary, choose each box to change its color to one of the following:
  - Green: Tube received.
  - Red: Tube not received.
  - Gray: Tube already received. This option cannot be modified.
  - → If you change the status of a tube, the software automatically changes the status of the tests associated with that tube, which are displayed below.

4 To save the sample status and print the labels of the received samples, choose one of the following buttons:
  - **Receive & Next**: the information of the order is cleared and you can proceed with the next order.
  - **Receive**: the same order is reloaded with the updated information. The status of samples marked as received is displayed in gray.

5 Optionally, choose the **Reprint label** button to reprint the labels.

6 Optionally, choose the **Add issue** button to report any issues in the **Total Quality Mgt.** module.

Sample analysis

In this chapter 5

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Printing a worklist

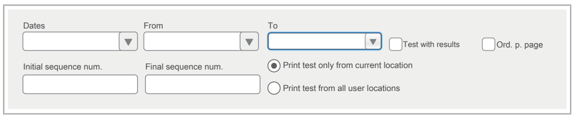
Worklists contain all the tasks to be performed in the laboratory each day, and the tasks to be performed in external laboratories. Normally, they are printed and used as a checklist to control the tests to be performed for that day and enter their results.

In the Microbiology module, worklists can also be printed, as well as an Antibiogram list, to control the antibiotics to be performed in the laboratory.

☐ Worklists preconfigured by the administrator

To print a worklist

1 Choose **Main > Worklists > Print list**.



2 To search for the desired worklist, on the lower part of the screen, enter the relevant data in the filters.

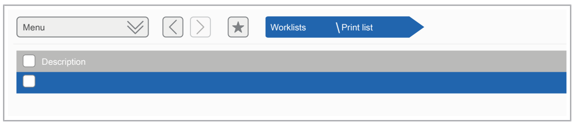
3 If you are working in a multisite environment, choose one of the following options to include tests according to your associated locations:

- **Print test only from current location**
- **Print test from all user locations**

ⓘ This option is only available for General Lab worklists.

4 Select the desired group or list template.

5 On the lower part of the screen, choose the **Print** button.



6 To reprint the worklist, choose the desired worklist from the table on the upper part of the screen.

ⓘ In a multisite environment, only the worklists that have at least one location assigned that matches the user's current location are displayed.

7 On the upper part of the screen, choose the **Reprint** button.

ⓘ When you print a worklist with previous results the date displayed next to the results corresponds to the date when the results were entered.

→ In a multisite environment, the worklist is reprinted with the same locations as the first time.

In a printed worklist, the **Order** column displays the order ID and the assignment number when the following conditions are true:

- You access the worklist via the Microbiology module.
- The shared order is seeded.
- The **Work with assignment number** parameter is enabled.
- The **Print General Lab and Microbiology reports as a single report when working with shared orders** parameter is enabled.

Otherwise, this column only displays the order ID.

Monitoring orders and tubes from the work area

⚠ **CAUTION!**

Performing tests

Risk of delayed results due to tests not being performed

- It is recommended to check the status of the order or tests in the work area.
- To ensure that all tests are performed, it is recommended to print a worklist and compare it with the order in the software.

In this section

Work area overview

You can monitor the orders and tubes being processed in the laboratory via work areas.

A work area is based on a group of tests, therefore you can create a work area for each laboratory section, such as Chemistry, Hematology, and so on. This way, you can monitor only the orders and tubes belonging to your specialty.

Each work area consists of a monitoring screen to check the status of orders and tubes, and is associated with a validation screen to enter and validate results.

The work area monitoring screen consists of various columns displaying information about the orders or tubes, as well as the status of their tests. A series of buttons allow you to perform actions such as printing a worklist or a report of pending orders.

The width of the columns displayed on your validation screen can be resized by dragging the borders manually. For the monitoring screen, this option is not available and the width can only be resized by users with administrator rights.

The columns displayed on your monitoring screen depend on the work area configuration performed by your administrator.

It is recommended that you only use tubes with barcodes attached.

Related topics

- List of monitoring screen items (122)

List of monitoring screen items

The monitoring screen buttons allow you to carry out actions, such as printing work lists, viewing pending orders, and so on. A series of icons inform about the order or test status.

Order or test status icons

The status icons represent the status of an order during the sample processing.

Icon	Status
	The order has no tests or there are no tests for the test group in that order.
	The order tests or the test group in that order, do not have any results.
	The order tests or the test group in that order has results, but they are not validated.
	The order tests or the test group in that order have technically validated results.
	The order tests or the test group in that order have medically validated results.
	The order tests or the test group in that order results have been printed or sent to the host.
	The order has been closed.
(v)	The result of the order was obtained with an old version of the test.

Order or test status icons

Monitoring screen buttons

Some of these buttons may not be visible, depending on whether you are using an order or tube monitoring screen.

Button	Action	Reference (if any)
Add issue	Opens the Total Quality Management module to enter a case.	
Associative filter	Creates a combination of existing filters.	Sorting work area orders or tubes (124).
Charts	Displays the work area charts.	Viewing work area and monitoring charts (40).
Closed orders	Displays all the closed orders in the daily file.	
Closed tubes	Displays all the closed tubes in the daily file.	
Finish issue	Opens the Total Quality Management module to close a case.	
Medical validation	Validates tests according to your rights (if they are technically validated).	Validating results from a work area (180).
Order entry	Accesses the **Order entry** screen to view or edit the order.	Refer to the related topics.
Ordered daily	Prints a report of all the open orders filtered by demographics and consults their status and/or results.	
Pending orders	Prints reports of pending tests.	Printing reports of work area pending tests (127).
Print lists	Prints lists of orders with tests, sample types, or tubes.	Printing work area order or tube lists (127).
Query by test	Displays and prints the results of a certain test for all the orders matching the work area criteria.	
Rev. rejection	Displays the orders containing work area tests that have been rejected or are pending rejection.	Reviewing rejected tests (112).
Sort	Sorts the orders.	Sorting work area orders or tubes (124).
Technical validation	Validates tests according to your rights.	Validating results from a work area (180).
V. & pend.med.	After validating the tests using the work area criterion, it displays only the orders with tests pending medical validation.	Validating results from a work area (180).
V. & pend.tec.	After validating the tests using the selected criterion, it displays only the orders with tests pending technical validation.	Validating results from a work area (180)
Validate	After validating the tests using the work area criterion, it displays the selected orders in the validation screen.	Validating results from a work area (180).
Validate all	After validating the tests using the work area criterion, it displays all the orders in the validation screen.	Validating results from a work area (180).
Worklist	Displays the available worklists.	Refer to the related topics.

Monitoring screen buttons

Turnaround time column

This column indicates the processing time of the order or tube. The starting and final time, depend on configuration.

The software compares the current processing time with the target time configured and indicates with the following colors if there is any delay:

Color	Description
00:10	Order or tube processing time within the configured time.
00:28	There is a slight delay in the order or tube processing time.
00:34	There is a significant delay in processing the order or test.

Turnaround time colors

Related topics

- Printing a worklist (119)
- Creating an order (101)
- Assigning function tests (110)
- List of comment icons (59)
- List of common icons (51)

Sorting work area orders or tubes

You can sort work area items according to your needs, by using one or more criteria (orders with pending tests, tube type, priority, and so on).

To sort work area orders or tubes

1 Choose **Main > Work areas > [Your Work area]**.

2 Choose the **Sort** button.

3 In the callout, choose the **Add** button.

4 For each sorting criterion you want to apply, do the following:
   - From the **Field** drop-down list, choose the first sorting criterion you want to apply.
   - In the **Direction** group box, choose either the **Ascending** or **Descending** option.
   - Choose the **Confirm** button.

5 To change the sort order, choose the buttons.

6 Choose the **Confirm** button.

Related topics

- Sorting table information (49)

Filtering work area items

You can apply different types of filters to display only the desired orders and tubes and hide the others.

Saved filters

When you apply multiple saved filters, you see the items that meet all the criteria set (AND filter). For example, if you select Today's orders and Orders pending validation, you see the orders or tubes that have been entered today and are pending validation.

The filter settings applied to the data in the monitoring screen also apply to the work area charts view (**Charts** button).

Associative filters

When you apply an associative filter, you see the items that meet at least one of the criteria set (OR filter). If you combine today's orders and orders pending validation, you see all the orders that have either been entered today or that are pending validation.

Location filters

You can filter your work area items to see only the orders, or tests assigned to a specific location.

Consider the following information about location filters:

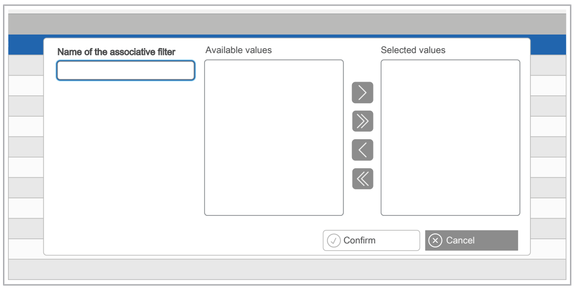
- When you first access your work area, your profile location is automatically selected in the **Locations** callout.
- When you access your work area again, the last location used is displayed only if the last filter used was previously captured.
- If you combine location filters with any other work area filter, only the items that meet all the criteria are displayed (AND filter).
- When you access a validation screen, work area filters are still applied. Therefore, some tests may not be visible.

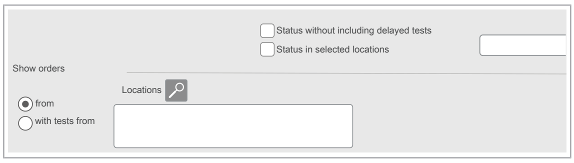
Status filters

You can recalculate the status of the work area and/or the work area orders based on the following:

- You include only the tests belonging to the selected location/s.
- You exclude delayed tests.

☐ Configured saved filters





To create and apply associative filters

1 Choose **Main > Work areas > [Work area]**.

2 From the drop-down list, choose the **Associative filter** button.

3 In the callout displayed, enter a name for the filter, and then choose two ore more filtering criteria.

4 To save the filter, choose the **Confirm** button.

5 From the **Filter** drop-down list, choose the created filter.

→ The work area is filtered according to the selected criteria.

To apply location and status filters

1 Choose **Main > Work areas > [Work area]**.

→ Depending on the type of monitoring screen that you are using, all the orders or tubes belonging to the work area are displayed,

2 In the **Show orders** or **Show tubes** group box, choose one of the following:

- **from** option: to display only the orders belonging to the site/s selected in the **Locations** callout.
- **with tests from** option: to display only the orders that contain any tests belonging to the site/s selected in the **Locations** callout.

3 If you want to filter status information, you have the following options:

- To calculate the work area status based only on the tests belonging to the sites displayed on the **Locations** callout, select the **Status in selected locations** check box.
- To calculate the work area status excluding delay tests, select the **Status without including delayed tests** check box.

→ All the status columns ([Alarms], [Number of pending tests], [Order status], [Pending medical validation], [Pending technical validation], [Pending tests], [TAT], [Test groups], [Tests pending rejection], [Time to reach delivery date], [Work area status]) are updated.

Related topics

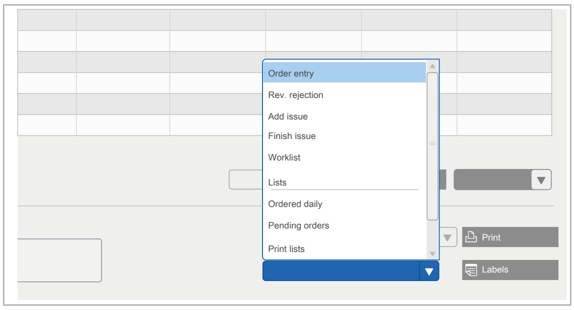
- Filtering information (46)

- Saving/deleting a filter (47)
- Viewing all order tests (152)

Printing work area order or tube lists

You can print order or tube lists displaying only the information that is relevant to your tasks.

Monitoring screens usually display several orders and tubes and a large amount of information. You can produce lists containing only some selected information. For example, you can print a list that contains only pending orders and its tests.



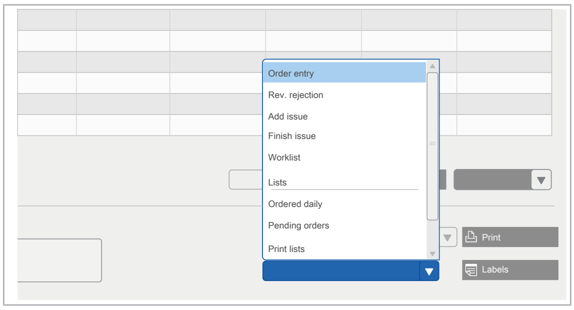
To print work area order or tube lists

1. Choose **Main > Work areas > [Your work area]**.
2. Choose the **Print lists** button.
   → A callout is displayed.
3. Do the following:
   - Choose either the **All** or the **Selected** option and, in the latter case, select the desired orders or tubes.
   - Choose the status of the orders or tubes to be displayed (with results, pending validation, and so on) by selecting one or more check boxes.
4. Choose the **Tests**, **Tubes**, or **Sample types** buttons to create a list of orders or tubes with the corresponding tests, tubes (only for orders), or sample types.
   → A PDF list is generated.
5. Optionally, choose the or the icons to print or download the report.

Printing reports of work area pending tests

You can print reports of work area tests grouped by status (tests pending results, technical or medical validation, and so on).

The reports also inform you about any missing mandatory patient demographics or patient information.



To print a report of pending tests

1 Choose **Main > Work areas > [Your work area]**.

2 Choose the **Pending orders** button

3 In the **Work area tests** dialog box, specify which tests or test groups you want to display.

4 If necessary, choose a test group from the **Work area groups** drop-down list or choose the single tests from the **Available groups/tests** dialog boxes.

5 Choose the status of the tests to be displayed (pending results, validation, and so on).

6 Optionally, choose the following options:
   - **View work area filters**: the report shows the filters applied in the work area.
   - **Display legend**: a legend of the abbreviations used in the report is shown in the last page.
   - **Order without tests**: the report shows orders with no associated tests.

7 Choose the print button, and then choose the TXT, HTML, or PDF option.

8 Optionally, choose the or the icons to print or download the PDF report.

Printing labels from a work area

You can print all or some of the labels related to the orders that are being processed in the lab.

☐ Printers configured
☐ Labels configured

To print labels from a work area

1 Choose **Main > Work areas > [Your Work area]**.

2 Select the orders you want to print the barcode labels of.

3 Choose the **Labels** button.

   ⓘ If you do not select any order, the labels of all the orders in the table are printed.

4 In the callout, in the **Select printer** area, choose the required printer.

5 From the **Order list** area, choose the order labels you want to print.

6 From the **Options** area, do one of the following:

- To print a specific label type, choose the **Order ID** option. Then, from the **Label** drop-down list, choose the desired type and enter the number of copies you want to print.
- To print the labels according to the configuration, choose the **Depending on configuration** option.

By choosing the **Depending on configuration** option, all labels configured by your administrator in the **Label assignment** screen are printed.

7 Choose the **Print** button.

8 Additionally, if you want to cancel the process, choose the **Cancel printing** button.

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Result entry and validation

In this chapter 6

Entering and editing results manually

Most test results are received by the analyzers and entered automatically in the software. However, results can also be entered manually.

Test results can be entered from various screens. Depending on the screen and its configuration, the steps you have to follow can differ slightly from the ones described.

You cannot enter results for **cobas e** flow tests.

⚠ WARNING!

Manual result entry

Risk of wrong results

- Verify that tests are assigned to the correct instruments.
- Apply correct manual assignation of test location; with awareness of permissions required for result editing/viewing dependent on location.

⚠ CAUTION!

Manual result input and result format

Erroneous results

- Use codified results to avoid incorrect or non-existent data from manual or automatic input.

In this section

Entering results from a worklist

You can enter test results via your worklist, without having to access each order.

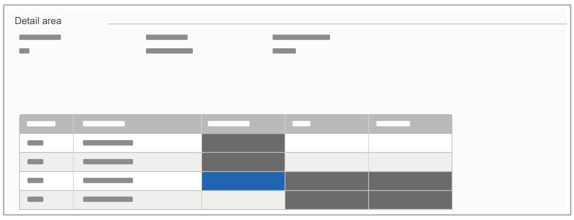
When you obtain the test results from an offline analyzer or from manual laboratory techniques, you can write them down in your worklist, and enter them manually in the software.

In the **Enter results** screen, the **Order** column displays the order ID and the assignment number when the following conditions are true:

- Accessing the worklist via the Microbiology module.
- A shared order is seeded.
- The **Work with assignment number** parameter is enabled.
- The **Print General Lab and Microbiology reports as a single report when working with shared orders** parameter is enabled.

Otherwise, this column only displays the order ID.

To enter results from a worklist



1 Choose **Main > Worklists > Print list**.

2 Select your worklist, and then choose the **Results** button.

3 In the relevant field, enter the test result value, and then press Enter.

- Optionally, to enter the same result for a test in all the orders, choose the corresponding test result and then choose the **Column** button.

Depending on whether you have chosen the **Vertical** or the **Horizontal** option in the **Direction** group box, the cursor moves to the next vertical or horizontal cell.

In a multisite environment, you can only enter or edit results of tests associated with your current location.

4 Once you have entered all the results, choose the **Confirm** button.

5 If required by the software, enter the results again, and then choose the **Confirm** button.

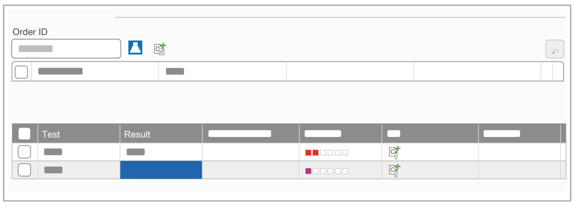
The software checks whether the results entered the first and second time match.

Entering results by order

You can select an order or a batch of orders and enter or modify their test results.

- ☐ At least an existing order with tests
- ☐ **Enter results** rights

To enter results by order



1. Choose **Main > Validation > Result entry**.
2. Enter the order ID, and then, press Enter.
3. Enter the first test result in the corresponding field, and then press Enter to move to the following field.
   → The icon in the status column is updated.
4. Choose the **Save** button.

Entering results by test

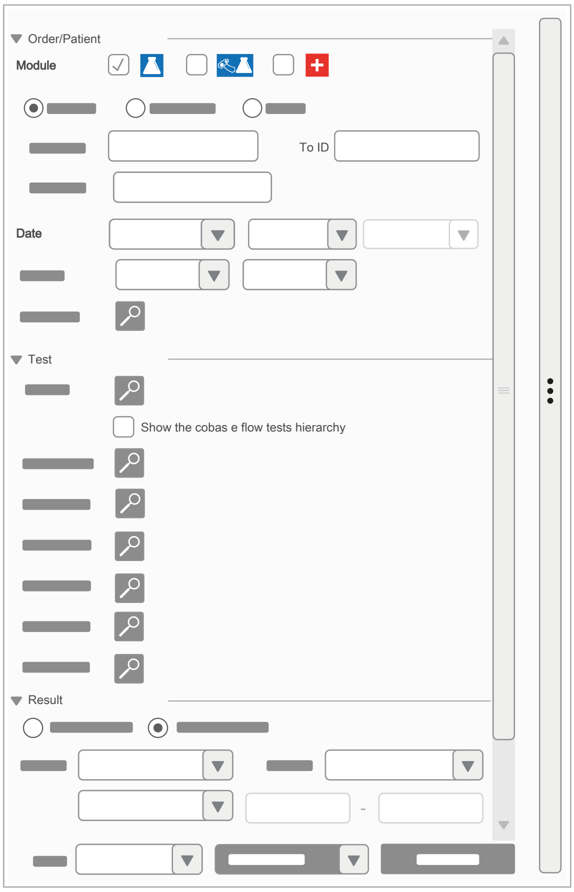
You can view all the orders containing a certain test, or group of tests and enter their results.

This feature can be used, for example, to enter all the results of a test performed by a certain analyzer without opening each order separately.

- ☐ **Enter results** rights

To enter results by test

1. Choose **Main > Validation > Query/Validation by test**.
   ℹ If the filter area is not displayed, click on the splitter.



2 Choose the filters to be applied:

- **Order/Patient** fields include module, date, time, order or tube ID, patient ID, and 2 other order or patient demographics.
- **Test** fields include test name, sample type, instrument, result status, alarm, and test location. Optionally, to display the hierarchy of **cobas e** flow main and embedded tests in the table, select the **Show the cobas e flow tests hierarchy** check box.
- **Result** fields include result type (numeric or alphanumeric), reference ranges, test status, result date and time.

ⓘ Depending on your configuration, you may see different order and patient fields.

3 Choose the **Search** button.

→ One entry per test is displayed on the result table.

4 Enter the first test result in the corresponding field press Enter to move to the following field.

5 Optionally, in the **Instrument** column, choose the instrument associated with the test result.

ⓘ The columns displayed in the grid depend on your configuration.

6 Choose the **Save** button.

About the Query/Validation by test screen

The **Query/Validation by test** screen includes special features, especially concerning filters.

Column length and sorting

- The length of the table columns can be modified by dragging them.
- The items displayed in each column can be sorted by clicking on the column header. Tests are sorted following the order set during their configuration.

Access from a work area

Depending on your configuration, you can also access the **Query/Validation by test** screen from your work area. In that case, consider the following:

- A warning message may inform you that the selected filters defined in your work area are also applied in the validation screen. For example, if the work area orders are filtered by "Doctor Smith", this filter is also applied in the validation screen, even if the **[> Physician >]** field is not displayed. This also applies to location and instrument filters.

- If you access the screen from the **V. & pend.med.** button or the **V. & pend.tec.** button, all orders containing a test that is pending validation are displayed.
- Once on the validation screen, you can apply more filters to narrow your search. However, you cannot widen your search. For example, if in the work area you applied the **Today** filter to consult the orders from the current day, in the validation screen you cannot apply the **Since yesterday** filter to consult the orders from the previous and the current day.

Filtering work area items (125).

Default filter

If the default filter is selected when accessing the screen, some fields are already entered.

Filter combination

Search criteria are combined by the AND operator, that is, only the items meeting each of the selected conditions are displayed.

Max. displayed records filter

This filter allows you to set the maximum number of records that are displayed after the application of the other filters.

This filter prevails over the maximum number of records set in the **Maximum number of records per search** general parameter.

Numeric filters

- Depending on your configuration, the software may not display all the result decimals (for example, the result field may display 0.6, even if the actual result sent by the instrument is 0.596). However, if you use the **Numeric** filter, you need to enter the full result sent by the instrument (in this case, 0.596) to obtain matches.
- You can search for specific results or result ranges. The relational operators used are the following:

Symbol	Description
=	The result must be equal to
<>	The result must not be equal to
<=	The result must be less than or equal to
>=	The result must be greater than or equal to
<	The result must be less than

Relational operators used in the numeric filters

Symbol	Description
>	The result must be greater than
Interval	The result must be included in the specified interval

Relational operators used in the numeric filters

Time filter

If you use the **Time** filter, consider the following:

- If you only enter the **From** field, the **To** field is automatically set to 24:00.
- If you only enter the **To** field, the **From** field is automatically set to 00:00.

Test result column

The font and color of the **Test result** field change according to the result status. If a result has several result statuses, the field is displayed in the format defined for the result status with the highest priority.

cobas e flow tests visualization

To see the hierarchy of **cobas e** flow main and embedded tests in the table, you must select the **Show the cobas e flow tests hierarchy** check box. Additionally, at least one of the following columns must be configured:

- [**Test name**]
- [**Test abbreviation**]
- [**Test result**]

If configured, the following icons/buttons are displayed in only one of the columns according to the above-listed order:

Icon/ Button	Description
▼ ▶	- Indicates that this test is a **cobas e** flow main test and that it has embedded tests. - Displays or hides the embedded tests.
↳	- Indicates that the test is a **cobas e** flow embedded test.
✓	- Indicates that the result of the **cobas e** flow main test comes directly from this embedded test. This icon only appears in the [**Test result**] column.

cobas e flow tests icons/buttons

Alternatively, you can use the **Expand all**/**Collapse all** buttons to display or hide all embedded tests in the order.

Previous results columns

In this screen, previous results from the same patient can be displayed in the following columns:

- **Last result in previous orders**
- **Last 5 results in previous orders**
- **Last 10 results in previous orders**

If more than one of these columns are configured in the screen, the one showing the largest amount of previous results is displayed.

By clicking in the previous results cell, details like the Sample ID and date are displayed for all the previous results of the row.

Related topics

- Filtering work area items (125)

Entering pre-configured results and comments

You can quickly assign pre-configured results and comments to tests.

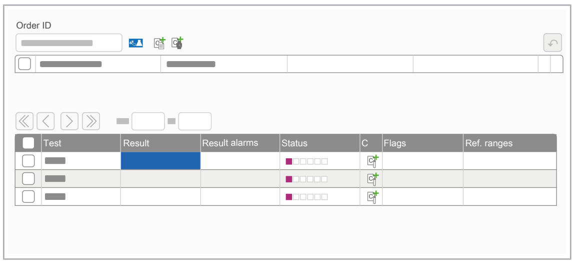
Some tests, such as pregnancy or monospot tests, have a limited range of results. You can quickly assign results and/or comments to such tests by using pre-configured buttons.

Each button is associated with a certain test, and is configured to contain a result and/or a comment. For example, you can have 2 buttons associated with the monospot test: one of them contains a positive result and the other one a negative result.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.

- ☐ **Enter results** rights
- ☐ A **Validation with result template** screen or a **Validation** screen with a **Template** tab associated with your work area



▸ To enter pre-configured results and comments

1. Choose **Main > Work areas > [Your work area]**.
2. Double-click the order to which you want to assign results.
   → The associated validation screen is displayed with the selected order.
3. To assign a pre-configured result and/or comment to the desired test, choose the corresponding button to the right of the table.
   → The result is displayed in the corresponding field, and the comment is assigned to the test.
   → If the test did not exist in the order, it is added to it.
4. Optionally, enter other test results manually in the corresponding fields.
5. Once you have entered all the test results, choose the **Save** button.

Related topics

- Entering results by order (135)
- Filtering work area items (125)

Entering urinalysis results

⚠ WARNING!

Validating erroneous results

Risk of validating erroneous results

- If you have the **Allow validation on the monitoring screen** check box enabled, when double-clicking an order in your work area, all tests of that order are validated.

You can manually enter coded comments to the sediment tests.

Depending on the results obtained for the urine strip test, you may need to perform a sediment test. You can then report the presence of blood cells, crystals, casts, and so on.

In the software, you can quickly enter coded comments to the sediment test by using a pre-configured button template. If you do not have a connected analyzer, you can also manually enter results for the urine strip tests.

Depending on your configuration, the sediment may be defined as a single test or as a test group:

- If the sediment is defined as a single test, you enter results as comments.
- If the sediment is defined as a test group, you enter results to the sediment test and comments to the generic sediment.

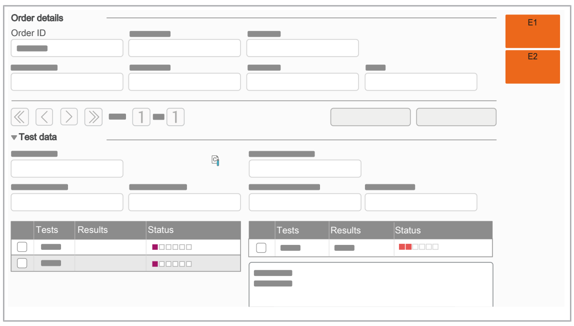
When you choose a button from the template, you automatically assign the associated comment to the sediment test. For example, when you choose COC, the "calcium oxalate crystals" comment is added to the table.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.

☐ A **Urinalysis** validation screen associated with your work area
☐ A sediment defined as a single test or as a test group
☐ Configured sediment tests and coded comments

To enter urinalysis results



1 Choose **Main > Work areas > [Your work area]**.

2 Double-click the desired order.
   → Your urinalysis validation screen displays the urine strip test table on the left and the sediment test table on the right.

3 If necessary, enter the urine strip test results.

4 If the sediment is defined as a single test, choose the button associated with the desired comment from the template.
   → The comment is added to the test table.

5 If the sediment is defined as a test group, do the following:
   - To assign a result to a sediment test, choose the button associated with the desired result from the template.

- To assign a comment to the generic sediment, choose the button associated with the desired comment from the template.

→ The results and comments are assigned to the test and to the sediment, respectively.

6 Optionally, choose the **Sediment** button to assign a pre-configured comment to the sediment test.

7 Choose the **Save** button.

8 If you have accessed the urinalysis screen with various orders, and you want to move to the following order containing a sediment test without results, choose the **Next Sed.** button.

Related topics

- Filtering work area items (125)

Configuring hematology counters

You can create hematology counters and edit existing counter settings to adapt them to your requirements.

Counters can be configured for a combination of cell types. The counting options and assigned keyboard shortcuts are displayed as a visual aid for manual counting.

Configured counters can also be used by other users. Therefore, if you delete a counter, it is deleted for all users.

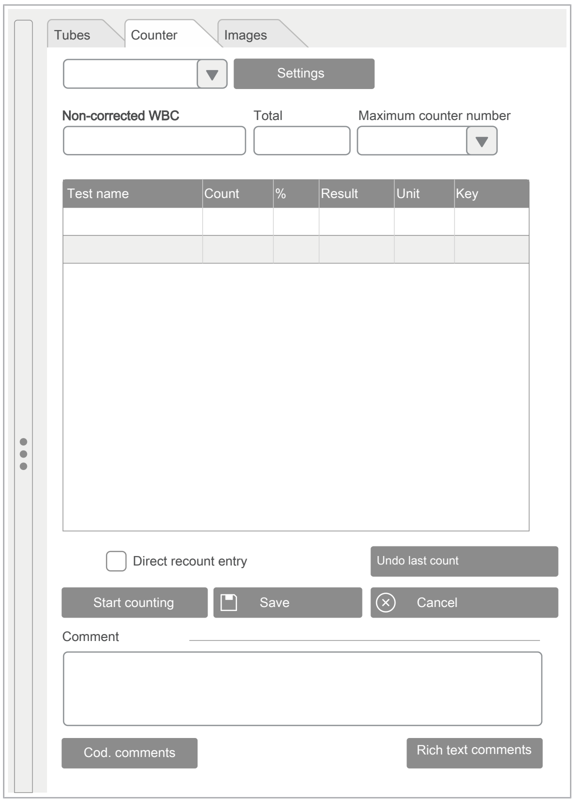
☐ **Hematology - Configure counter** right

Choose the required procedure:

To create hematology counters

1 Choose **Main > Work areas > [Your work area]**

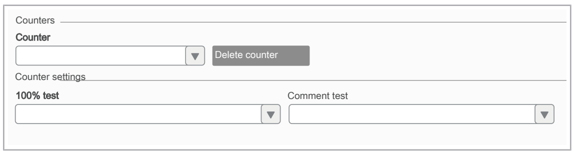
2 Choose an order to access the **Validation** screen.



3 Choose the **Counter** tab, and then, the **Settings** button.

4 From the **Counter** drop-down list, choose the **Create new counter** option.

5 In the **Counter name** field, enter a name for the counter.

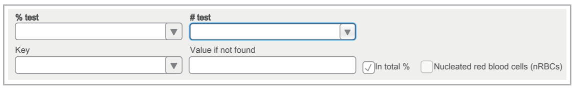


6 From the **100% test** drop-down list, choose the main hematology test, i.e. the leukocytes.

ⓘ The order must include a 100% test to use the counter.

7 From the **Comment test** drop-down list, choose the test to which the comments for all the hematology tests are associated.

8 From the **% test** drop-down list, choose the hematology test whose result is expressed as a percentage value.



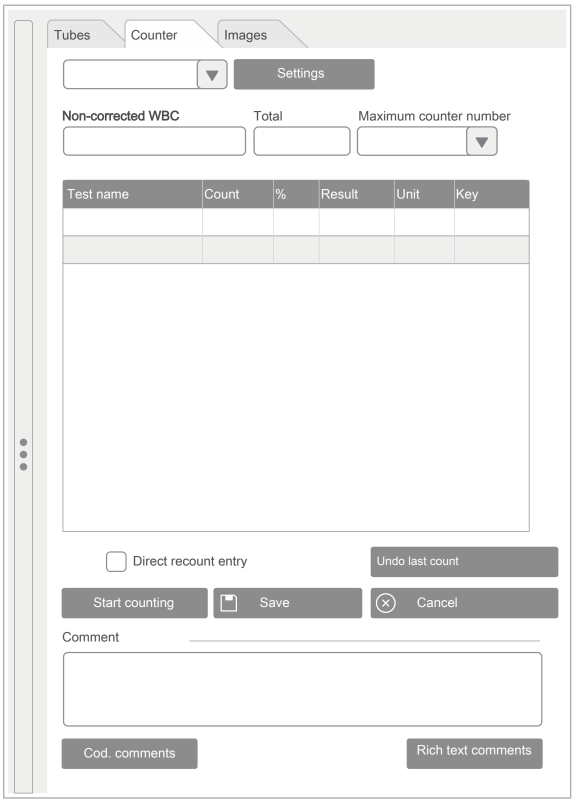
9 From the **# test** drop-down list, choose the hematology test whose result is expressed as an absolute value.

10 From the **Key** drop-down list, choose the key to manually count both tests in the counter.

11 In the **Value if not found** field, enter an automatic value to be displayed when no cells are found for the **% test** and the **# test**.

12 Alternatively, select the **In total %** check box to indicate that the tests in the **% test** and **# test** fields are to be included in the 100% test.

13 Alternatively, select the **Nucleated red blood cells (nRBCs)** check box if the analyzer is able to send the nucleated red blood cell count.



Since the analyzer already corrects the leukocyte count based on the amount of nRBCs, this option allows you to make further calculations based on the non-corrected cell count.

14 Choose the **Add** button to include the tests within the 100% test.

15 Repeat the previous steps for each test you want to add.

16 Choose the **Save** button.

To edit hematology counters

1 Choose **Main > Work areas > [Your work area] > Validation**.

2 Choose the **Counter** tab, and then, the **Settings** button.

3 From the **Counter** drop-down list, choose the counter you want to edit.

4 Double-click the test you want to edit.

- Alternatively, add or delete tests.

5 Choose the **Save** button.

Related topics

- Counting blood cells manually (144)
- About the manual cell counter (146)

Counting blood cells manually

If you suspect that the results sent by the automatic cell counter are not accurate or your software is not connected to an automatic cell counter, you can use the manual counter to quantify blood cells.

- ☐ **Enter results** right
- ☐ **View order tests** right
- ☐ **View results** right

☐ A configured hematology counter

☐ The **Counter** tab configured in your validation screen

☐ The 100% test with a result

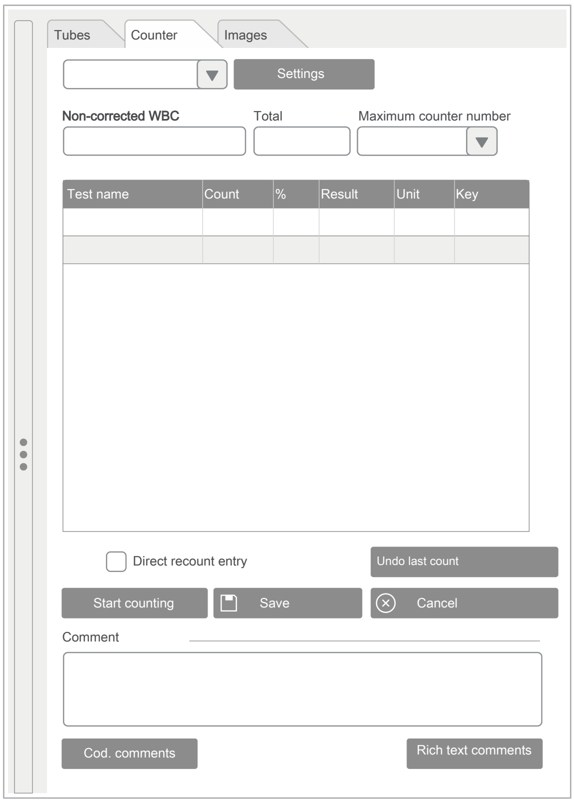
To count blood cells manually

1 Choose **Main > Work areas > [Your work area]**.

2 Choose an order to access the **Validation** screen.

> When accessing a validation screen from a work area, consider the following:
>
> - All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
> - By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Enter the result of the 100% test, and then, choose the **Save** button.



4 Choose the **Counter** tab.

ℹ In the **Images** area, you can check the test images if a test in the order has any.

5 From the **Maximum counter number** drop-down list, choose the maximum number of cells you want to count in order to calculate the percentage of each cell type.

6 Choose the **Start counting** button and press the corresponding key to count each blood cell you see.

→ Each cell count increases by 1.

→ If the counted cell is included in the 100% test, the **Total** counter increases by 1 until you reach the maximum number of cells.

7 Optionally, choose the **Undo last count** button to undo the last cell increase counting.

8 Optionally, select the **Direct recount entry** check box and do the following:

- Select a **Result** cell and enter the result manually.
- Press Enter and do the same for all the results you want to enter manually.

9 Optionally, to add a comment, do one of the following:

- Choose the **Cod. comments** button. In the callout, choose the desired coded comments, and then choose the **Confirm** button.
- In the **Comment** field, enter the desired plain text.
- In the **Comment** field, enter the desired coded comment ID, and then press Enter.

10 Choose the **Save** button.

Related topics

- About the manual cell counter (146)
- Filtering work area items (125)
- Configuring hematology counters (142)
- Completing a morphology assessment or review (167)
- Viewing and assigning comments (57)

About the manual cell counter

Manual cell counter operation

A common hematology test is the blood differential test, which quantifies the number and percentage of each type of white blood cell (WBC). The WBC test is used to calculate the 100% test, an absolute count of the white blood cell types determined by the user. Additionally, you can also count other types of blood cells, such as the metamyelocytes, which are not ordered with the WBC test, but may assist in particular patient pathology reports.

The non-corrected WBC

A type of cell that you may want to discount from the 100% test is the nucleated red blood cells (nRBCs). Due to continuing differentiation these erythroblast cells maintain a nucleus, which can result in their incorrect classification as lymphocytes, and can be mistakenly included in the WBC test. If the connected analyzer is able to differentiate these unique cell types, then the cell counter can be configured to consider this classification. If the analyzer can differentiate for nRBCs then the WBC count sent to the software and displayed on the validation screen is already corrected. That is, it does not include nRBCs in the test.

If these cells cannot be determined by the analyzer, the software applies a set mathematical formula to take into account these cells in the non-corrected WBC count. Through a manual cell count, this formula is adjusted and re-applied to justify the corrected WBC percentages in the validation screen.

Declaring results

If a test result indicates the presence of an infectious disease or of a given microorganism, you have to declare it to the competent health authority.

In this section

Declaring serology test results or microorganisms

The presence of possibly dangerous infections or microorganism has to be declared to local or national health authorities.

In the software, the whole process of declaring a serology result or a microorganism consists of three steps:

1. Tracking that the serology results or microorganism were declared.
2. Printing an epidemiological notification containing declared results or microorganisms.
3. Tracking that the relevant sample was sent to the reference center to be analyzed, and later, that the reference center sent back the result of the analyzed sample.

For General Lab serology results:

- ☐ A **Serology** work area associated with a **Validation by serology order** or other validation screen.
- ☐ The **Declare** button configured

For Microbiology microorganisms:

- ☐ A configured list of microorganism to be declared

To declare a serology result

1 Choose **Main > Work areas > [Your work area]**.

2 Double-click the desired order.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Select the check box of the test result you want to declare, and then, choose the **Declare** button.
→ The **Epidemiological record** screen is displayed.

4 In the **Types of print** area, choose one or more types of epidemiological notifications to be printed at a second stage.

5 If you want to send the sample to a reference center at a later stage, select the **Sent/received** check box.

6 Choose the **Confirm** button.
→ On the **Validation by serology order** screen, the declared results column displays a icon.

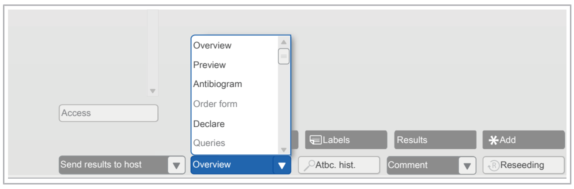
To declare a Microbiology microorganism

1 Choose **Main > Work areas > [Your work area]**.

2 Choose the required area and choose the **Results** button.

3 Enter the order ID, and then, press Enter.

4 To enter the result, double click the isolate field, choose the microorganism, and then, the **Confirm** button.
→ If this is included in the list of microorganisms to be declared, a icon is displayed on the **Results** screen.



5 Choose the **Declare** button.
→ The **Epidemiological record** screen is displayed.

6 In the **Types of print** dialog box, choose one or more types of epidemiological reports to be printed at a second stage.

7 If you want to send the sample to a reference center at a later stage, select the **Sent/received** check box.

8 Choose the **Confirm** button.

→ On the **Results** screen, the declared results displays a ● icon.

▶ To print an epidemiological report

1 Choose **Main > Queries > Epidemiological record**.

→ All the declared serology results and microorganisms are displayed.

2 Select the check box of the result you want to print.

3 Depending on the type of report you want to print, choose the desired printing button.

ℹ The available types of report are the ones previously selected in the **Validation > Epidemiological record** screen.

▶ To send a sample to a reference center and receive results

1 Choose **Main > Queries > Sent/received**.

→ The screen displays the declared serology results and microorganisms whose **Sent/received** check box was selected in the **[Validation] > Epidemiological record** screen.

2 Choose the sample you want to send to a reference center, and then, choose the **Send** button.

→ The **Tx/Rx status** changes to **Not received yet**.

3 Once you receive the sample results from the reference center, choose the **Receive** button.

→ The **Tx/Rx status** changes to **Received**.

Editing or deleting a declared serology result or microorganism

After declaring a result or microorganism, you can still edit the type of report or some demographic data. You can also delete a declaration, if a mistake was made.

- ☐ A declared result or microorganism
- ☐ Rights to edit test results

▶ To edit or delete a declared serology result or microorganism

1 Choose **Main > Queries > Sent/received**.

2 Select the check box of the record you want to edit, and then, choose the **Edit** button.

→ The selected record is displayed on the **Epidemiological record** screen.

3 Do one of the following:

- Edit the record demographic data, the **Sent/received** options, or the **Types of print** options, and then, choose the **Confirm** button.
- To undo the result declaration, choose the **Delete** button.

→ The result or microorganism is no longer displayed as declared on the **Sent/received**, **Epidemiological record**, and validation screens.

Verifying and validating results

⚠ WARNING!

Repeating or deleting results by mistake

Risk of delayed results

- Pay attention when dealing with patient results.

⚠ WARNING!

Using images with tests

Risk of results being misinterpreted

- Use the zoom feature to view images in more detail.
- Images must be used together with numerical results and any additional information provided by the instrument.

⚠ WARNING!

Unseen results

Risk of validating erroneous or unseen results

- If you have the **Allow validation by tests** check box and the **Allow validation on monitoring screen** configured in your work area and no **Validation criterion** configured, you can validate all tests from an order without seeing them all.

⚠ CAUTION!

Validating results

Risk of result being misinterpreted or delayed results

- Before validating results, it is strongly recommended to check the previous test results and comments.

Test results can be verified and validated from various screens. Depending on the screen and its configuration, the steps you have to follow can differ slightly from the ones described.

In this section

Checking result consistency before validation

Before validating an order, you may need to check result consistency by requesting new tests, viewing the patient's history, and so on.

Most of the described tasks can be performed on various validation screens. The relevant buttons and tabs must have been configured by your software administrator.

In this section

Viewing all order tests

Depending on your configuration or on the filters applied, some tests may be hidden when accessing a validation screen. However, you can display them to check result consistency.

When you access a validation screen from a work area, some tests may not be displayed for the following reasons:

- They do not belong to that work area and your validation screen is configured to display only the tests associated to the work area.
- They do not belong to the location selected in the work area as a filter.

However, you can display all the tests belonging to the selected order before you validate any results. For example, if the C-reactive protein count is high, you can consult the WBC results to confirm an aseptic infection.

- ☐ **View order tests** rights
- ☐ The **Complete**/**T. to validate** button configured

To view all order tests

1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Choose the **Complete** button.
→ All the tests assigned to the order are displayed.

Depending on your rights, you can view or edit these tests.

4 Optionally, choose the **T. to validate** button to hide the tests again.

Related topics

- Filtering work area items (125)

Adding/deleting tests to/from an order

Based on the results of a first test, occasionally further tests may be required to make a diagnosis.

- ☐ An open order

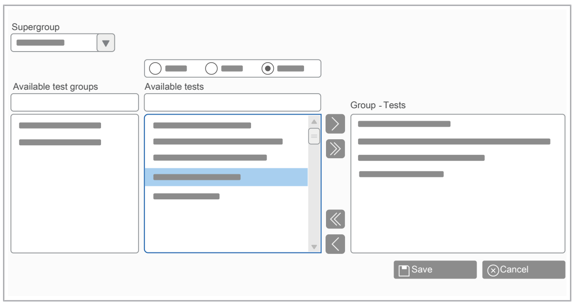
To add or delete a test to or from an order

1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.
→ Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.



3 Choose the **Sel. tests** button, or press F7.

4 From the **Supergroup** drop-down list, choose a supergroup.

5 From the **Available test groups** list, choose a test group.

6 To add a test to the order, choose the test from the **Available tests** list, and choose the button.

7 To delete a test from the order, choose the test from the **Group**-**Tests**, and choose the button.

8 Choose the **Save** button.

Related topics

- Assigning a test to an existing order (109)
- Filtering work area items (125)

Viewing the patient's previous orders

You can see previous test results for a certain patient to check result consistency and give an accurate diagnosis.

You can see the patient's previous orders via the **Patient history** tab.

If you are not using the validation screen described in this process, you can view the test results for previous orders as an additional column on the table. You can only see the last test result of the previous order. The software adds a column for each previous order that contains a last test result.

If you are using the validation screen explained in this process, you can view the test results for previous orders following one of these options depending on your configuration:

- Consulting the **Last result in previous orders** column that summarizes in a single column all the last test results from previous orders. You can see the order ID related to the test result via a tool tip.
- Consulting the **Last 5 results in previous orders**, or the **Last 10 results in previous orders** columns that display the orders that contain previous last test results in a maximum of 5 or 10 columns.
- Choosing the **Queries** button.

☐ A patient with previous orders

☐ A **Validation** screen associated with your work area

☐ The **Patient history** tab configured

To view the patient’s previous orders

1 Choose **Main > Work areas > [Your work area]**.

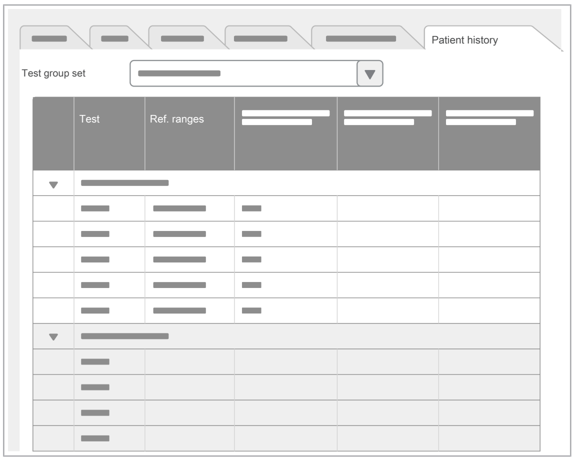
2 Double-click the desired order.

➔ Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Choose the **Patient history** tab.



4 Choose the test group set whose results you want to consult.
   → All the previous test results are displayed.
   → Comment, alarm, and epidemiological record icons are displayed, if any.

Related topics

- Viewing a patient's history (69)
- Filtering work area items (125)

Viewing the patient's evolution chart

You can have a graphic overview of the progress of test results by consulting the patient's evolution chart.

You can see the patient's evolution chart for as many tests as you want via the **Evolution** tab.

> Function test results cannot be displayed.

> If you are not using the validation screen explained in this process, you can see the patient's history by choosing the **Queries** button. Once on the **Patient history** screen, choose the **Evol. chart** button.

- ☐ A patient with previous test results
- ☐ A **Validation** screen associated with your work area
- ☐ The **Evolution** tab configured

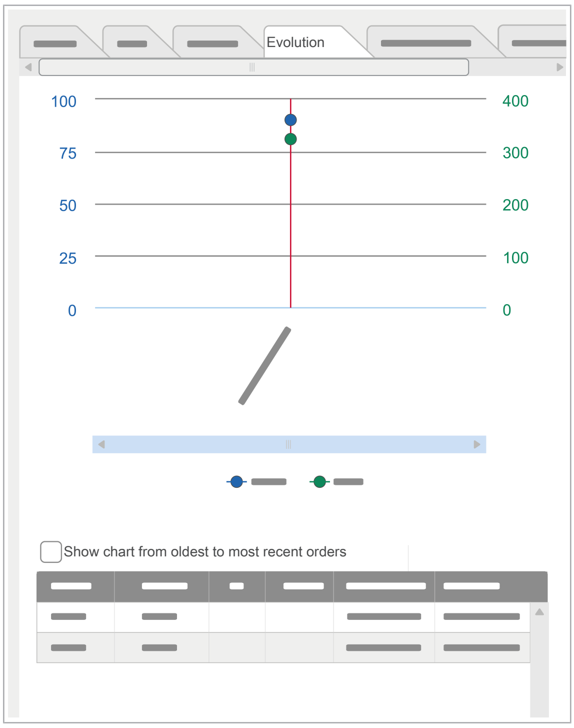
To view the patient's evolution chart

1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.
   → Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.



3 Select up to two test check boxes to see their results.

4 Choose the **Evolution** tab.

- Optionally, to see the results from oldest to most recent orders, select the **Show chart from oldest to most recent orders** check box.

→ The progress of the test results is displayed on a chart.

→ Information about the tests and the corresponding orders is displayed on a table.

Related topics

- Filtering work area items (125)

Viewing test details

You can view detailed information about a test, such as its reference ranges, delta check alarms, repetitions, and so on.

You can see the test details on the **Test** tab.

If you are not using the validation screen explained in this process, you can display some test details by choosing the **Repetitions** button.

☐ A **Validation** screen associated with your work area
☐ The **Test** tab configured
☐ Configured reference ranges, delta checks for the selected test

To view test details

1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.
→ Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

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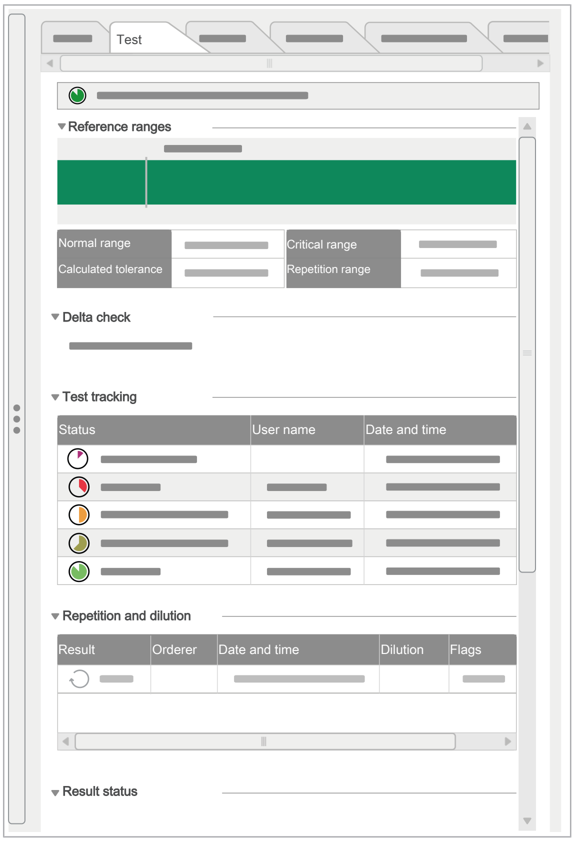
3 Select the check box of the desired test.

When a test result is longer than 11 characters, an automatic result is set as result and the received result is set as a comment.



4 Choose the **Test** tab to display the following information:

- The test name, status, and result.
- **Reference ranges**.
- **Delta check**: The difference between the current and the previous test result in absolute and percentage values.
- **Test tracking**: The date and time of all the status changes, and the actor who performed the action.
- **Repetition and dilution**:
  - The date and time in which the test has been repeated.
  - The corresponding result and its associated flags.
  - The comments from previous results.
  - The dilution factor applied.
- **Result status**: The name and description of all test result statuses sorted by priority.

The time saved in the **Test** tab corresponds to the register date/hour and the time when the result is saved corresponds to the value result date/hour.

Related topics

- Filtering work area items (125)
- Repeating tests (168)
- Repeating tests with dilution (169)
- Reviewing control or calibrator results (253)
- List of tab details (164)

Viewing QC details

To verify that the instrument was working correctly when the test was performed, you can view information on the related QC and calibration.

You can see these details on the **QC** tab.

If you are not using the validation screen explained in this process, you can display some QC details by choosing the **QC** button.

- ☐ A **Validation** screen associated with your work area
- ☐ The **QC** tab configured
- ☐ QC data for the selected test

To view QC details

1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.
→ Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Select the check box of the desired test.

4 Choose the **QC** tab to display the following QC information:

- The test and instrument name.
- The test status for each related QC result within the configured time range which is accepted.
- The graphical representation of these results in the Levey-Jennings chart.
- The statistic values for each Instrument-Test-Control-Lot combination.

5 To display information about the related calibration results, choose the **Calibrations** button.

Related topics

- List of tab details (164)
- List of QC result review screen items (268)
- Filtering work area items (125)

Viewing Average of Normals details

You can view Average of Normals information related to a test-instrument combination.

You can see these details from the **AON** tab.

This option is not available for functional tests.

- ☐ A **Validation** screen associated with your work area
- ☐ The **AON** tab configured
- ☐ AON data for the selected test

To view AON details

1. Choose **Main > Work areas > [Your work area]**.
2. Double click the desired order.
   → Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3. Select the check box of the desired test.
4. Choose the **AON** tab to display the following information:
   - The test and instrument name.
   - The test status for each related AON result within the configured time range which is accepted.
   - The graphical representation of these results in the Levey-Jennings chart.
   - The statistic values for each AON profile.

Related topics

- List of tab details (164)
- List of AON Result review screen items (92)
- Filtering work area items (125)

Viewing hemogram images

You can view the images sent by hematology analyzers from a work area.

The main purpose of hematology tests is to identify and quantify blood cells. The images sent by hematology analyzers allow you to identify the cells contained in a blood sample.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

Choose the procedure corresponding to your type of validation screen:

To view hemogram images using a Validation with charts screen (162)

To view hemogram images using a Validation screen (162)

- ☐ A **Validation with charts** or **Validation** screen associated with your work area
- ☐ Configured hemogram images

To view hemogram images using a Validation with charts screen

1 Choose **Main > Work areas > [Your hematology work area]**.

2 Double-click the order for which you want to see the images.

→ The **Validation with charts** screen is displayed.

→ The right area displays the hemogram images sent by the analyzer for the current order.

3 Optionally, do the following:

- To hide or show hemogram images, choose the **Charts** button.
- To zoom in and out, choose an image.

To view hemogram images using a Validation screen

1 Choose **Main > Work areas > [Your hematology work area]**.

2 Double-click the order for which you want to see the images.

→ The **Validation** screen is displayed.

→ The tabs available for this screen are displayed on the right area.

3 Choose the **Images** tab.

The tab name may differ depending on the configuration.

→ The images sent by the analyzer for the current order are displayed.

4 To see previous images for this patient, choose the **View prev. images** button.

The button is only enabled if there is a previous order with images for this patient.
Only the last order with images is available. It is displayed on screen but not in the report.

Related topics

- Counting blood cells manually (144)
- About the manual cell counter (146)
- Filtering work area items (125)

Viewing tube and sample information

You can display the images of the tube you are using, as well as track the tube position and view the sample quality.

If you are using a **Validation** screen, you can see tube and sample information on the **Tubes** tab.

If you are not using the validation screen explained in this process, you can view tube information in the **Order details** area.

- ☐ Configured tube images
- ☐ A **Validation** screen associated with your work area
- ☐ The **Tubes** tab configured

To view tube and sample information

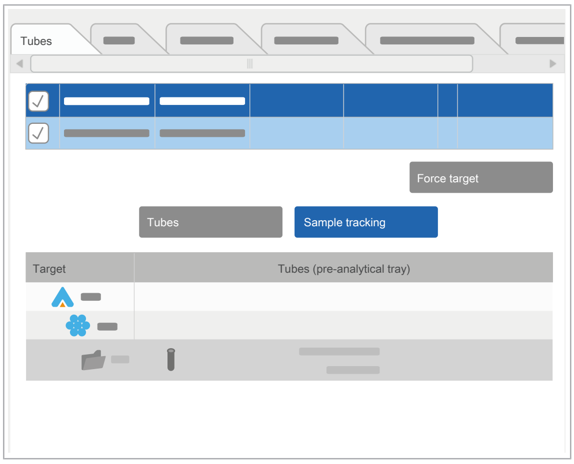
1 Choose **Main > Work areas > [Your work area]**.

2 Double click the desired order.

→ Your **Validation** screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.



3 Choose the order you want to validate, and then, choose the **Tubes** tab.

→ The tubes used for the selected order are listed on the upper table, which displays the following information: tube ID, name, target, position, sample quality, and sample volume.

The following sample quality codes may be displayed: I (icteric), H (hemolyzed), H+ (highly hemolyzed), L (lipemic).

4 Select the check box of the desired tube, and do one of the following:

- To display the tube images, choose the **Tubes** button, and then, choose the desired image to zoom in.
- To display the route of the tube in the targets, choose the **Sample tracking** button.

The ⚠ icon on the **Tubes** tab header indicates that some filters are applied. Therefore, some tubes or tube tests are not displayed.

Related topics

- Filtering work area items (125)

List of tab details

The following icons, and color codes are specific to the **Validation** screen.

Test tab

Reference range color code

The test result is displayed on a chart where colors represent different reference ranges:

- Green: normal range

- Orange: tolerance range
- Red: critical range
- Gray: outside range
- White: no reference ranges defined

Delta check alarm icons

The difference between the current and the previous test result may trigger a delta check alarm:

Icon	Type of delta check
	Decreasing delta check (the current result is lower than the previous one).
	Increasing delta check (the current result is higher than the previous one).
	Alphanumeric delta check.

Delta check alarm icons

Test tracking

The **User name** column displays the name of the actor who performed the action. However, if the software performs the action it displays one of the following options:

- "SYSTEM_RULENGINE": actions performed by rule engine.
- "SYSTEM_DAILYPROC": actions performed by the end-of-day process.
- "~SYSValDaemon~": validation actions performed automatically
- "~System~": other actions performed by the software, e.g. formula calculations

Result status

Result statuses determine the font and color in which test results are displayed in the **Test result** column.

If a test result has several result statuses, the field is displayed in the format defined for the result status with the highest priority.

QC tab

Controls

The status of the controls related to the result are displayed on a chart where the icons represent the following:

Icon	Control status
✓	QC OK
⚠	QC warning
⚠	QC error
[...]	Pending closure due to a bracketing rule

Controls icons

Calibrations

In the **Result** column, if there is a test comment, the C icon is displayed. You can see the comment in the resul'ts tooltip.

AON tab

AON status

The status of the AON profile related to the result are displayed on a chart where the icons represent the following:

Icon	Control status
✓	AON OK
⚠	AON warning
⚠	AON error

Controls icons

Requesting reviews in hematology orders

When a hematology test result is not clear, you can request an image-based cell morphology review. If after a morphology review the result is still not clear, you can also request a pathologist's review.

- ☐ The corresponding buttons configured
- ☐ The **Hematology - Request pathologist review** or **Hematology - Request morphology** right

To request a morphology review

1. Choose **Main > Work areas > [Your work area]**.
   - Alternatively, choose **Main > Work areas > [Your work area] > Validation**.
2. Select an order or test, and choose the **Req. morphology** button.

- Alternatively, to cancel a request, select an order or test and choose the **Undo request** button.

To request a pathologist review

1 Choose **Main > Work areas > [Your work area]**.

- Alternatively, choose **Main > Work areas > [Your work area] > Validation**.

2 Select an order or test, and choose the **Req. review** button.

- Alternatively, to cancel a request, select an order or test and choose the **Undo request** button.

Related topics

- Viewing hemogram images (161)

Completing a morphology assessment or review

When you receive a request to assess or review a morphology, you must verify manually that you finished the assessment or review.

☐ The **Hematology - Morphology user**, **Hematology - Morphology senior user**, or **Hematology - Pathologist user** right

To complete a morphology assessment or review

1 Choose **Main > Work areas > [Your work area]**.

- Alternatively, choose **Main > Work areas > [Your work area] > Validation**.

2 Select an order or test, and choose the **Task completed** button.

Related topics

- Viewing hemogram images (161)
- Requesting reviews in hematology orders (166)
- Counting blood cells manually (144)

Repeating and holding test results

You can repeat a test to check its results and track all the repetitions performed. You can also prevent a test result from being printed or sent to the host for some time to verify its consistency.

When a test result is out of the repetition range, the software automatically saves the test result as a previous result, and asks for a repetition. If the result of the test repetition is also out of the repetition range, the result is saved and the software does not ask for another repetition.

In this section

Repeating tests

You can repeat a test when you are unsure about the correctness of the result.

For **cobas e** flow tests, when you order a repetition for a main or embedded test, the rest of the tests in the **cobas e** flow test are repeated too. If an automatic result is configured for the **cobas e** flow test, it is set for all its embedded tests.

- ☐ A test with a result
- ☐ The **Repeat** button configured
- ☐ The **Last repeated res.** and the **Repetitions** columns configured

To repeat a test

1 Choose **Main > Work areas > [Your work area]**.

2 Double-click the desired order.
   → Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Select the check box of the test that you want to repeat, and then, choose the **Repeat** button.

If you are using a **Validation** screen, you can also choose the button.

→ The **Last repeated res.** column displays the previous test result, and the **Repetitions** column displays the number of repetitions performed.

→ The **Test result** column displays the new result, when available.

→ If you request a repetition of a test that is assigned to a diluted tube, the test is reassigned to the primary tube and the dilution factor is no longer applicable.

Related topics

- Repeating tests with dilution (169)
- Filtering work area items (125)

Repeating tests with dilution

Some tests return very high results and you need to dilute the sample to repeat the test.

You can request the instrument to dilute the sample and rerun a test, or a set of tests of the same tube type.

Alternatively, you can request a manual dilution. In this case, the dilution is performed in a new tube, with a new tube ID and label. To avoid duplicated tube IDs, the new tubes are always created with incremental IDs. However, you can configure the format. You can also configure the label to include the dilution factor value.

You cannot repeat **cobas e** flow tests with dilution.

- ☐ A test with a current result
- ☐ The **Repetitions** button configured
- ☐ A **Validation** screen with the **Dilution factor** column or the **Test** tab configured

To repeat a test with instrument dilution

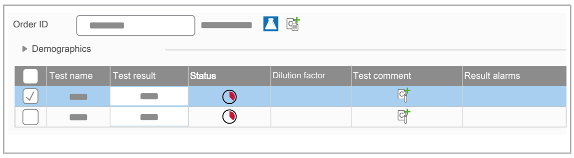
1 Choose **Main > Work areas > [Your work area]**.

2 Choose the desired order.

→ Your validation screen is displayed.

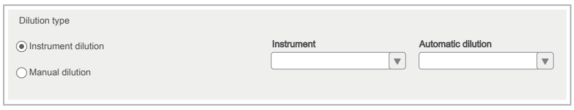
When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.



3 Select the check box of the test you want to repeat with a dilution, and then choose the **Repetitions** button.

4 In the **Repetitions** screen, choose the current result.



5 In the **Dilution type** area, choose the **Instrument dilution** option.

6 From the **Instrument** drop-down list, choose the analyzer to repeat the test.

7 From the **Automatic dilution** drop-down list, choose the dilution factor to be applied to the sample.

8 Choose the **Save** button.

If you are using a **Validation** screen and you manually change the test result, the dilution factor is automatically removed from the **Dilution factor** column.

To repeat a test with manual dilution

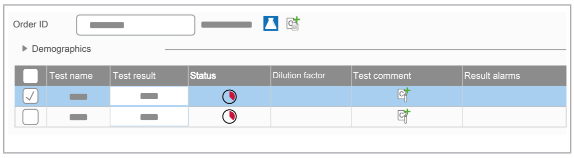
1 Choose **Main > Work areas > [Your work area]**.

2 Choose the desired order.

→ Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.



3 Select the check box of the test you want to repeat with a dilution, and then choose the **Repetitions** button.

4 In the **Repetitions** screen, choose the current result.

5 In the **Dilution type** area, choose the **Manual dilution** option.

6 In the **Dilution factor** field, enter the integer value to be applied.

- If you request a repetition with manual dilution of a test that is already assigned to a diluted tube, you must enter the aggregation of all the dilutions applied.

The value must be equal to or higher than 2.

7 Select the **Print label** check box and do the following:

- From the **Label** drop-down list, choose the desired label.
- From the **Printer** drop-down list, choose the desired printer.

8 Optionally, if the order chosen has several tests for the same tube type, you can add them to the new diluted tube:

- Choose the button and select the desired tests.
- Choose the **Confirm** button.

9 Choose the **Save** button.

→ A pop-up message appears to show the new tube ID created.

10 Optionally, to retrieve the new tube, do the following:

- On the **Tubes** tab, select the new tube check box.
- Choose the **Force target** button.
- From the **Send to** drop-down list, choose the desired target.
- Choose the **Force target** button.

Related topics

- About test dilution (172)
- Filtering work area items (125)
- Establishing previous test results as current results (175)

About test dilution

Some tests, such as tumor markers, usually return very high results that are not compatible with some analyzers. You can reduce the concentration of the sample by diluting it. This dilution can be done manually or automatically.

About instrument and manual dilution

After repeating a test with instrument or manual dilution, the following behaviors are possible:

- If the result is entered manually or it does not come from an instrument, e.g. it is sent by HCA, it is not automatically multiplied by the dilution factor. Therefore, you must do the calculations. If you assign an instrument to the result, it is not multiplied by the dilution factor either.
- If the result is sent by an instrument, you must not do any calculation. The received result is already multiplied by the dilution factor. In case of alphanumeric results that cannot be transformed, the dilution factor is not applied. Additionally, the software adds a comment to the test.

About manual dilution in an aliquot tube

If the current workflow is configured with an aliquot node with specific tests and the **Move tests from primary tube** option is selected, tests assigned to a diluted tube can move to an aliquot tube. The dilution factor assigned to the tests is moved as well.
The possible behaviors are the same as the ones described in the section above.

When the aliquot tube expires, the tests are assigned back to the diluted tube. The aliquot tube can expire when you reset its corresponding node, or when the maximum time defined to release tests elapses.

Related topics

- Repeating tests with dilution (169)

Holding and releasing test results

You can prevent a test result from being printed or sent to the host, in case you need to perform any actions on it.

If you encounter any kinds of issues with your tests results, such as QC errors, you can temporarily hold a test result until you perform the necessary checks. You can then release the result, which is printed or sent to the host.

Depending on your configuration, holding a test may imply that the test group or the whole order is held. In that case, the test group or the order is not printed or sent to the host, until the test result is released.

- ☐ A test with a result
- ☐ The button configured (if you are using a **Validation** screen)
- ☐ The **Hold/Release** button configured (if you are using other validation screens)
- ☐ The relevant general parameter configured

▸ To hold a test result

1 Choose **Main > Work areas > [Your work area]**.

2 Double-click the desired order.
→ Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Choose the test you want to hold, and then choose the **Hold/Release** button.
→ The test is locked and the icon is displayed on the **Status** column.

4 To release the test, choose the **Hold/Release** button again.

Related topics

- About holding and releasing test results (174)
- Filtering work area items (125)

About holding and releasing test results

Holding a test result affects validation in different ways, depending on the configuration of the validation process.

About validating held test results

If both technical and medical validations are configured, and the test result is held during technical validation:

- The test is shown as pending technical validation until it is released.
- The test cannot be medically validated, until it is released.
- The test can only be released by users with technical validation rights.

If both technical and medical validations are configured, and the test is held during medical validation:

- The test is shown as pending medical validation until it is released.
- The test cannot be printed or sent to the host until it is released.

If technical and medical validation are performed in one step:

- The test is shown as pending validation until it is released.
- The test cannot be printed or sent to the host until it is released.

Hold/Release icons and buttons

On the **Validation** screen, you can hold or release a test by choosing the buttons displayed on the test table.

On the other validation screens, you can hold or release a test by choosing the **Hold/Release** button. An icon on the test table indicates the status of that test.

Icon/button	Validation screen	Action
	Validation screen	▪ It holds the result from being sent to the host and from being printed in a report. ▪ It indicates that the result is unlocked.
	Validation screen	▪ It releases the result. ▪ It indicates that the result is locked.
	Other validation screens	Indicates that the result is held technically.
	Other validation screens	Indicates that the result is held medically.

Hold/Release icons and buttons

Related topics

- Holding and releasing test results (173)
- Verifying and validating results (151)

Establishing previous test results as current results

After having repeated a test, with or without dilution, you realize that the last result you obtained is not valid. Therefore, you want to use a previous result as the current one.

For a **cobas e** flow test, if you set a result as current, all test results from the same run are set as current.

☐ More than one test result

To establish previous tests result as current results

1 Choose **Main > Work areas > [Your work area]**.

2 Double-click the desired order.
→ Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

3 Select the check box of a test, and then, choose the **Repetitions** button.

4 In the **Repetitions** screen, select the result you want to establish as the current one, and choose the **Current** button.

5 Return to your validation screen and then, choose the **Save** button.

→ The result you selected as current is now displayed as the test result.

Overriding result statuses and alarms

Some of the test results that you are checking are flagged with an alarm or result status which blocks their validation.

After reviewing the result alarms and statuses, you consider that they do not affect the result. Therefore, you want to remove their blockage to be able to validate them, but keep them for trace purposes.

In the **Order traces** screen, you can see if an alarm or result status has been overridden.

⚠ WARNING!

Overriding alarms

Risk of wrong results being validated

- Be careful when overriding blocking alarms.

- ☐ **Validate medically** right
- ☐ **Override alarms** button configured
- ☐ Tests with alarms or result statuses configured to hold validation

To override result statuses and alarms

1 Choose **Main > Work areas > [Your work area]**.

- Alternatively, choose **Main > Validation > Query/Validation by test**.

2 Double-click the desired order.

→ Your validation screen is displayed.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

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3 Select the check box of the tests whose alarms or result statuses you want to override, and then choose the **Override alarms** button.

4 In the callout, do the following:

- If there is more than one alarm/result status to be overridden, select the corresponding check boxes.
- Choose the **Override** button.

All alarms or results statuses configured to hold the validation, must be overridden to validate the test.

→ The alarm or result status blockage is released and the test can be validated.

Related topics

- Validating results manually (177)

Validating results manually

You can technically or medically validate a whole order or some of its tests according to your rights. However, the process differs slightly depending on the type of validation screen you are using and on the way you access it.

On the one hand, if you have the automatic validation configured, some orders or tests may be validated automatically. On the other hand, you have different options to manually validate test results:

- Validate a whole order or a test from the **Validation** menu.
- Select a batch of orders and validate their test results from the **Order selection** screen.
- Select some or all the orders of a work area and validate their test results.

When a test result is longer than 11 characters, an automatic result is set as result and the actual received result is set as a comment.

When you are validating **cobas e** flow tests, bear in mind that validating one of its tests means that all of them are validated too. Therefore, if one cannot be validated, none of them are. To validate **cobas e** flow tests, all embedded tests must be visible on the screen.

In this section

Validating test results manually

You can select a single order and manually validate its tests.

- ☐ **Validate technically** or **Validate medically** rights
- ☐ Tests with results

To validate test results

1 Choose **Main > Validation > Result entry**.

2 Enter the ID of the order you want to validate, and then choose Enter.

cobas e flow main tests are displayed in bold. You can choose the ▶ button next to them to display the embedded tests.
If the result of a main test comes directly from an embedded test result, the ✓ icon is displayed next to this embedded test result.

→ The selected order is displayed with its available results.

3 Do one of the following:
   - To validate all the order tests, choose the **Validate** button.
   - To validate only a test, select its check box, and then choose the **Test val.** button.

4 If necessary, enter your password.
   → The order or test results are validated according to user rights.

Validating results by selecting order batches

You can select a batch of orders and navigate through them to validate their results.

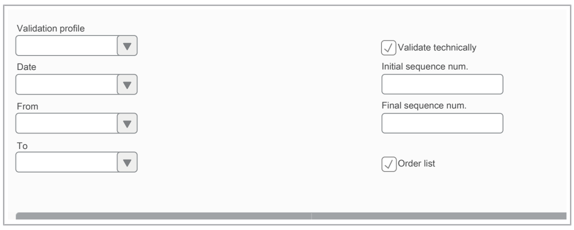
You can select a batch of orders to validate based on their dates or sequence numbers. Moreover, you can decide which validation profiles and criteria are applied in the validation process.

The available options depend on the configuration performed by your administrator.

- ☐ **Validate technically** or **Validate medically** rights
- ☐ Test with results

To validate results for order batches

1 Choose **Main > Validation > Order selection**.



2 From the **Validation profile** drop-down list, choose an option to determine the validation criterion to be applied and the manual validation screen to be displayed.
   ℹ If no validation profile can be selected, the software default profile is applied.

3 Choose the order range to be validated by entering the following:
   - **Date**
   - **Initial sequence num.** and **Final sequence num.** to indicate a sequence range, or **Order list** to include all the orders.

4 In the **Applications** dialog box, select the modules you want to validate.

5 Select the **Validate technically** and/or **Validate medically** check boxes to determine the type of validation to be applied.

6 From the **Validated by** drop-down list, choose whether you want to validate orders, tests, or test groups.

7 Choose the **Search** button.

→ The orders matching the selected criteria are displayed.

8 Do one of the following:

- To display all the orders on the validation screen, choose the **Validate** button.
- To perform validation and display only the pending orders, choose the **Validation** button in the lower right corner.

→ Your validation screen is displayed.

9 Navigate to the order you want to validate and do one of the following:

- To validate all the order tests, choose the **Validate** button.
- To validate only a test, select its check box, and then choose the **Test val.** button.

ⓘ If the result of a main test comes directly from an embedded test result, the ✓ icon is displayed next to this embedded test result.

→ The order results are validated, and the following order is displayed.

Validating results from a work area

Once your work area tests have results, you can access the associated validation screen to validate them.

The type of validation screen displayed depends on your configuration.

☐ **Validate technically** or **Validate medically** rights
☐ Test with results
☐ A validation screen associated with your work area
☐ Configured validation buttons
☐ Configured validation criteria

▸ To validate results from a work area

1 Choose **Main > Work areas > [Your work area]**.

2 If you want to display some specific test groups on your validation screen, choose them from the **Groups to filter by** drop-down list.

ⓘ The test group associated with your work area is selected by default.

3 If you want a validation criterion to be applied, choose it from the **Validation criterion** drop-down list.

4 Select one or more orders and choose one of the following buttons:

- **Technical validation**: The software validates all the possible tests according to your rights, without considering the validation criterion.
- **Medical validation**: The software validates all the possible tests (if they are technically validated) according to your rights, without considering the validation criterion.
- **Validate**: The software validates all the possible tests for the selected orders considering the work area validation criterion. Then, it displays the selected orders in the validation screen.
- **Validate all**: The software validates all the possible tests considering the work area validation criterion. Then, it displays all the orders in the validation screen.
- **V. & pend.tec.**: The software validates all the possible tests considering the work area validation criterion. Then, it displays the orders pending technical validation in the validation screen.
- **V. & pend.med.**: The software validates all the possible tests considering the work area validation criterion. Then, it displays the orders pending medical validation in the validation screen.

When accessing a validation screen from a work area, consider the following:

- All the filters selected in the work area are also applied in the validation screen. Therefore, if work area tests are filtered by location, the same filter is applied in the validation screen.
- By double-clicking an order in the work area, you apply the criterion selected in the **Validation criterion** drop-down list. Therefore, the orders matching the criterion are validated.

5 To manually validate the remaining orders, do one of the following:

- To validate all the order tests, choose the **Validate** button.
- To validate only a test, select its check box, and then choose the **Test val.** button.

If you are using a **Validation** screen, you can also choose the (technical validation) or (medical validation) buttons.

➔ The orders or tests are validated according to your rights.

Related topics

- Filtering work area items (125)

Sending validated results to the host from a work area

Once you have medically validated the results in your work area, you can easily send them to the host. You can also decide if you want to send all the results or only the ones that have not been sent yet.

Depending on the configuration of your work area, you can either send the validated results of all the tests included in one order, or choose the tests whose results you want to send.

This option is available only for regular or main tests.

- ☐ A work area that supports this feature
- ☐ Results medically validated

To send the results to the host

1. Choose **Main > Work areas > [Your work area]**.
2. Select the tests or orders whose validated results you want to send to the host.
3. To send the results to the host, choose one of the following buttons:
   - To send all medically validated results, choose the **Send results to host** button.
   - To send only the medically validated results that have not been sent yet, choose the **Send unsent to host** button.

Related topics

- Validating results from a work area (180)

List of result entry and validation screen items

The **Result entry** and validation screens may display several icons and buttons.

Test status icons

Depending on the type of validation screen that you are using, the status of a test can be represented by different icons.

Icon	Type of screen	Description
	All	The test has no results.
	All	The test has a result, but it is not validated.
	All	The test result is technically validated.
	All	The test result is medically validated.
	All	The test result has been printed or sent to the host.
	All	The order including the test is closed.
	Validation screen	The test has no results.
	Validation screen	The test has a result, but it is not validated.
	Validation screen	The test result is technically validated.
	Validation screen	The test result is medically validated.
	Validation screen	The test result has been printed or sent to the host.
	Validation screen	The order including the test is closed.

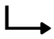
Test status icons

Validation screen icons/buttons

Depending on your configuration, the **Validation** screen result table may display a series of icons. Most of these also act as buttons and allow you to perform actions on the tests.

Icons/buttons	Description
	▪ Indicates that the test is held. ▪ Locks the test and prevents it from being sent to the host or included in reports.

Validation screen icons/buttons

Icons/buttons	Description
	▪ Indicates that the test is unlocked. ▪ Unlocks the test so that it can be sent to the host and included in reports.
	▪ Indicates that the test has not been repeated. ▪ Repeats a test.
	▪ Indicates how many times a test has been repeated. ▪ Repeats a test.
	▪ Indicates that the test is not technically validated. ▪ Validates the test technically.
	▪ Indicates that the test is technically validated.
	▪ Indicates that the test is not medically validated. ▪ Validates the test medically.
	▪ Indicates that the test is medically validated.
	▪ Indicates that this test is a cobas e flow main test and that it has embedded tests. ▪ Displays or hides the embedded tests.
	▪ Indicates that the test is a **cobas e** flow embedded test.
	▪ Indicates that the result of the **cobas e** flow main test comes directly from this embedded test.

Validation screen icons/buttons

Repeating tests (168).

Holding and releasing test results (173).

Validating results manually (177).

Test alarm icons

Test results, as well as actions performed on tests may trigger alarms. These are marked by icons displayed on the result tables. Additionally, the font and color of the **Test result** column change according to the result status or alarm.

If an alarm is displayed, but it seems incoherent as the test result is within the reference range, it means that the test result has been rounded and the real value does not fit within the reference range.

Icon	Description
	A high-severity alarm has been read.
	The test result is below the normal range.
	The test result is above the normal range.
	The test result is within the lower critical range.
	The test result is within the higher critical range.
	The alphanumeric test result is outside the reference range or the result value type is different from the defined one.
	The test has been reviewed technically.
	The test has been reviewed medically.
	The test is held technically.
	The test is held medically.
	The test result has triggered a delta check alarm.

Test alarm icons

List of tab details (164).

Validation screen buttons

Depending on your configuration, the following buttons may be displayed on your validation screen.

Button	Action	Reference
Add issue	Allows you to access the **Entry of issues** screen of the Total Quality Management module to create issues related to the order or the selected tests.	
Archive query	Allows you to consult the positions of the archived tubes of an order.	
Charts	Displays or hides the images received from the instruments.	Counting blood cells manually (144).
Complete / **T. to validate**	- **Complete** option: allows you to consult all the tests and their status even if they do not belong to the current work area. - **T. to validate** option: allows you to consult the tests, groups or supergroups for which the user has validation rights.	Viewing all order tests (152).
Counter	Allows you access the manual cell counter.	Counting blood cells manually (144).
Declare	Allows you to add a serology result to the epidemiological record that will be sent to the relevant health authorities.	Refer to the related topics.
Declared	Allows you to consult all the declared results or microorganisms.	Refer to the related topics.

Validation screen buttons

Button	Action	Reference
Detail	Allows you to access the **Main > Validation > Result entry** screen with the order the selected test belongs to.	Refer to the related topics.
External history records	Allows you to consult the history of a patient in an external system.	
Finish issue	Allows you to access the **Action management** screen of the Total Quality Management module and check the state of issues.	
Function tests	Allows you to enter function tests.	Refer to the related topics.
General Lab/ Emergency Lab	Allows you to convert an Emergency Lab order into a General Lab order and vice versa, if the order ID has the same configuration in both modules.	
Hold/Release	Allows you to temporarily prevent a test from being printed or sent to the host. The test can be printed or sent to the host once it is released.	Holding and releasing test results (173).
Microbiology	Allows you to access the Microbiology validation screen.	
Order form	Opens the scanned order form.	
Preview	Displays a preview of the final report.	
QC	Allows you to check the QC results of up to three tests.	Reviewing control or calibrator results (253).
Queries	Opens the **Patient history** screen to consult the patient's previous results.	Viewing the patient's previous orders (154).
Rejection	Allows you to review those tests which have been rejected or which are pending rejection.	Test rejection (110).
Repeat	Allows you to repeat the selected test.	Repeating tests (168).
Repetitions	Allows you to consult all the repetitions performed for the selected test.	Repeating tests (168). Repeating tests with dilution (169).
Review/ed	Allows you to add a mark to the test so that the technical or medical validator can check it.	
Rich text comments	Allows you to add rich-text comments.	Assigning rich-text comments (58).
Sel. tests	Allows you to add/delete tests to/from the order.	Adding/deleting tests to/from an order (153).
Test val.	Allows you to validate the selected tests.	Validating results manually (177).
Trace	Allows you to consult the details of the various steps the order has gone through.	
Send results to host	Allows you to send all medically validated results, even if they have already been sent.	Sending validated results to the host from a work area (183)
Send unsent to host	Allows you to send the medically validated results that have not been sent yet.	Sending validated results to the host from a work area (183)

Validation screen buttons

Related topics

- Declaring results (147)
- Entering results by order (135)

6 Result entry and validation

List of default result statuses

Result statuses are alarms that give additional information about the status of the test result. By default, the software provides the following set of alarms.

Depending on the configuration, these alarms may stop the validation process.

Some result statuses may be displayed differently. For any modification, contact your software administrator.

ALR

Indicates that the result is alphanumeric.

Empty results are not considered alphanumeric.

- Result status name: **Alphanumeric result**

AONE

Indicates that the AON result is out of the error threshold defined.

- Result status name: **AON error**

A warning notification is shown in the proactivity area when the AON and QC result locations do not match.

AONPSTATUS

It indicates that the association between patient results and their corresponding AON results is pending.

Result status name: **AON pending status**.

AR

Indicates that there is an average range alarm.

- Result status name: **Average range alarm**

AUTO

Indicates that the time to wait for SI test results has expired and the result has been calculated based on the default SI values.

- Result status name: **Auto. overruled (SI pending)**

BIA Indicates that the result has been blocked by a validation criteria with the rule “Hold with instrument alarms”.

- Result status name: **Blocked by instrument alarm**

BLO Indicates that a result is on hold due to a rule engine action.

- Result status name: **Hold result**

CAL Indicates that the result formula was successfully calculated.

- Result status name: **Result calculated**

CALE Indicates that the received result comes from an instrument with a calibration error.

- Result status name: **Calibrator error**

CALW Indicates that the received result comes from an instrument with a calibration warning.

- Result status name: **Calibrator warning**

DCA Indicates that the previous and current results match the configured delta check ones. Furthermore, they are defined as alphanumeric.

- Result status name: **AlphaNum Delta check**

DCH Indicates that the result is both within the defined range and under the higher limit, and it is greater than or equal to the previous result. Furthermore, it is defined as numeric.

- Result status name: **Delta check - high**

DCL Indicates that the result is both within the defined range and over the lower limit, and less than the previous result. Furthermore, it is defined as numeric.

- Result status name: **Delta check - low**

DCT Indicates that the delta check result is within the defined range and none of the 3 delta check alarms were triggered. Furthermore, it is defined as numeric or alphanumeric.

- Result status name: **Delta check evaluated**

ERV Indicates that an empty result was received from an instrument.

- Result status name: **Empty result**

FE Indicates that there is an error in the formula.

- Result status name: **Formula error**

HEM Indicates that the serum index was successfully calculated and the result was non-sensitive. Therefore, no SI alarm was triggered.

- Result status name: **Serum index non-sensitive**

IAR Indicates that an alarm from the instrument has been received.

- Result status name: **IAR Instrument alarm**

This alarm must be mapped in the **Alarm mapping** screen with the alarm used in the instrument.

IAU Indicates that an unknown alarm has been received from the instrument.

- Result status name: **IAU Unknown instrument alarm**

This alarm must be mapped in the **Alarm mapping** screen with the alarm used in the instrument.

IB Indicates that the result has been received from a blocked instrument.

- Result status name: **Result from blocked instrument**

IE Indicates that the instrument ID is not registered.

- Result status name: **Non-existent instrument ID**

IMI Indicates that a maintenance information message has been received from the instrument.

- Result status name: **Instrument maintenance**

IMQ Indicates that a QC maintenance information error message has been received from the instrument.

- Result status name: **QC maintenance error**

IMT Indicates that a test maintenance error message has been received from the instrument.

- Result status name: **Tests maintenance error**

IMTW Indicates that a maintenance warning message has been received from the instrument.

- Result status name: **Instrument maintenance warning**

IMU Indicates that the instrument module from which the result was received does not exist.

- Result status name: **Instrument module not existing**

IMW Indicates that a QC maintenance warning message has been received from the instrument.

- Result status name: **QC maintenance warning**

INA Indicates that the instrument is inactive.

- Result status name: **Inactive instrument**

INCAL Indicates that the formula is pending calculation as there are missing test results.

- Result status name: **Calculation pending**

IRH Indicates that the result is above the instrument reference range.

- Result status name: **Above instrument ref. range**

IRL Indicates that the result is below the instrument reference range.

- Result status name: **Below instrument ref. range**

IUE Indicates that the instrument is not docked to its home unit.

- Result status name: **Instrument not docked**

IUU Indicates that the instrument unit from which the result was received is not registered.

- Result status name: **Non-existent instrument unit**

MQC Indicates that there is an error in the QC material.

- Result status name: **QC material error**

MR Indicates that the result has been entered manually.

- Result status name: **Manual result**

MRE Indicates that an error message was triggered due to a rule violation.

- Result status name: **Rule violation error**

MRV It indicates that the current result differs from the result received from the instrument (raw result), due to a rule engine action, manual result entry, ICA settings, etc.

When the Blood Donor Screening is enabled in the licenses screen, the **Modified result value** result status becomes the result status with the highest priority.

Result status name: **Modified result value**.

⚠ **WARNING!**

Validation in a Blood donor screening environment

Risk of wrong results being validated

- If you perform Blood Donor Screening, it is recommended to not change the **Modified result value** result status default configuration.

MRW

Indicates that a warning message was triggered due to a rule violation.

- Result status name: **Rule violation warning**

MTE

Indicates that there is an error in the test material.

- Result status name: **Test material error**

MYR

Indicates that a morphology review has been requested.

- Result status name: **Morphology requested**

OC

Indicates that there is a comment from the operator.

- Result status name: **Operator comment**

OCE

Indicates that there is an error comment from the user.

- Result status name: **User error comment**

OM

Indicates that the operator ID is missing.

- Result status name: **Operator ID missing**

ONC

Indicates that the operator is not certified to use this type of instrument.

- Result status name: **Operator not certified**

OOU Indicates that the operator is out of its assigned units.

- Result status name: **Operator out of assigned units**

OP Indicates that the operator’s profile does not support the performed task.

- Result status name: **Tasks not supported**

OU Indicates that the operator is unknown.

- Result status name: **Unknown operator**

PA Indicates that the gender of the patient is not specified.

- Result status name: **Unknown patient**

PREL Indicates that the result was received with an instrument alarm that is configured to trigger a rerun. The alarm is displayed for the previous result and can be configured on the control screen.

- Result status name: **Previous result**

PRR Indicates that a pathologist review has been requested.

- Result status name: **Pathology requested**

QCB Indicates that there is QC bracketing batch open because it is pending a result flagged as OK.

- Result status name: **Open batch**

QCCE Indicates that the result was received during a QC critical error.

- Result status name: **QC critical error**

QCE Indicates that the result was received during a QC error.

- Result status name: **QC error**

QCLV Indicates that the QC lot values have not been accepted.

- Result status name: **QC lot not accepted**

QCNR Indicates that there is no range defined for the QC results.

- Result status name: **No range for QC**

QCOR Indicates that a QC result is out of range.

- Result status name: **QC out of range**

QCP Indicates that there was an error trying to find or create a process control.

- Result status name: **Process control error**

QCPS It indicates that the association between patient results and their corresponding QC results is pending.

Result status name: **QC pending status**.

QCQN Indicates that a qualitative QC result was received with a numeric range defined.

- Result status name: **Qualitative QC – numeric**

QCU Indicates that an undefined QC alarm was received.

- Result status name: **Unknown QC alarm**

QCW Indicates that the result was received during a QC warning.

- Result status name: **QC warning**

REP Indicates that the result is a repetition of a previous result.

- Result status name: **Repeated test result**

SI_HH Indicates that the level of hemolysis in the sample is high.

- Result status name: **High hemolytic SI**

SI_HL Indicates that the sample has low levels of hemolysis.

- Result status name: **Low hemolytic SI**

SI_HM Indicates that the sample has medium levels of hemolysis.

- Result status name: **Medium hemolytic SI**

SI_HR Indicates that the serum indices sensitive test run is held until all pending serum index results are received.

- Result status name: **SI sensitive test run held**

SI_IH Indicates that the sample has high levels of icterus.

- Result status name: **High icteric SI**

SI_IL Indicates that the sample has low levels of icterus.

- Result status name: **Low icteric SI**

SI_IM Indicates that the sample has medium levels of icterus.

- Result status name: **Medium icteric SI**

SI_LH Indicates that the sample has high levels of lipemia.

- Result status name: **High lipemic SI**

SI_LL Indicates that the sample has low levels of lipemia.

- Result status name: **Low lipemic SI**

SI_LM Indicates that the sample has medium levels of lipemia.

- Result status name: **Medium lipemic SI**

SI_WSI Indicates that the serum indices tests results have not been received yet.

This alarm is removed when the results of the serum indices tests are received or when the configured time to wait for them expires. In this case, the automatic result is entered and the result is flagged with AUTO.

- Result status name: **Serum index pending**

SOR Indicates that the result is automatically validated by an external host.

- Result status name: **External host validation**

SRR Indicates that a senior morphologist review has been requested.

- Result status name: **Senior morphologist review requested**

TANR Indicates that as the result received is alphanumeric and the reference ranges for the test are only numeric, it cannot be evaluated.

- Result status name: **Ref. ranges not evaluated**

TAR Indicates that an automatic rerun with dilution has been requested.

- Result status name: **Automatic rerun**

TC Indicates that the result is closed.

- Result status name: **Closed result**

TD Indicates that there is an error in the test delta check.

- Result status name: **Delta check error**

TG Indicates that at least one patient ID is missing.

- Result status name: **Patient ID missing**

TH Indicates that the result is above the reference range.

- Result status name: **Above reference range**

TL Indicates that the result is below the reference range.

- Result status name: **Below reference range**

TM Indicates that the result was modified.

- Result status name: **Result modified by user**

TNR Indicates that there are no reference ranges defined for the test.

- Result status name: **No reference range**

TPH Indicates that the result is above the critical range.

- Result status name: **Above critical range**

TPL Indicates that the result is below the critical range.

- Result status name: **Below critical range**

TPNR Indicates that there is no panic range defined for the test.

- Result status name: **No panic range defined**

TUR Indicates that a repetition of the test was requested.

- Result status name: **Test repetition requested**

TV Indicates that the result is out of the tolerance range and therefore cannot be automatically validated.

- Result status name: **Tolerance range in validation**

VALMOK Indicates that the result was medically validated automatically.

- Result status name: **Medically validated**

VALOK Indicates that the result was technically validated automatically.

- Result status name: **Technically validated**

VOR Indicates that the result is too long. Only 11 characters are allowed.

- Result status name: **Result too long**

List of default alarm types

An alarm is a message received from an instrument or IT system about an information or potential error. By default, the software provides the following set of alarms.

Depending on the configuration, these alarms may stop the validation process.

Some alarm types may be displayed differently. For any customization, contact your software administrator.

R-A to R-Z

Customizable alarm types.

- Alarm name: **Rule engine mark**

RBC

Indicates that the barcode label has been generated.

- Alarm name: **Barcode label printed**

RCN

Alarm triggered when the comment is invalid or contains too many characters to be printable.

- Alarm name: **Comment not printable**

RCO

Indicates that a particular order has been closed.

- Alarm name: **Order closed**

RCY

Indicates a valid printable comment.

- Alarm name: **Comment printable**

RGA

Alarm indicating that a graphic has been added.

- Alarm name: **Graphic added**

RHR

Alarm indicating a hematology request.

- Alarm name: **Hematology request**

RMATB_A Alarm reporting that an antibiotic has been added.

- Alarm name: **Antibiotic added**

RMATB_D Alarm reporting that an antibiotic has been removed.

- Alarm name: **Antibiotic removed**

RMATB_N Indicates that an antibiotic is not printable.

- Alarm name: **Antibiotic not printable**

RMATB_R Indicates that an antibiotic results are included.

- Alarm name: **Antibiotic result added**

RMATB_Y Indicates that an antibiotic is printable.

- Alarm name: **Antibiotic printable**

RMA_A Alarm indicating the inclusion of an antibiogram, which highlights the antibiotic sensitivity.

- Alarm name: **Antibiogram added**

RMA_D Indicates that an antibiogram has been removed.

- Alarm name: **Antibiogram removed**

RMA_N Indicates that an antibiogram is included, but is not printable.

- Alarm name: **Antibiogram not printable**

RMA_Y Indicates that the included antibiogram is printable.

- Alarm name: **Antibiogram printable**

RMI_C Indicates that a comment is added to the isolate.

- Alarm name: **Comment added to isolate**

RMI_D Indicates that the isolate has been removed.

- Alarm name: **Isolate removed**

RMI_N Indicates that isolate is not printable.

- Alarm name: **Isolate not printable**

RMI_R Alarm that states the isolate results are added.

- Alarm name: **Isolate result added**

RMI_S Alarm to confirm that the isolate has been identified.

- Alarm name: **Isolate declared**

RMI_Y Indicates that the isolate is printable.

- Alarm name: **Isolate printable**

RMM_A Alarm to indicate inclusion of culture media.

- Alarm name: **Culture medium added**

RMM_C Indicates that a comment has been included about the culture medium.

- Alarm name: **Comm. added to culture medium**

RMM_D Indicates that the culture medium has been removed.

- Alarm name: **Culture medium removed**

RMM_R Indicates that results are included for culture medium.

- Alarm name: **Culture medium result added**

RMO_A Indicates that a microbiology order is added.

- Alarm name: **Microbiology order added**

RMO_F	Alarm to confirm order validation. ▪ Alarm name: **Order validated**
RMO_P	Indicates that the order is provisionally validated. ▪ Alarm name: **Order provisionally validated**
RMO_U	Indicates that the order is devalidated. ▪ Alarm name: **Order devalidated**
RMR_S	Alarm to indicate the microbiology test result is declared. ▪ Alarm name: **Mic test result declared**
RMST_A	Indicates that a secondary test was included. ▪ Alarm name: **Secondary test added**
RMST_D	Indicates that a secondary test was removed. ▪ Alarm name: **Secondary test removed**
RMS_A	Indicates that microbiology sample was added. ▪ Alarm name: **Microbiology sample added**
RMS_C	Indicates the inclusion of a microbiology sample comment. ▪ Alarm name: **Comm. added to Micro sample**
RMS_D	Indicates a microbiology sample removal. ▪ Alarm name: **Microbiology sample removed**
RMT_A	Indicates a microbiology sample inclusion. ▪ Alarm name: **Microbiology test added**

RMT_C Indicates that a comment is added to the microbiology test.

- Alarm name: **Comment added to Micro test**

RMT_D Indicates an alarm when a microbiology test is removed.

- Alarm name: **Microbiology test removed**

RMT_F Alarm to indicate the validation of a microbiology test.

- Alarm name: **Microbiology test validated**

RMT_M Indicates that there is a microbiology test mark.

- Alarm name: **Microbiology test mark**

RMT_MA to RMT_MZ Microbiology customizable alarm types.

- Alarm name: **Microbiology rule engine mark**

RMT_N Indicates that a microbiology test cannot be printed.

- Alarm name: **Micro. test not printable**

RMT_P Indicates that the provisional microbiology test is validated.

- Alarm name: **Micro. test prov. validated**

RMT_R Alarm to highlight that a microbiology test has been included.

- Alarm name: **Microbiology test result added**

RMT_U Indicates that an associated microbiology test is devalidated.

- Alarm name: **Microbiology test devalidated**

RMT_Y Alarm to indicate microbiology test is printable.

- Alarm name: **Micro. test printable**

RMWA_F Alarm to indicate associated work area is validated.

- Alarm name: **Work area validated**

RMWA_P Indicates that there is a provisional work area is validated.

- Alarm name: **Work area prov. validated**

RMWA_U Alarm to indicate associated work area is devalidated.

- Alarm name: **Work area devalidated**

ROA Indicates an alarm to show that an order is added.

- Alarm name: **Order added**

ROC Alarm to mark the inclusion of a comment to the order.

- Alarm name: **Comment added to order**

ROCL Alarm to specify that an order is closed.

- Alarm name: **Order closed**

RODT Indicates that an order is technically devalidated.

- Alarm name: **Order technically devalidated**

RODV Indicates that an order is medically devalidated.

- Alarm name: **Order medically devalidated**

ROH Indicates that an order is held by a rule engine rule.

- Alarm name: **Order on hold**

ROO Alarm to indicate that an order is open.

- Alarm name: **Order open**

ROR Indicates a rerun is requested.

- Alarm name: **Rerun requested**

ROT Indicates that the order is technically validated.

- Alarm name: **Order technically validated**

ROV Indicates that the order is medically validated.

- Alarm name: **Order medically validated**

RPE Indicates that the order includes a patient comment.

- Alarm name: **Patient comment added**

RPN Indicates that the test cannot be printed.

- Alarm name: **Test not printable**

RPP Indicates that the associated pre-report is printed.

- Alarm name: **Pre-report printed**

RPR Indicates that the associated report is printed.

- Alarm name: **Report printed**

RPY Alarm to indicate an associated test is printable.

- Alarm name: **Test printable**

RRA Indicates that a test result alarm has been added due to the trigger of the **Add result alarm** action.

- Alarm name: **Test result alarm added**

RRE Indicates that a result was added to the test.

- Alarm name: **Result added to test**

RSI Alarm to indicate an interruption is saved.

- Alarm name: **Interruption saved**

RTA Indicates that there is a test added.

- Alarm name: **Test added**

RTAD Indicates that a target is removed.

- Alarm name: **Target removed**

RTC Alarm to indicate the inclusion of a test comment.

- Alarm name: **Test comment added**

RTC_R Alarm to indicate the exclusion of a test comment.

- Alarm name: **Test comment removed**

RTD Indicates that a test is removed.

- Alarm name: **Test removed**

RTDT Indicates that a test is technically devalidated.

- Alarm name: **Test technically devalidated**

RTDV Indicates that the test is medically devalidated.

- Alarm name: **Test medically devalidated**

RTE Indicates that the result is added to the order.

- Alarm name: **Result added to order**

RTF Indicates that a test is rejected.

- Alarm name: **Test rejected**

RTH Indicates that a test is held by a rule engine rule.

- Alarm name: **Test on hold**

RTI Indicates that a dilution added alarm.

- Alarm name: **Dilution added**

RTJ Indicates an alarm to highlight a test is rejected.

- Alarm name: **Test rejected**

RTO Indicates that there is a target is closed.

- Alarm name: **Target closed**

RTP Indicates a particular target is prioritized.

- Alarm name: **Target prioritized**

RTR Alarm to indicate that a test is rerun.

- Alarm name: **Test rerun**

RTRWE Indicates a test is rejected and the results excluded.

- Alarm name: **Test rejected and excluded**

RTRWI Indicates a test is rejected but the results are included.

- Alarm name: **Test rejected and included**

RTS Indicates that a rerun mark has been added or removed.

- Alarm name: **RE mark added/removed**

RTT Indicates that a test is technically validated.

- Alarm name: **Test technically validated**

RTV Indicates that a test is medically validated.

- Alarm name: **Test medically validated**

RUS Alarm to mark that a Urine test is selected.

- Alarm name: **Urine selection**

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Post-analysis

In this chapter

7

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Reports

⚠ **WARNING!**

Release of non-validated tests

Risk of wrong results and privacy violation.

- Make sure that the pre-reports include the warning **> This is a pre-report** (or similar) in a visible place.

In this section

About report printing

Once patient results are entered in the software, a report must be sent to the physician. The physician can then make a diagnosis and prescribe medication if necessary. A report can also be sent to the patient.

Reports can be generated manually or automatically, for a single order, or for a batch of orders. A final report is always printed by default for single orders unless the order status prevents it, e.g., the order contains unvalidated tests. You can print reports from various screens and choose whether to print all tests or certain tests. This feature is useful, for example, if you have a shared order and you only need the results from one module.

Due to recycling order IDs, when you enter an order ID or sequence number, if more than one order is found, a callout appears displaying the orders in chronological order. The most recent is automatically selected but you can choose a different order.

When you edit a test name or abbreviation of an existing test, a new test version is created, and the changes are displayed on the corresponding screens of the software. However, when printing a report, the test name and abbreviation displayed always correspond to the test version applied to the test result.

> To avoid potential errors in reports when reusing old tests you must review all associated elements including groups, rule engine rules, mappings with hosts, workflows, work lists, panels, work areas, reports, configurable screens, configuration of instruments, interference tables, masking, quality controls, urinalysis etc.

Report types

The following types of reports are available:

- **Pre-report**: To see the status of the order that you want to create a report for. You can select this option as many times as desired until a final report is printed or everything in the order is validated. In this case, a final report is printed.
- **Final report**: To print the final report for the desired order.

  If the software is configured to print only by order, the final report is printed when all the tests included in the order are medically validated.

  If the software is configured to print by test or group of tests, the report is printed every time a specific test or group of tests are medically validated.
- **Result reprint**: To reprint a final report. You can make any number of copies.
- **Provisional**: To print provisionally validated items. This report type applies to the Microbiology module only.

Fast printing

You can accelerate the report printing process by defining a default filter with your desired settings on the **Report print** screen. Each user can define their own default filter.

Once the filter is created and set by default, every time you print manually, the report is sent to the specific print target (physically printed or PDF).

When printing a report, the software always tries to print a final report for the order or batch of orders. Otherwise, a pre-report or result reprint is printed.

> If a report is not printed, you can check its status on the **Printing control** screen as no warning message is displayed if there are printing issues.

The "*****" character is displayed in a report in the following situations:

- When a test has a result, but the user does not have rights to view its specific information.
- When a test result is pending and the **Print non-validated tests as pending when the user is only allowed to view validated tests.** general parameter is disabled. To enable this parameter, contact your system administrator.

⚠ WARNING!

Results

Risk of incomplete or delayed results

- Check reports are configured correctly before starting to use the system.

Creating report filters

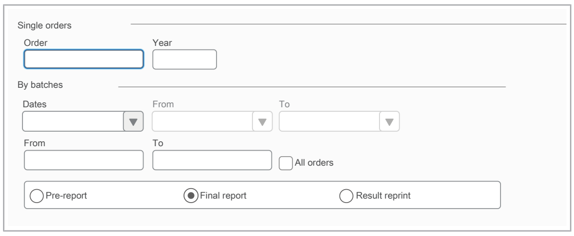
You can configure your chosen printing settings by creating a report filter. The filtered report is sent to the desired print target when choosing the **Print** button on any screen.

This option allows you to print the report quickly without having to set the filters every time.

If the **Validate and sign** button is configured, it is recommended that you create a report filter to print reports directly.

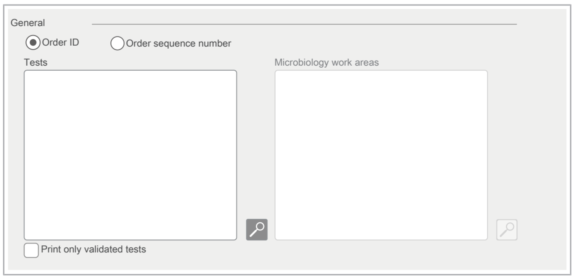
To create a report filter

1. Choose **Main > Reports > Report print**.
2. To print a single order, in the **Single orders** area, fill in the following fields:
   - **Order**: enter the order ID or sequence number.
   - **Year**: enter the year the order was created.
3. To print more than one order, in the **By batches** area, fill in the following fields:
   - **Dates**: enter the date or date range.
   - In the **From** and **To** fields enter the initial and final order IDs or sequence numbers. Optionally, select the **All orders** checkbox.
4. Select the type of report you want to print.



5 If the digital signature is configured, select the **Final report** option.

6 In the **General** area, choose the **Order ID** or **Order sequence number** options of the orders you want to print reports for.



7 Then choose the button to select the tests you want to print.

8 Optionally, to include only validated tests in the report, select the **Print only validated tests** check box. Otherwise, if your selection includes tests that are not medically validated, the software always prints a pre-report.

9 In the **Sorting** area, from the **Criterion no. 1** and **Criterion no. 2** drop-down lists, choose the desired demographic and their corresponding value by using the button.

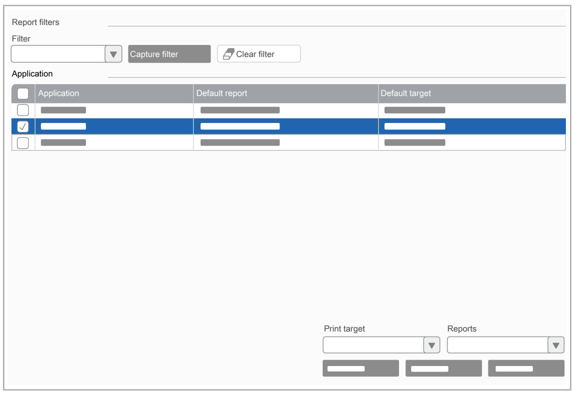
10 In the **Application** group box, select the modules in which you want to print reports.

11 Optionally, from the **Print target** drop-down list, choose the printer you want to set as the default printer.

> ℹ The default target of the selected application is used in case the **Print target** option is not configured.

12 Optionally, from the **Reports** drop-down list, choose the desired report template.

> ℹ The default report of the selected application is used in case the **Reports** option is not configured.



13 Choose the **Capture filter** button and, in the **Field name** field, enter the name you want to give to this filter.

- To make it the default filter, select the **Default filter** check box.

14 Choose the **Save** button.

Generating a report manually

Once patient results are entered in the software, a report must be sent to the physician. Reports can be generated manually or automatically for one order or for a batch of orders.

You can generate a report manually with or without a report filter:

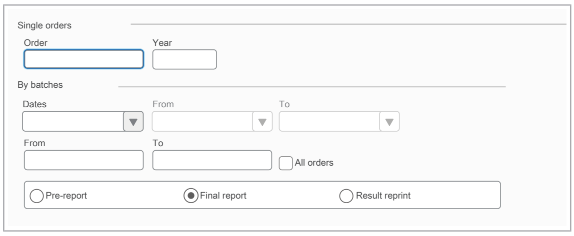
- If you have defined a filter, with the fast printing feature, reports are sent to the specific print target with a predefined report layout.
- If you have not defined a filter, the **Report print** screen is displayed.

To generate a report manually without a report filter

1 Choose the screen from where you want to print a report.

2 Choose the **Print** button.

→ The **Report print** screen is displayed.

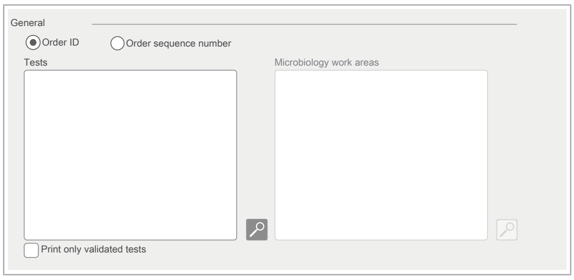


3 Depending on the number of orders you want to print, do one of the following:

- In the **Single orders** group box, enter the order ID or sequence number and the year the order was created.
- In the **By batches** group box, enter the date or date range, and then enter the initial and final order IDs or sequence numbers or select the **All orders** check box.

4 Select the type of report you want to print.

5 If the digital signature is configured, select the **Final report** type.



6 In the **General** group box, choose the type of order identifier you want to use to generate the report.

7 Choose the button to select the tests you want to print.

- Optionally, to only include validated tests in the report, select the **Print only validated tests** check box.

8 To send the report to a specific target, from the **Print target** drop-down list, choose the desired option.

9 From the **Reports** drop-down list, choose the desired report template.

10 Choose the **Print** button.

→ The report is printed.

11 Choose the **Print** button to launch the Java applet.

- Follow the applet instructions.

→ The report is printed.

12 Optionally, choose the **Printing control** screen to check the status of the report.

To generate a report manually with a report filter

1 Choose the screen from where you want to print a report.

2 Choose the **Print** button.

→ The report is printed.

3 Choose the **Print** button to launch the Java applet.

- Follow the applet instructions.

If you are printing reports from a validation screen, you must choose the **Validate and sign** button and enter the PIN to sign reports in a background mode.

→ The report is printed.

4 Optionally, choose the **Printing control** screen to check the status of the report.

Statistics

In this chapter

8

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Statistics

Internal statistics allow you to measure the activity in the laboratory. **cobas® infinity** central lab provides up to 12 types of statistics: 6 administrative (for measuring activity), 2 related to the number of orders matching some special relationship between tests or with tests with special results, 2 about timing, one about median of test value and one list of orders matching some special circumstances.

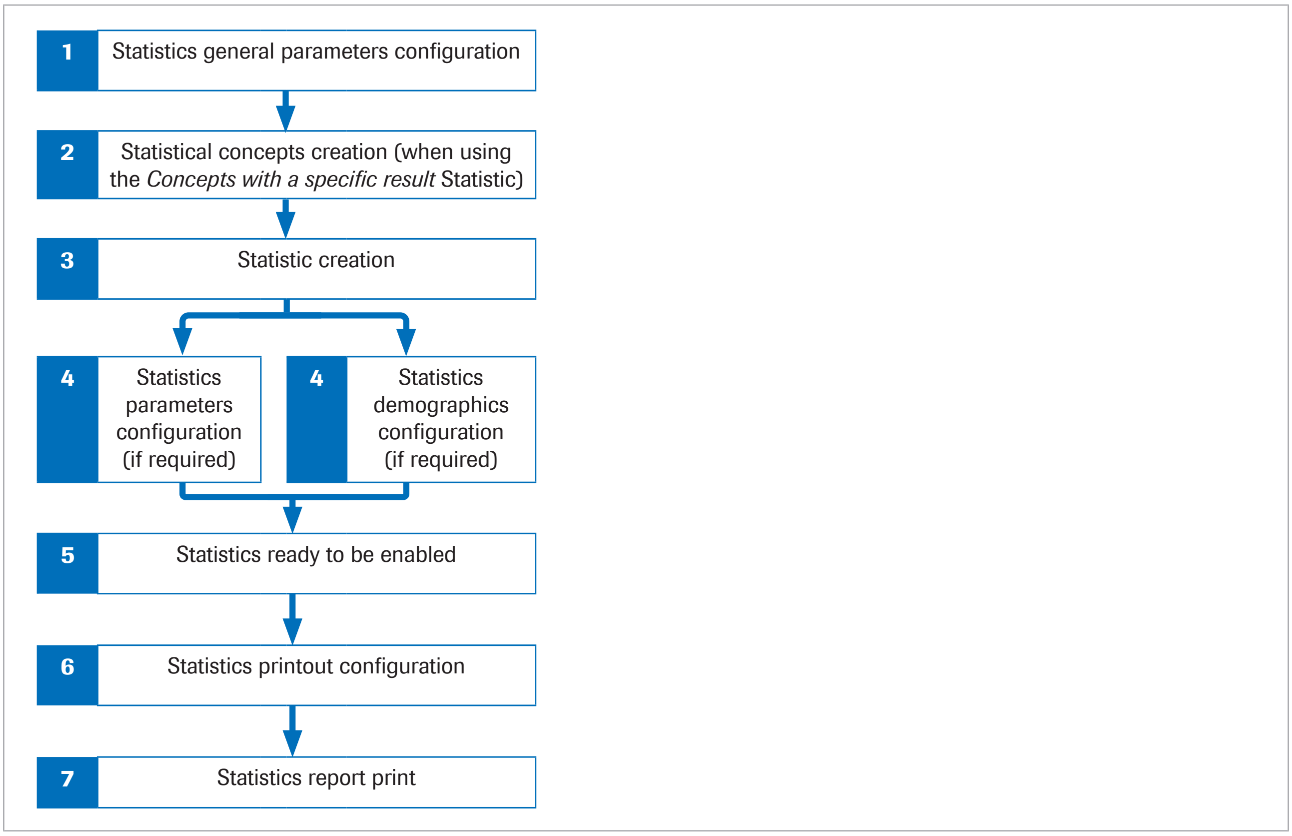
Statistics can be configured by choosing different demographics, setting specific parameters of statistics, or choosing different tests and their results.

The collected data is for statistical use only and not intended for clinical purposes.

In this section

Statistics overview

Statistics initial configurations



Before starting to work with statistics, you must configure a complementary supergroup in order to set the **Exclusive test group set for statistical concepts** general parameter. **cobas® infinity** central lab only performs statistics with tests from the chosen supergroup. This ensures that one particular test is only counted once.

You also need to configure other general parameters related to statistics:

- **First day of the week**
- **First week of the year**
- **Time at which tests are counted for administrative statistics**

Also, you must define the statistical concepts. A statistical concept is a set of tests that are counted in a unified way. This can be done in two ways: summing or merging. In the first case, each group will increase the score of statistical concept in one unit (e.g. Glucose curve). In the second case, if there is any test of the group on the order, the score of that particular statistical concept will increase by one (no matter if there is one or more than one test of the same statistical concept in that same order, e.g. hemogram). If a test is part of a statistical concept it is always counted within the statistical concept, not by itself.

About statistics types

After the configuration is complete, you can start creating your own statistics using one of the provided statistics as a starting point. Once this is done you can add up to 10 demographics to the statistic. This enables the software to store the count split by those demographics, so at the time of printing it will be able to serve the statistic grouped by some or all this demographics. Some statistics also need some additional parameters to be configured (specific for each one). After this entire configuration is performed, the last step is to enable the statistic. From this moment on, the software stores information for this statistic and you can print a report on this statistic.

About closing statistics

If you need to make a report of a period before the statistic creation date, you must perform the statistical closing. This will force the software to calculate and store data of the period chosen that otherwise is not calculated.

Related topics

- List of statistics types (228)
- Statistical concepts (236)
- Printing statistical reports (239)
- Statistical closing (244)

Defining statistics

Statistics must be enabled to collect data and perform the defined statistical calculations. Furthermore, you need to assign demographics and/or define additional parameters to some statistics to enable them, and thus, to be able to print reports.

You can disable or enable the statistics.

When deleting statistics, the software also removes all the related statistical records.

There are a few considerations to take into account:

- You cannot enable statistics unless the additional parameters or demographics, if applicable, are fully configured.

- The **Concepts with a specific result** statistic type must have at least one statistical concept created.
- For administrative statistics, when a test does not belong to any statistical concept the software applies the values defined at test level on the **Statistics** tab on the test administration screen.

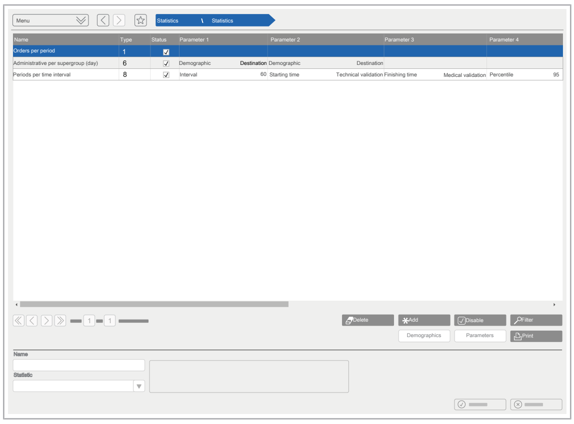
The **Parameter 1** to **Parameter 10** columns in the **Statistics** table indicate the configured statistical parameters or the assigned demographics. Where the statistics includes demographics and additional parameters, it shows only the configured parameters.

- ☐ **Work with administration screens** right
- ☐ Tests and supergroup related to the statistics created
- ☐ Statistics general parameters configured
- ☐ At least one statistical concept created
- ☐ A set of demographics created

To define statistics

1. Choose **Monitoring > Statistics > Statistics**.
2. Choose the **Add** button.
   - Optionally, to edit any existing statistic, choose the required one from the table.
3. In the **Name** field, enter the name to be assigned to the statistic.
4. From the **Statistic** drop-down list, choose one of the following statistics:
   - **Orders per period**
   - **Number of orders**
   - **Associated abnormal tests**
   - **Number of orders and tests**
   - **Administrative**
   - **Administrative per supergroup (day)**
   - **Concepts with a specific result**
   - **Periods per time interval**
   - **Administrative per supergroup (month)**
   - **Times per supergroup**
   - **List: tests related by result**
   - **Mean**

   When choosing the statistic type, the **Description** text area shows a brief explanation of the statistical calculation performed.
5. Choose the **Confirm** button.
6. If applicable, according to each statistic type, follow the related procedure to configure the additional parameters and demographics.



7 To start performing statistical calculations and to create a printed report, choose the **Enable** button.

To define parameters for the Associated abnormal tests statistics

1 Choose the **Associated abnormal tests** statistic type, and then choose the **Parameters** button.

2 Choose the **Add** button.

3 In the **Test** area, choose the button to select a test to be associated to the alarms.

4 From the **Notifications** list, choose the alarms to be associated with the test, and then choose the button to move them to the list on the right.

Repeat this procedure for each alarm that you need to associate.

5 Choose the **Confirm** button.

To define parameters for the Concepts with a specific result statistics

1 Choose the **Concepts with a specific result** statistic type, and then choose the **Parameters** button.

2 From the **Concept** drop-down list, choose the statistical concept to which the statistic should be calculated.

3 In the **Result** field, enter the result (alphanumeric value) to be assigned to the statistical concept. Next choose the button to move the result to the **Selected results** list.

Repeat this action for as many results as you wish to associate with the statistical concept.

4 Choose the **Confirm** button.

To define parameters for the Periods per time interval statistics

1 Choose the **Periods per time interval** statistic type for which the parameters should be defined, and then choose the **Parameters** button.

2 In the **Interval** field, enter the value in minutes for which you need to obtain the statistic.

   The possible values are numeric values between 1 and 1440 minutes. The default value is 60.

3 From the **Starting time** and **Finishing time** drop-down lists, choose the initial and final status within the order processing from which the statistic should be calculated. The following values are available as order statuses:
   - **Entry**
   - **Result entry**
   - **Technical validation**
   - **Medical validation**
   - **Report print** (for **Finishing time** only)
   - **Host sending** (for **Finishing time** only)

   The **Starting time** value must be greater than the **Finishing time** one.

For example, with an interval from **Technical validation** to **Medical validation**, only orders comprised in this stretch are analyzed.

4 In the **Percentile** field, enter the value for which you want to calculate the mean.

   The possible values are numeric values between 1 and 100. The default value is 95.

5 Choose the **Confirm** button.

To define parameters for the Times per supergroup statistics

1 Choose the **Times per supergroup** statistic type for which the parameters should be defined, and then choose the **Parameters** button.

2 From the **Supergroup** drop-down list, choose the supergroup to be related to the statistic.

3 Choose the **Confirm** button.

To define parameters for the List: tests related by result statistics

1 Choose the **List: tests related by result** statistic type for which the parameters should be defined, and then choose the **Parameters** button.

2 In the **Conditions** area do the following:
- Choose the **A test** button to select the test that triggers the list, and optionally, enter the **From** and **To** fields to set the values in which the result should be comprised for the test to be listed.
- Repeat the procedure for the **B test**.

3 Optionally, to use demographics and the value pair as a filter, do the following:
- From the **Demographic** drop-down list, choose the required one.
- From the **Value** drop-down list, choose the specific demographic value used as filter, and then choose the button to move the demographic and value pair to the list on the right.

4 Optionally, to define some test and demographics from which you want to list the results in the list, do the following in the **Show** area:
- Choose the **Tests** button to select the tests to be displayed in the list.
- In the **System demographic list**, choose the demographic to be displayed, and then choose the button to move it to the **Selected demographic list** on the right.

Repeat this step for each demographic that should be displayed in the list.

5 Choose the **Confirm** button.

To assign demographics

1 Choose the statistic to which you want to assign the demographics and then choose the **Demographics** button.

2 In the **System demographic list**, choose the demographic from which a statistical calculation should be obtained, and then choose the button to move it to the **Selected demographic list** on the right.

Repeat this step for each demographic to be calculated.

When printing the statistic you can define the demographics to be displayed.

3 Choose the **Confirm** button.

Related topics

- List of statistics types (228)
- Statistical concepts (236)

List of statistics types

cobas® infinity central lab provides up to 12 statistics types. Each statistic type can include some additional parameters, use related demographics and have different print options.

1 - Orders per period

This statistic calculates the number of orders, tests, results, and the percentage of orders per day (each weekday and the days in which some order has been added) and per module (application).

- Demographics:
  - None
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**

2 - Number of orders

This statistic calculates the number of orders based on the combination of demographics selected and the application of the order (no subtotals are included).

- Demographics:
  - Yes (up to 10)
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**

3 - Associated abnormal tests

Taking a series of tests and test-specific alarms, this statistic counts the number of orders containing any of the specified tests and their related alarms of any type (alarms, flags and even rules engine marks), as well as the status of each test:

- **S**: the test does not exist.
- **A**: the test exists and includes some of the alarms specified when it was configured.
- **N**: the test exists but it has no alarms.
- **R**: the test exists but has no result.

The intended use of this statistic is to find out the relationship between some tests. This is determined by calculating how many times certain specific alarms associated with the studied tests appear at the same time.

- Demographics:
  - None
- Statistical parameters: two or more tests and the alarms associated to each of them.
  - **Tests**
  - **Notifications**
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**

4 - Number of orders and tests

This statistic calculates the number of orders and tests based on the combination of the selected demographics per day and the application of the order (no subtotals are included).

- Demographics:
  - Yes (up to 10)
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Count the test repetitions**

- **Tests to be included**
- **Available demographics** and **Grouping demographics**

5 - Administrative

This statistic calculates the number of times that a statistical concept appears and their value (**Value**, **RVU**, **Standard price** and **Actual price**), the number of orders including it, the number of tests carried out under the related statistical concept, and the number of patients, based on the selected demographics and date.

The meaning of statistical concept depends on the tests associated to the selected statistical concept (a group of tests) defined in the **Monitoring > Statistics > Statistical concepts**:

- If the test associated to the statistical concept has the **Calculation** property configured as **Merger**, then it is counted as a single item (each one of the tests is counted as 1 unit of statistical concept).
- If the test does not belong to any statistical concept, it is considered a statistical concept by itself.

- Demographics:
  - Yes (up to 10)
- Statistical parameters: two or more tests and the alarms associated to each of them.
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Count the test repetitions**
  - **See test detail**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**
  - **Include**: **Value**, **RVU**, **Standard price** or **Actual price**

6 - Administrative per supergroup (day)

This statistic calculates the number of times that a statistical concept appears and their value (**Value**, **RVU**, **Standard price** and **Actual price**), the number of orders included in it, the number of tests carried out under the related statistical concept, and the number of patients, all of them based on the selected demographics and also by a group of tests (the selected supergroup in the general parameter **Exclusive test group set for statistical concepts**), and by date (the minimum granularity is per day).

> The meaning of statistical concept depends on the tests associated to the selected statistical concept (a group of tests) defined in the **Monitoring > Statistics > Statistical concepts**:
>
> - If the test associated to the statistical concept has the **Calculation** property configured as **Merger**, then it is counted as a single item, or as many as tests belonging to the concept are found in the order (summatory).
> - If the test does not belong to any statistical concept, it is considered as a statistical concept by itself.

- Demographics:
  - Yes (up to 10)
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Count the test repetitions**
  - **See test detail**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**
  - **Include**: **Value**, **RVU**, **Standard price** or **Actual price**

7 - Concepts with a specific result

This statistic calculates the number of statistical concepts that have any of the specified results. It also displays the number of orders affected, based on date (the minimum granularity is per day).

> In this particular case, the meaning of statistical concept refers exclusively to the tests defined in the **Monitoring > Statistics > Statistical concepts**.

- Demographics:

- Yes (up to 10)

- Statistical parameters: one statistical concept and one or more results.
  - **Concept**
  - **Result**
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**

8 - Periods per time interval

This statistic counts the average time for orders and tests elapsed between two statuses (entry, result, technical validation, medical validation, printing and sending to the host) and breaks it down according to the specified interval and the related demographics. It also performs the calculation for a given test percentile.

This statistic is useful to investigate the response time of the laboratory based on the time of day and the demographics of the order.

- Demographics:
  - Yes (up to 10)
- Statistical parameters: two or more tests and the alarms associated to each of them.
  - **Interval**
  - **Starting time**
  - **Finishing time**
  - **Percentile**
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**

9 - Administrative per supergroup (month)

This statistic is the same as **Administrative per supergroup (day)** but the minimum granularity is calculated monthly to save space in the database.

- Demographics:
  - Yes (up to 10)
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Count the test repetitions**
  - **See test detail**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**
  - **Include**: **Value**, **RVU**, **Standard price** or **Actual price**

10 - Times per supergroup

This statistic calculates the average time (in seconds) between the different statuses undergone by an order (entry, result, technical validation, medical validation, printing and sending to the host) for each group of tests included in the order (according to the specified supergroup). For each request, the highest value of the group is taken.

- Demographics:
  - None
- Statistical parameters: one associated supergroup.
  - **Supergroup**
- Printout options:
  - **Period of time**
  - **Time grouping**
  - **Application**
  - **Tests to be included**

11 - List: tests related by result

This statistic is a list of orders that meet a series of conditions:

- having a test A, and/or
- having a test B,
- the result is within the interval specified for test A and test B, and
- having some demographics and/or demographic value pairs acting as a filter.

In the final list certain demographics can also be shown. These can be different from those acting as a filter. Also, the results of certain tests can be different from the ones acting as a filter.

- Demographics:
  - None
- Statistical parameters:
  - **A test**
  - **B test**
  - **From** (test A)
  - **To** (test A)
  - **From** (test B)
  - **To** (test B)
  - **Demographic**
  - **Value**
  - **Tests**
  - **System demographic list**
- Printout options:
  - **Period of time**
  - **Application**
  - **Tests to be included**

12 - Mean

This statistic calculates the moving average (where x is a variable number of days), SD, and CV of the results of the selected tests according to the specified demographics.

This statistic is useful in the investigation of the reference ranges target population from the laboratory.

- Demographics:
  - Yes (up to 10)
- Statistical parameters:
  - None
- Printout options:
  - **Period of time**
  - **Application**
  - **Tests to be included**
  - **Available demographics** and **Grouping demographics**
  - **Tests**

Related topics

- List of printout options (241)

Statistical concepts

With the statistical concepts you can create a group of tests and perform the statistical calculations on them as a unit. For example, the "Hematology" statistical concept may be created (associated with the General Lab supergroup that includes hematology tests). This allows you to create statistics based on the group and not on individual tests.

Statistical concepts also define how to group the tests to be counted. The software provides you with two different methods:

- **Summation**: The tests of a statistical concept are added up. This means that *n* tests corresponding to this statistical concept are counted as *n* units of statistical concept.
- **Merger**: The tests comprising a statistical concept are counted as a single item. This means that each one of the tests is counted as *1* unit of statistical concept.

Also, you can enter concepts as **Value**, **Relative Value Unit**, **Actual price** and **Standard price**.

In this section

Defining statistical concepts

You can disable or enable the statistical concepts with the **Disable** or **Enable** button.

There are a few considerations to be taken into account:

- If you change the related supergroup, all statistical concepts based on it are deleted (the software shows a confirmation of deletion).
- A test can only belong to one statistical concept. If you need to assign the same test to another statistical concept, you must remove it from the previous one. Also, you need more than one test to define the statistical concept.

- If you modify any statistical concept, the software does not allow you to print a report of a period containing the date when the change was done. In this case you must remove all closed statistics containing that statistical concept from that period.

The table on the **Statistical concepts** screen shows additional information:

- **Calculation**: The method of counting the set of tests in a unified way.
- **Type**: Tests or antibiotics.
- **Tests**: The related group of test.

- ☐ **Work with administration screens** right
- ☐ Tests and supergroup related to the statistical concept created
- ☐ Statistics general parameters configured

To define statistical concepts

1. Choose **Monitoring > Statistics > Statistical concepts**.
2. Choose the **Add** button.
   - Optionally, to edit any existing statistical concept, choose the required one from the table.
3. In the **Name** field, enter the name to be assigned to the statistical concept.
4. From the **Based upon the group** drop-down list, choose the group of tests to be associated with the statistical concept.
5. To select the calculation method, select one of these options in the **Calculation** area:
   - **Summation**: The tests of the statistical concept are added up.
   - **Merger**: The tests comprising the statistical concept are counted as a single item.
6. In the **Tests** area, choose the button to select the specific tests of the group whose statistics are calculated.
7. Enter the following fields:
   - **Value**
   - **Relative Value Unit**
   - **Actual price**
   - **Standard price**
8. Choose the **Confirm** button.

List of statistical concepts properties

The **Statistical concepts** properties are the following:

Name

Defines the statistical concept name.

Based upon the group

Assigns the group of tests to be associated with the statistical concept.

Value

Defines the purchase price of the test.
The possible values are numeric values between 0 and 9 999 999.

Relative Value Unit

These parameters let you adjust the price according to the effort required to process them (in terms of staff, resources, instruments, and so on).
The possible values are numeric values between 0 and 9 999 999.

Calculation

Establishes the calculation method of the statistical concept. There are two methods:

- **Summation**: The tests of a statistical concept are added up. In other words, one or more tests corresponding to that group are counted as *1* unit of statistical concept.
- **Merger**: The tests comprising a statistical concept are counted as a single item. This means that *n* tests corresponding to this statistical concept are counted as *n* units of statistical concept.

Tests

Specifies the tests of the group whose statistics are calculated.

Actual price

Defines the current price charged by the laboratory for the test.
The possible values are numeric values between 0 and 9 999 999.

Standard price

Defines the price assigned to the test by the relevant health authority.
The possible values are numeric values between 0 and 9 999 999.

Printing statistical reports

In this section

Printing statistical reports

This procedure allows you to establish the necessary parameters to print statistics such as the calculated period, modules to be included in orders, time grouping of a set of data, grouped demographics, and details per test (RVU, standard price, etc.).

- ☐ **Work with administration screens** right
- ☐ Tests and supergroup related to the statistical concept created
- ☐ Statistics general parameters configured
- ☐ A set of demographics created
- ☐ Statistic fully configured and enabled.

To print statistical reports

1 Choose **Monitoring > Statistics > Statistics**.

2 From the table, choose the statistic.

The chosen statistic must be configured and enabled.

3 Choose the **Print** button.

→ The **Print** screen is shown with the available printout parameters for the selected statistic type.

4 From the **Period of time** drop-down list, choose the date whose statistic data should be printed.

- Optionally, if you have selected the **From... to...** option, from the **From** and **To** drop-down lists, choose the initial and the final dates of the requested time period.

5 In the **Application** area, choose the module(s) which the statistics are obtained from.

6 Depending on the type of statistic, do the following:

- From the **Time grouping** drop-down list, choose the time portions that are used to represent the information (by months, by terms, and so on).

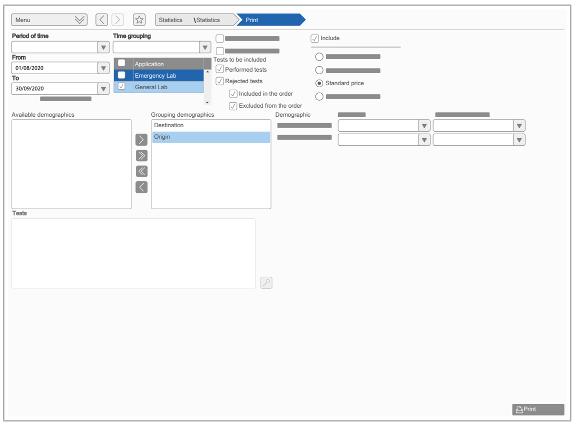
- To include the repetitions of the tests in the statistical calculation, select the **Count the test repetitions** check box.
- To print all the tests affected by the chosen statistic calculation, select the **See test detail** check box.

7 Choose the tests to be included in the statistical calculation from the **Tests to be included** area:

- **Performed tests**.
- **Rejected tests**. In this case, you have these additional options:
  - **Included in the order**.
  - **Excluded from the order**.

8 Depending on the type of statistic, select the **Include** check box to display one of the following values for the included tests:

- **Value**
- **RVU**
- **Standard price**
- **Actual price**



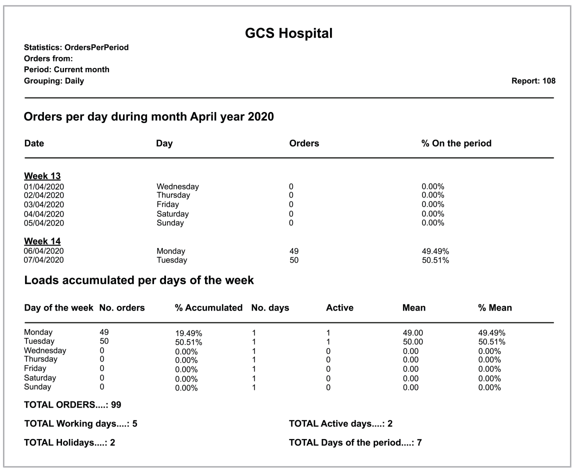
9 If the statistic involves demographics, from the **Available demographics** list, choose the ones assigned to the current statistic and for which you wish to obtain statistical information, and then choose the [>] button to move them to the **Grouping demographics** list. Then, do the following:

- From the **Demographic** area for each selected demographic, choose the desired range with the **Value from** and **Value to** drop-down lists.

  ⓘ If no range is selected, all the values for that demographic will be taken into account.

10 Optionally, if you selected the **Mean** statistic type, from the **Tests** list, choose the [search] button to select the related tests whose statistics are calculated.

ⓘ You must choose at least one test.



GCS Hospital

Statistics: OrdersPerPeriod
Orders from:
Period: Current month
Grouping: Daily
Report: 108

Orders per day during month April year 2020

Date	Day	Orders	% On the period
Week 13			
01/04/2020	Wednesday	0	0.00%
02/04/2020	Thursday	0	0.00%
03/04/2020	Friday	0	0.00%
04/04/2020	Saturday	0	0.00%
05/04/2020	Sunday	0	0.00%
Week 14			
06/04/2020	Monday	49	49.49%
07/04/2020	Tuesday	50	50.51%

Loads accumulated per days of the week

Day of the week	No. orders	% Accumulated	No. days	Active	Mean	% Mean
Monday	49	19.49%	1	1	49.00	49.49%
Tuesday	50	50.51%	1	1	50.00	50.51%
Wednesday	0	0.00%	1	0	0.00	0.00%
Thursday	0	0.00%	1	0	0.00	0.00%
Friday	0	0.00%	1	0	0.00	0.00%
Saturday	0	0.00%	1	0	0.00	0.00%
Sunday	0	0.00%	1	0	0.00	0.00%

TOTAL ORDERS....: 99

TOTAL Working days....: 5 **TOTAL Active days....: 2**

TOTAL Holidays....: 2 **TOTAL Days of the period....: 7**

11 Choose the **Print** button.

→ The report is shown. You can store it as a PDF file or send it to the configured printer.

> Even though the selected grouping is larger than the selected interval, the statistic report is printed.

Related topics

- List of statistics types (228)

List of printout options

The statistics printout options are the following:

Period of time

Defines the date interval whose statistic data is printed.

Applicable to all statistics types.

Time grouping

Defines the time portions that are used to represent the information. The options are:

- **Daily** (not available for **Administrative per supergroup (month)** statistic type)
- **Weekly** (not available for **Administrative per supergroup (month)** statistic type)
- **Monthly**
- **Trimestral**
- **Annually**

If you choose a **Period of time** greater then 31 days and the **Daily** option as **Time grouping**, the software shows an error.

These two general parameters are taken into account when configuring the **Time grouping** parameter:

- **First week of the year**
- **First day of the week**

Applicable to these types of statistics:

- **Orders per period**
- **Number of orders**
- **Associated abnormal tests**
- **Number of orders and tests**
- **Administrative**
- **Administrative per supergroup (day)**
- **Concepts with a specific result**
- **Periods per time interval**
- **Administrative per supergroup (month)**
- **Times per supergroup**

Application

Defines the software module (**General Lab** and/or **Emergency Lab**) statistics are obtained from.

Applicable to all statistics types.

Count the test repetitions

Allows the inclusion of test repetitions in the statistical calculation.

Applicable to these types of statistics:

- **Number of orders and tests**
- **Administrative**
- **Administrative per supergroup (day)**
- **Administrative per supergroup (month)**

See test detail

Allows printing all the tests affected by the statistical calculation.

Applicable to these types of statistics:

- **Administrative**
- **Administrative per supergroup (day)**
- **Administrative per supergroup (month)**

Tests to be included

Defines which tests are included in the statistical calculation. These options are available:

- **Performed tests**: Only performed tests are taken into account.
- **Rejected tests**: Only rejected tests are taken into account. In this case, you have these additional options:
  - **Included in the order**: Tests which are rejected and included in the order.
  - **Excluded from the order**: Tests which are rejected and excluded from the order.

Applicable to all statistics types.

Include

Allows the inclusion of the following values for the related tests:

- **Value**: Defines the purchase price of the test.
- **RVU**: Defines the price according to the effort required to process it (in terms of staff, resources, instruments, and so on).
- **Standard price**: Defines the price assigned to the test by the relevant health authority.
- **Actual price**: Defines the price charged by the laboratory for the test.

The possible values for all of them are numeric values between 0 and 9 999 999.

Applicable to these types of statistics:
- **Administrative**
- **Administrative per supergroup (day)**
- **Administrative per supergroup (month)**

Available demographics

If the statistic involves demographics, from the **Available demographics** list, choose the defined ones for which you wish to obtain statistical information, and then choose the > button to move them to the **Grouping demographics** list. Do the following:

From the **Demographic** area for each selected demographic, choose the desired range with the **Value from** and **Value to** drop-down lists.

- If you do not select any range, all the values for that demographic will be taken into account.
- If you only specify the initial value of the range, the software considers from the first value to the last one.
- Also, if you only specify the final value of the range, the software considers from the first value to the last one.
- The values are alphanumeric and cannot be sorted numerically.

Applicable to these types of statistics:
- **Number of orders**
- **Number of orders and tests**
- **Administrative**
- **Administrative per supergroup (day)**
- **Concepts with a specific result**
- **Periods per time interval**
- **Administrative per supergroup (month)**
- **Mean**

Tests

Allows the selection of tests for the **Mean** type of statistic, for which the statistics are calculated. At least one test must be selected.

Applicable to this type of statistics:
- **Mean**

Related topics

- List of statistics types (228)

Statistical closing

The statistical closing performs statistical calculations on past periods due to two reasons: because a new statistic to be launched on past periods has been created, or because a parameter of an existing statistic has been changed. Otherwise the system calculates the statistics automatically at the end of the day when an order is closed.

The maximum period of time to be closed is one year.

Closing statistics

This procedure allows to perform statistical calculations on past periods.

The table in the **Statistical closing** screen shows the statistics already closed with the closing date, the related time period, the name of the closed statistic and the final status of the closing process.

- ☐ **Work with administration screens** right
- ☐ Statistics created and enabled

▶ To close statistics

1 Choose **Monitoring > Statistics > Statistical closing**.

2 Choose the **Add** button.
 - Optionally, to close any existing statistic to change the **Period of time**, choose it from the table.

3 From the **Period of time** drop-down list, choose the interval you wish to close:
 - Optionally, if you have selected the **From... to...** option, from the **From** and **To** drop-down lists, choose the initial and the final dates of the interval to be closed.

 ℹ The **Year to-date**, **Month to-date** and **Week to-date** periods correspond to the interval comprised within the previous year, month or week up to the current date.

4 From the **Statistic** drop-down list, choose the type of statistic to be closed.

5 Choose the **Confirm** button.

QC

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QC

In this chapter

9

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About QC

Quality controls (QC) are performed daily in the laboratory to verify whether instruments operate correctly and produce reliable patient results.

Safety precautions for QC

⚠ WARNING!

QC behavior

Risk of wrong results.

- It is recommended to check the QC sections in order to know and review the expected QC behavior.

⚠ WARNING!

QC expected use

Risk of wrong results being validated.

- You must not use AON as a substitute for QC.

⚠ WARNING!

QC manual entry

Risk of wrong reagent lots being entered and risk of wrong QC assignation to patient results.

- It is recommended that you use barcode readers to enter reagent lots manually.
- It is recommended that you use barcode readers to enter control or calibrator results manually.

⚠ CAUTION!

QC rules

Risk of delayed results.

- It is recommended to review the behavior of QC rules regularly.

⚠ WARNING!

QC results

Risk of incorrect results due to a wrong or incomplete Quality Control.

- Pay special attention when dealing with QC results.
- It is recommended to review QC results.

⚠ WARNING!

QC testing frequency

Risk of QC testing frequency being incorrectly established.

- It is recommended that you use time-based QC rules.

⚠ CAUTION!

Reagent lots

Risk of incorrect results.

- After changing reagent lots, check the behavior is correct.

⚠ CAUTION!

Automatic lot creation

Risk of wrong lot usage configuration.

- Remember that the lot usage value set by default is **In use**.
- It is recommended to review the configuration to define the desired work conditions for each instrument.

⚠ WARNING!

QC lot usage

Risk of incorrect patient results.

- Be careful when changing the lot usage from **In use** to **Study** status.
- It is recommended to reject the results received before the lot usage change and review the patient results affected.

⚠ WARNING!

QC evaluation

Risk of releasing patient results without being evaluated by QC.

- All the alarms that can block the automatic validation are specified in the section **List of criteria rules.**

⚠ **WARNING!**

Time stamp

Risk of incorrect QC results due to software using or assigning an incorrect time stamp.

- Ensure that the software is configured with the correct time zone, regional settings, or time stamp.

⚠ **WARNING!**

QC results date and time

Risk of results not validated correctly due to missing QC alarm and valid test results stopped due to false QC alarm.

- It is recommended to configure QC results with the date and time. If the instrument does not send this information, date and time from the software are used.

QC concepts

Each laboratory defines a range of results that is considered acceptable for each test and control. If QC results lie within this reference range, the analytical run is considered to be in control.

Concepts used in QC are the following:

Term	Definition
Calibrator	A reference material (e.g. solution, suspension) of known quantitative/qualitative characteristics (e.g. concentration, activity, intensity, reactivity) used to calibrate, graduate, or adjust a measurement procedure or to compare the response obtained with the response of a test sample.
Control	Material with a known concentration of analytes with assigned target values and acceptable ranges. It is used to verify that an instrument produces reliable results.
Lot	A lot of a QC material. A portion of a lump production produced by a single supplier. It can be identified via a lot number.
Reagent	In vitro diagnostic product used in laboratory testing to start a chemical reaction which is used to detect or quantify an analyte.

Definition of concepts used in QC

Term	Definition
Standby bottle	Some analyzers store more than one reagent bottle. The current bottle is used to perform tests and the standby bottle is ready to replace the current one when this is empty. The QC can be performed on both bottles, although only the QC performed with the current bottle affects patient results. After a bottle change, when new patient results are received with a Bottle SN matching with a bottle in status Standby, the last QC result registered for that Instrument-Module-Cell-Test-Bottle SN for each control is taken into account and updated, and the bottle status is internally changed to Current.
Multi-rule QC	A combination of control rules that judge the acceptability of an analytical run, including the Westgard rules.
Calculated QC result	QC result that is calculated from QC results of embedded tests.

Definition of concepts used in QC

Related topics

- Entering control or calibrator results manually (279)
- Reviewing control or calibrator results (253)
- Accepting and rejecting QC results (255)
- Changing the test status (260)
- Displaying QC results on the Levey-Jennings chart (263)
- Displaying the cumulative chart for a control (281)

QC result review

Some filters from the **QC result review** screen have dependencies on each other.

In this section

Reviewing control or calibrator results

You can view detailed information about a QC and review the tests status and the results of the controls or calibrations.

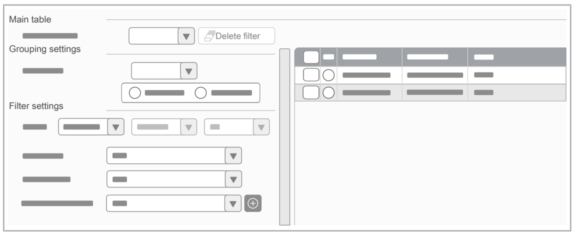
- ☐ **QC - Accept and reject QC results** rights
- ☐ **QC - Change the QC result status** rights

To view the patient results affected by a QC result, you must also have the following rights:

- ☐ **View results**
- ☐ **View order tests**
- ☐ **View order demographics**

▸ To review control or calibrator results

1 Choose **Main > QC > QC result review**.



2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.
   - Alternatively, from the **Available filters** drop-down list, choose a saved filter.

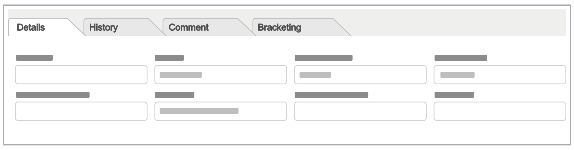
   ⓘ If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

> To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 Optionally, to display the filtered results by group, from the **Group By** drop-down list, choose the required option.
   - Additionally, to display the filtered results in a specific order, choose the **Descending** or **Ascending** option.

4 Optionally, to display all embedded test QC results related to a calculated QC result, choose the **Expand all** button.
   - Alternatively, to hide them, choose the **Collapse all** button.

   ⓘ By default, all embedded test QC results are displayed.



5 Choose a control or calibration result and do the following:
   - To display information about the result, choose the **Details** tab.
   - To see all of the actions performed on it, choose the **History** tab.
   - To see the patient results related to this QC result and repeat, rerun, or release any result, from the drop-down list, choose either the **Associated results** or **Affected results** field.
   - If applicable, to see detailed information about the bracketing rule applying to the selected QC result, choose the **Bracketing** tab.

   ⓘ You can view the associated/affected patient results of more than one QC result at once.

6 Optionally, to add a comment to the control or calibrator result, do one of the following:
   - To enter a free text comment, in the **Comment** tab, enter it and then choose the **Confirm** button.
   - To assign a coded comment, choose the **Cod. comments** button, choose the required one, and then choose the **Confirm** button.

- To add the same comment to multiple QC results, select the corresponding check boxes and choose the **Comment** button. In the callout, enter the comment or choose the **Cod. comments** button, and then choose the required one. Choose the **Confirm** button.

  If any of the selected QC results already has a comment, the new comment is merged with the existing one.

7 Additionally, to mark some QC results to perform a **Referral check** afterwards, from the drop-down list, do the following:

- To mark the result you want to review, choose the **Set to 'Pending'** button.
- To remove the tag, choose the **Set to 'Not required'** button.
- To mark a result as reviewed, choose the **Set to 'Checked'** button.

  By default, all QC results have the **Not required** status.

The **Referral check** functionality is available from the 3.03.06 Service Patch onwards.

Related topics

- Accepting and rejecting QC results (255)
- Changing the test status (260)
- List of QC result review screen items (268)
- Displaying QC results on the Levey-Jennings chart (263)
- Saving/deleting a filter (47)

Accepting and rejecting QC results

If the software is not configured to accept control or calibration results automatically, you must manually accept or reject them. For example, when the material has been reconstituted incorrectly, you can reject it. Alternatively, you can accept a control or calibrator result that was previously rejected.

You cannot reject a QC result if its lot values are pending review.

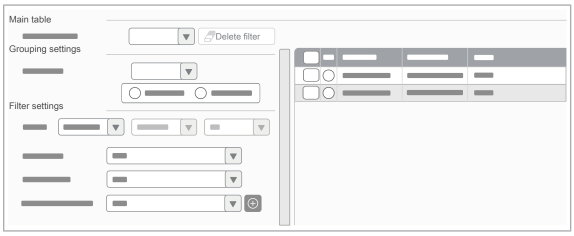
QC results of embedded tests and calculated QC results can also be accepted or rejected manually. However, as embedded test QC results can be related with more than one calculated QC result, when accepting or rejecting results, consider the following:

- If the lot values of the calculated QC result are pending review, the QC status of the calculated QC is pending to accept lot values.
- If one of the embedded test QC results related to a calculated QC result is pending review or its lot values are pending review, the calculated QC result is also pending review.
- If none of the embedded test QC results related to a calculated QC result are pending review and you reject one embedded test QC result, the related calculated QC results are also rejected.
- If all embedded tests QC results related to a calculated QC result are accepted, the calculated QC result is also accepted.

It is recommended that the **Maximum time to add, modify or delete QC results (h)** general parameter and the **QC validation level** general parameter are configured by your software administrator.

- ☐ **QC - Accept and reject QC results** rights
- ☐ **QC - Change the QC result status** rights

To accept or reject QC results from the Main table



1 Choose **Main > QC > QC result review**.

2 In the**Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

   - Alternatively, from the **Available filters** drop-down list, choose a saved filter.

   If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the check box of the desired control, and do one of the following:

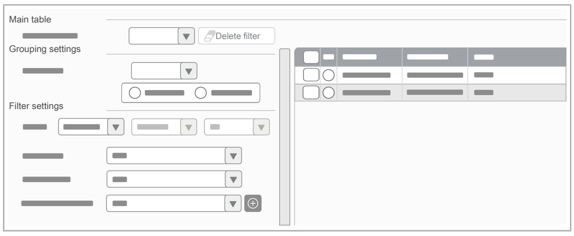
   - To accept the results, choose the **Accept res.** button.

- To reject the results, choose the **Reject res.** button.

→ The icon under the **Review** column changes.

→ The status of the **Multi-rule QC** and **Status** columns for that result is recalculated.

To accept or reject QC results from the Levey-Jennings chart



1. Choose **Main > QC > QC result review**.
2. In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.
   - Alternatively, from the **Available filters** drop-down list, choose a saved filter.

   If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the button or the button accordingly.

3. To see the QC results on the **Levey-Jennings chart** screen area, select the required round check boxes.
   - You can select up to 12 test-instrument-control combinations.
4. In the chart, select the measurable point of the required control, and do one of the following:
   - To accept the results, choose the Accept button.
   - To reject the results, choose the Reject button.

   → The rejected results are marked by a icon on the **Levey-Jennings chart** overview.

   → The icon under the **Review** column changes.

   → The status of the **Multi-rule QC** and **Status** columns for that result are recalculated.

Related topics

- Filtering information (46)
- List of QC result review screen items (268)

Accepting lot values from the QC result review screen

Sometimes you receive results of a control associated with a lot whose values are pending review. This means that the status of the results of that control cannot be accepted until the lot values of the associated lot are accepted.

In consequence, all patient results related to that instrument-test-control combination are flagged with a QC alarm [**QCLV**] until the lot values are accepted.

It is recommended to accept lot values from the oldest lot of a control to the most recent.

Lot values can have the following statuses:

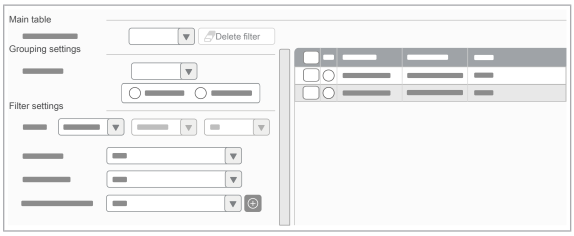
Icon	Description
⚠	Lot values are pending review
✓	Lot values are accepted

Lot values statuses

In the **Notifications** screen, you can check if there are lot values pending to be reviewed.

- ☐ Lot values pending review
- ☐ **Work with administration screens** right

To accept lot values from the QC result review screen



1 Choose **Main > QC > QC result review**.

2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the check box next to the control whose lot values you want to accept, and then choose the **Lot values & usage** button.

→ The **Lots** screen is displayed.

4 In the table, choose the required lot, and in the **Lot values by test** area, select the check box next to the instrument-test assignment whose values you want to accept, and then choose the **Accept lot values** button.

5 In the dialog box, choose the **Confirm** button.

➔ QC results associated with this lot value can be reviewed. Depending on configuration, results might be automatically validated.

➔ The QC status is recalculated for all patient results associated with this instrument-test assignment.

Once you accept a lot value, you cannot return to the previous status.

Related topics

- Accepting and rejecting QC results (255)
- Saving/deleting a filter (47)
- List of QC result review screen items (268)

Changing the QC lot usage from the QC Result Review screen

When a new lot is used in the laboratory you can choose to validate the control lot through a study period. After studying the consistency and accuracy of a given lot it can then be placed into active usage, referred to as 'In use'. By default, the QC lot usage is assigned according to the QC lot usage general parameter.

☐ A lot

☐ **Work with administration screens** right

To change the QC lot usage from the QC Result Review screen

1. Choose **Main > QC > QC result review**.
2. Select the desired lot from the table.
3. Choose the **Lot values & usage** button.
4. Choose the **Set lot usage** button.
5. In the table, select the check box of the required location-instrument-module combination, and then choose one of the following options:
   - **In use** option
   - **Study** option

   A popup message warns you about how the change of lot usage affects patient results.
6. Choose the **Close** button.

Changing the test status

A violation of the rule configured for a certain instrument-test triggers a QC alarm. However, if you consider the test to be acceptable, you can deactivate the alarm by changing its status to correct. Conversely, you can activate an alarm by changing the test status to incorrect.

When you change the QC result status of a masked instrument-test combination to green, it is unmasked for QC.

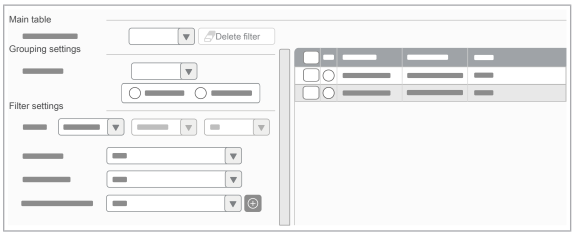
In multisite environments, you can only change the QC status of those instrument-test combinations assigned to your current location.

If you work with QC bracketing, changing a test status from incorrect to correct closes a batch and opens another one.

- ☐ **QC - Accept and reject QC results** rights
- ☐ **QC - Change the QC result status** rights
- ☐ QC result with a defined test status
- ☐ QC lot with usage **In use**

To change the test status to correct

1 Choose **Main > QC > QC result review**.



2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

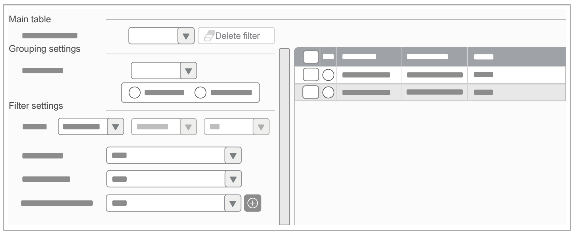
3 In the table, select the check box of the result for the instrument-test-control combination whose status you want to change.

The ✓ icon in the **QC status** column represents a correct test status.

4 Choose the **Status to "OK"** button.

→ The test status changes to correct, so the ✓ icon is displayed in the **QC status** column. The patient and QC results linked to the test are reevaluated.

→ The results obtained for this instrument-test combination do not show any QC alarms.



To change the control status to incorrect

1 Choose **Main > QC > QC result review**.

2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

  If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the button or the button accordingly.

3 In the table, select the check box of the result for the instrument-test-control combination whose status you want to change.

  The ✓ icon in the **QC status** column represents a correct QC status.

4 Choose the **Status to "Error"** button.

→ The test status changes to incorrect so the ⚠ icon is displayed in the **QC status** column. The patient and QC results linked to the test are reevaluated.

→ The results obtained for this instrument-test combination show QC alarms.

Related topics

- Reviewing control or calibrator results (253)
- Accepting and rejecting QC results (255)
- List of QC result review screen items (268)
- Displaying QC results on the Levey-Jennings chart (263)
- Saving/deleting a filter (47)

Releasing patient results when working with a bracketing rule

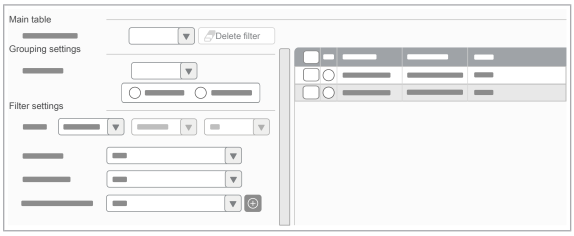
When you are working with a bracketing rule, you can manually release patient test results. This way, you do not have to wait until the batch is closed.

If a test result is flagged with a [**QCB**] alarm and you perform a manual release, the alarm is removed, unless that test result is affected by another open batch. However, when performing a manual release, the batch in which the results were contained is not closed. Until all batches are closed, patient results are not released.

- ☐ **QC - Change the QC result status** rights
- ☐ A **Bracketing** rule configured

▸ To release test results when working with a bracketing rule

1 Choose **Main > QC > QC result review**.



2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

ⓘ If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

> To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 In the table, select the QC result corresponding to the test results you want to release and in the **Bracketing** tab, choose the **Release results** button.

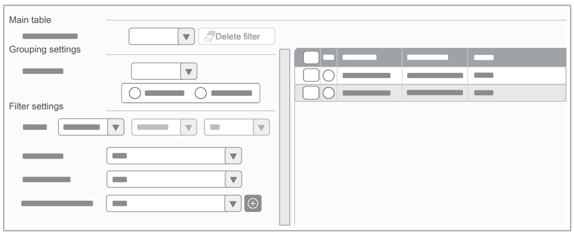
4 In the dialog box, choose the **Release results** button.

→ The test results contained in that batch are released.

Related topics

- List of QC result review screen items (268)

Displaying QC results on the Levey-Jennings chart



You can display a graphic overview of the progress of quality controls performed in a given time interval.

QC results are displayed in 2 different areas on the same screen:

- **Main table**: In the upper screen area you can see the progress of all instrument-test-control-lot combinations, depending on applied filters.
- **Levey-Jennings chart**: In the lower screen area you can see the progress of QC results of up to 12 instrument-test-control-lot combinations.

Empty results and qualitative results are not displayed in the chart or in the report, nor considered in table statistics.

Asymmetric QC results are displayed in absolute values.

The **All the instruments of the same type (include registers with modules)** functionality is available from the 3.03.06 Service Patch onwards.

To display QC results on the Levey-Jennings chart

1 Choose **Main > QC > QC result review**.

2 In the **Filter settings** panel, from the drop-down lists, choose the relevant options, and then choose the **Apply** button.

- Alternatively, from the **Available filters** drop-down list, choose a saved filter.

If you already have a **Default filter**, it is automatically applied. The **Parameter time** option in the **Date** field depends on configuration.

To add or delete additional fields, choose the ⊕ button or the ⊖ button accordingly.

3 To see the QC results on the **Levey-Jennings chart** screen area, select the required round check boxes.

- You can select up to 3 test-instrument-control combinations.

ⓘ Only instrument, control, and lot filters are considered for the information displayed in the Levey-Jennings chart.

4 You can filter by the following options:

- **Grouping period**:
  - **No group**: It displays one point for each control result.
  - **Daily**: It displays one point for all the results obtained on the same day.
  - **Weekly**: It displays one point for all the results obtained on the same week.
  - **Monthly**: It displays one point for all the results obtained on the same month.
- **Show standby bottles** check box: select it to display standby bottle control results, if any.
- **Show rejected results** check box: select it to display rejected control results, marked by ✕ icons.
- **Show previous results (days*) -- max.60** check box: It allows you to view the results table and the QC control history for the specified days.
  If selected, it displays in the **Levey-Jennings chart** the Instrument-Test-Control selected in the Main table, together with their history.
  If cleared (by default), it displays in the **Levey-Jennings chart** only the Instrument-Test-Control selected in the Main table.
  To view the history of standby bottles, rejected results or study results, select this check box together with the relevant option: **Show standby bottles**, **Show rejected results** or **Show study results**.
- **Show study results** check box: always selected by default. Clear it to hide **Study** QC results from the chart.

ⓘ Rejected results (if configured) and results that are pending review are displayed in the graphic and in the report. However, they are not considered in the table statistics.

5 Optionally, if you have selected only one control, do one of the following:

- To display the number of standard deviations, choose the **SD values** option.
- To display the measurement unit used for the test, choose the **Absolute values** option.
- To display the upper and lower limits for the test series, choose the **Relative values** option.

6 Optionally, choose one of the following displaying options:

- To display all selected combinations in a single chart, choose the **One chart** option.

- To display each selected combination in its own chart, choose the **Multiple charts** option.

ⓘ When selecting the **Multiple charts** option, you can group the results to display them in an **Instrument - test chart** or **Instrument - test - control chart**.

7 To display a specific QC result information, hover the mouse over the desired measurement point.

ⓘ If results are grouped, the displayed information is a calculated average of the different values. Additionally, **Result usage** details are only included for individual ungrouped data points.

8 Optionally, to reset the **Mean** value and the **SD** value to the first lot values defined for that instrument-test assignment, do the following:

- Choose a combination from the **Statistics table**.
- Choose the **Reset values** button.

9 Optionally, to set the **Target value** and **SD** value for an instrument-test-lot combination, do the following:

- Choose a combination from the **Statistics table** and then choose the **Set values** button.
- In the callout, choose the option calculated by the software or the empty field option to enter another one manually.
- To update the lot values to all registers related to the same instrument, including the ones with modules, select the **All registers of the same instrument (including modules)** option.
- To apply the values to instruments of the same type from the same location or all locations, select the **All the instruments of the same type (include registers with modules)** option. Then, from the drop-down list, choose the desired location.

ⓘ This option is only available when there is more than 1 symmetric result for that instrument-testlot combination and the SD is not 0.

10 Optionally, to obtain a report with the Levey-Jennings chart information, choose the **Print** button.

ⓘ Use the **Filter settings** and **Chart settings** fields to configure the desired report. Additional information about the selected controls and expected values is displayed.

11 Optionally, to display all results obtained for that instrument-test-lot combination as a single point, choose the **Cumulative chart** button.

ⓘ This option is not available for asymmetric results.

Related topics

- List of QC result review screen items (268)
- Displaying the cumulative chart for a control (281)
- Saving/deleting a filter (47)

Associating reagent lots with QC results

When receiving QC results, the instrument or the host can send the reagent information. This information is then automatically created and added to the QC result if it does not exist. If the instrument or the host does not send this information, you can manually create the reagents and associate them to the QC results.

☐ QC results received

To associate reagent lots with QC results manually

1 Choose **Main > QC > QC result review**.

2 Select the reagent lots you want to associate, and choose the **Assign reagent lot** button.
   - In the callout, select the required reagent type and lot, then, choose the > button.
   - Choose the **Confirm** button.

   You can select multiple results if the results match with the same regent and reagent lot, and are related to the same instrument-test combination.

Related topics

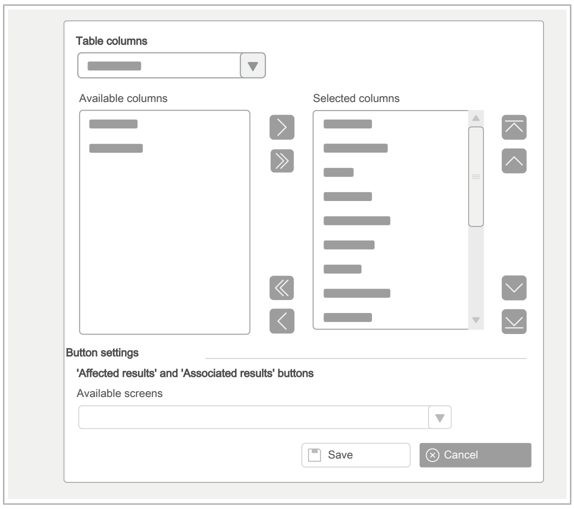
- List of QC result review screen items (268)

Configuring the QC result review screen

You can customize the fields of both the **Main table** and the **Statistics table** in the **QC result review** screen to display the desired information. Additionally, you can also customize the size of the columns.

To configure the tables in the QC result review screen

1 Choose **Main > QC > QC result review**.



2 Choose the **Screen settings** button.

3 From the **Table columns** drop-down list, choose the table you want to edit.

4 From the **Available columns** area, double-click the field that you want to add to the table.

   - Alternatively, to delete a field from the table, in the **Selected columns** area, double-click it.

   ℹ The mandatory fields marked with an asterisk (*) cannot be removed.

5 To change the order in which columns are displayed in the table, choose the required column and choose the ⌃ or ⌄ button to place it where you find appropriate.

6 In the **Button settings** area, choose the validation screen in which you want to view affected or considered patient results.

7 Choose the **Save** button.

8 Additionally, in the **Main table** area, drag and drop the edge of a column to resize its width.

   ℹ These changes are automatically saved and are available the next time you access the screen.

Related topics

- List of QC result review screen items (268)

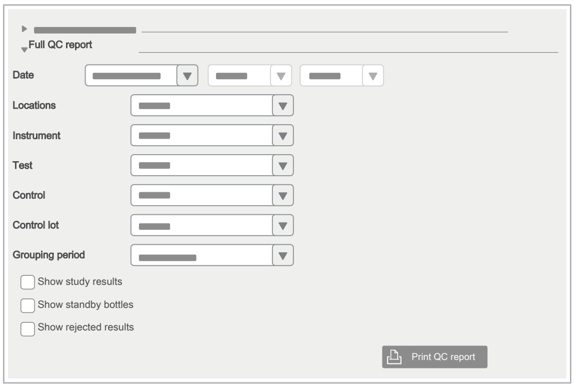
Printing a QC report

You can create a full report for all quality controls. All required instrument reports are then batched together into one single file. This report is then generated by the system, with a notification alert presented when ready.

☐ QC result with a defined test status
☐ QC lot and controls applied to tests

▸ To print a full QC report in the QC result review screen

1 Choose **Main > QC > QC result review**.



2 Expand the **Full QC report** area.

3 From the Date options, choose the time interval for the quality controls.

ⓘ The maximum data pool that can be incorporated into a QC report is 31 days.

4 To specify the content of the report, configure the filter conditions with the following drop-down lists:

- **Location**: Designated area for an instrument
- **Instrument:** Instrument model/demarcation
- **Test:** Test ID
- **Control**: Control associated with tests
- **Control lot**: The Control-Lot combination used for tests
- **Grouping period**: Timeframe applied in the report

ⓘ The filter options set by default are the least restrictive ones.

5 Additionally, select the check boxes as required for inclusion in the report:

- **Show study results**
- **Show standby bottles**
- **Show rejected results**

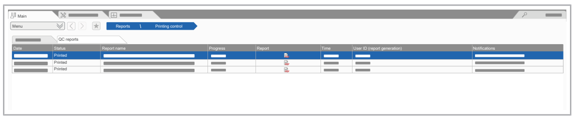
ⓘ By default, these three check boxes are unselected.

6 Choose the **Print QC report** button.

→ A callout is displayed with the number of results and the test-control-lot groups they are sorted into.

7 In the callout, choose the **Print** button.

→ When the report is generated, a proactivity notification is displayed on the **Notifications** screen. You can open it directly from the notification.



8 Additionally, to monitor the status of the QC reports requested, choose **Main > Reports > Printing control**, and then, choose the **QC reports** tab.

- To retrieve the report created, choose the button.

List of QC result review screen items

The **QC result review** screen displays extensive data on the control or calibrator results, as well as on the instrument-test-lot status.

About the Main table columns

The columns displaying control or calibrator results and the test status are the following:

Range

Compares the actual control result with the expected target result.

This column is only filled if the control results are quantitative and the related lot values are accepted.

The white bar indicates the target value (the expected target result).

Depending on the result type, the following icons may appear on this column:

Result type	Icons	Description
Symmetric		The control result is correct, since it is less than 1 standard deviation away from the target value.
		The control result triggers an alarm, since it is between 1 and 2 standard deviations from the target value.
		The control result triggers an error, since it is between 2 and 3 standard deviations from the target value.
		The control result is more than 3 standard deviations below target value.
		The control result is more than 3 standard deviations above target value.
Asymmetric		The control result is within range, i.e. between the minimum and maximum values. The white bar indicates the target value.
		The control result is within range, but without a set target value.
		The control result is below the minimum value.
		The control result is above the maximum value.

Range column icons

Review

Indicates whether the control or calibrator result is accepted or rejected (either automatically or manually). It also indicates if the lot values are pending to be reviewed.

The following icons may appear on this column:

Icons	Description
✓	The control or calibrator result has been manually or automatically accepted.
⌛	▪ The control or calibrator result is pending review and has to be accepted or rejected manually. ▪ The values of the lot associated with that instrument-test combination result are pending to be reviewed.
✗	The control or calibrator result has been manually or automatically rejected.

Review column icons

Multi-rule QC

Indicates whether the control result violates the rule configured for that instrument-test and, in that case, which rule is violated.

If the control result is qualitative and matches the expected value, the ● icon is displayed. Otherwise, the ● icon is displayed.

The following icons may be displayed in this column:

Icons	Description
●	The control result does not violate the rule configured for the instrument-test combination.
●	The control result violates the rule configured for the instrument-test combination and triggers an alarm.
●	The control result violates the rule configured for the instrument-test combination and triggers an error or critical error.
[...]	The result of the control is pending closure due to a bracketing rule.
≠	Rule evaluation has been performed with QC results with different units.
?( )	When there are not enough results to evaluate a rule, the software displays the rule to be evaluated in brackets next to the "?" symbol.

Multi-rule QC column icons

Icons	Description
(i)	The rule is configured to work in intracontrol mode.
RxKs()	For RxKs rules, the configured R and K parameters' values are displayed between brackets.

Multi-rule QC column icons

QC status

Indicates the instrument-test combination status at the time each QC result is received. This column may affect the validation of patient test results.

> If an instrument-test combination has multiple controls associated and one of them is violated, its status is set to the most restrictive rule violation until all controls are within target value.

The following icons may appear in this column:

Icons	Description
	The instrument-test status is correct.
	The instrument-test status triggers an alarm because one or more controls violate the rule configured for that instrument-test.
	The instrument-test status triggers an error, because one or more controls violate the rule configured for that instrument-test.
	The instrument-test is masked for processing, distribution, or both by a QC rule. This icon appears next to the status icon for all instrument-test QC results. Once the instrument-test is unmasked and you refresh the screen, it is removed from all related QC results.
	This instrument-test is masked by an actor other than QC, e.g. by instrument. This icon appears next to the status icon for all instrument-test QC results. Once the instrument-test is unmasked and you refresh the screen, it is removed from all related QC results.
[...]	The result of the control is pending closure due to a bracketing rule.
—	The test status for that result cannot be calculated because the result is pending review or is related to a standby bottle.

QC status column icons

Test

Indicates the test name for which the QC result was received or calculated.

The following icons may appear on this column:

Icons	Description
▼ ▶	Indicates that this is a calculated QC result. This QC result is calculated from the QC results of its embedded tests. You can choose these icons to display or hide the embedded tests.
↳	Indicates that this QC result is from an embedded test related to a calculated QC.

Test column icons

Result type

Indicates the type of expected value for this result.

The following icons may appear on this column:

Icons	Description
	Qualitative result
	Quantitative symmetric result
	Quantitative asymmetric result

Result type column icons

Test type

This column indicates the test type related to the received or calculated QC result.

The following icons may appear in this column:

Test type	Description
	▪ **Regular test** ▪ **Hemolysis** ▪ **Icterus** ▪ **Lipemia** ▪ **Hematology** ▪ **Hematology alarm** The specific test type is displayed in the tooltip.
	cobas e flow main test

Test type icons

Test type	Description
	cobas e flow embedded test

Test type icons

LinkageID

This column displays the ID provided by the Data Manager of the instrument that allows the software to relate patient results to the corresponding calculated QC result.

This column is only relevant for **cobas e** flow tests with calculated QC results.

Associated results

This column indicates that patient results are linked to this QC result and other related QC results, whereby an icon is displayed.

To view more information on these patient results from the configured validation screen, you can select the required QC results and from the drop-down list choose the **Associated results** field.

Affected results

The icon is displayed whenever there are patient results affected by only this QC result.

To view more information on these patient results from the configured validation screen, you can select the required QC results and from the drop-down list choose the **Affected results** field.

Unit

This column shows the units for the QC result. The units used are chosen from the **Unit** drop-down lists, from the **Manual result entry** and **ICA > Instrument definition > QC tests** screens.

External Multi-rule

This column shows the external violated QC rule.

Result usage

Indicates whether the result comes from a control set as **In use** or as **Study**.

Notifications

This column indicates the received alarm code. The description is displayed in the tooltip.

R1 and R2

It indicates what reagents are being used in the instrument.

By default, if the reagent is not informed, the ⚠ icon and a message informing you the reagent is pending to be assigned are displayed in the column.

Referral check

It indicates whether the QC result is **Pending** to be reviewed, **Not required** to be reviewed, or that the review has already been performed so the QC result is **Checked**.

Bottle status

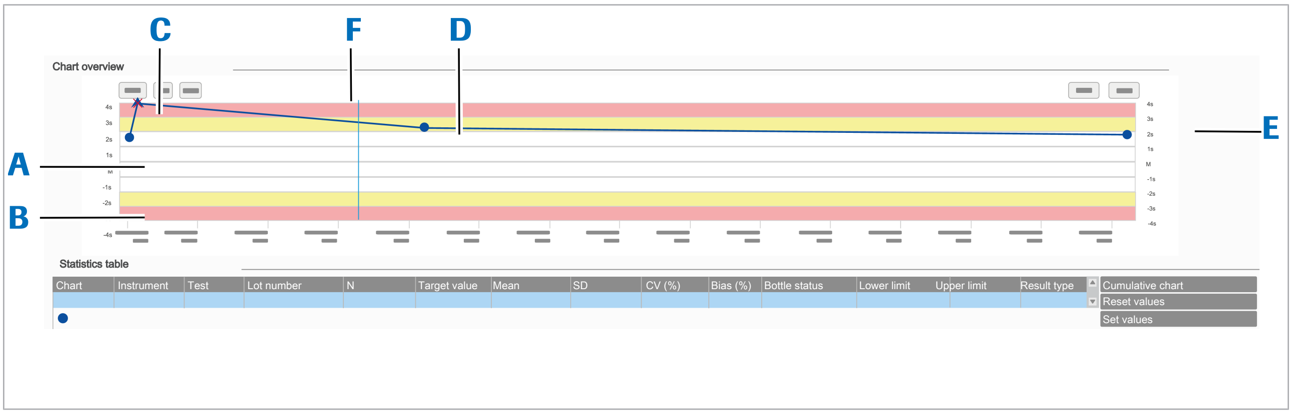
It indicates whether the results received are associated with a reagent bottle in status **Standby** or **Current**.

When filtering by **Current results**, only the last-received result for current and standby bottles are shown for the same Instrument-Test-Control.

About the Levey-Jennings chart

This chart monitors the progress of the quality controls performed for a certain test-instrument-reagent-control-lot combination during a specific period of time.

Accepted results, rejected results, and results pending review are included in the chart, but displayed differently.



- **A** 0 to 2 standard deviation area
- **B** 3 to 4 standard deviation area
- **C** Control result
- **D** 2 to 3 standard deviation area
- **E** Line bounding the results of a control
- **F** Bottle change

Levey-Jennings chart icons

The icons on the chart represent the status of the control or calibration.

Icon	Description
	The result of the calibration is correct.
	The result of the calibration is incorrect or is pending review.
	The result of the control has been rejected.
	The result of the control is pending closure due to bracketing.
	QC result greater than visible chart parameters.
	QC result lower than visible chart parameters.
	The lot usage has been changed from **In use** to **Study**, or vice versa.
	The target values for a control-lot have been updated.
	A QC result is received.
	Received QC result violates a QC rule.
	Received QC result is outside the reportable range.
	A QC result from Standby bottle is received.
	QC result is updated from Standby to Current.
	Bracketing QC result.
	Rejected QC result.

Levey-Jennings chart icons

Levey-Jennings chart lines

The lines represent the evolution of control results over time. Standby bottle control results, however, are not bounded by a line.

QC result markers

If, from the **Grouping period** drop-down list, you choose any grouping other than the **No group** option, the software displays the lot values from the most recent QC result in the group and the calculated average of the following values:

- **Group mean**: Mean calculated for the grouped results.
- **Value (in SD)**
- **Target value**: Target value from the lot.
- **Group range**: Range of group results, separated by a hyphen.
- **SD index**: SD calculated for the grouped results.

- **Group CV**: Variance coefficient calculated for the grouped results.

Statistics table

This table displays the statistic values calculated for a series of results of an instrument-test-lot combination.

To calculate the statistic values, the software only considers accepted QC results.

QC results from standby bottles are displayed in a separate row.

The following columns can be configured:

- **N**: Number of values used to calculate the mean and SD.
- **Target value**: Target value for that instrument-test-lot combination. It is displayed in the chart with a colored discontinuous line.
  It only applies to asymmetric results.
- **Mean**: Mean of the **N** values.
  The **Mean** value is calculated based on the same instrument-test-control-lot number.
- **N > SD**: Standard deviation. It is calculated by subtracting the minimum value from the maximum value and dividing the total by 2kSD.
  It only applies to symmetric results.
- **CV (%)**: Coefficient of variation. It is the result of dividing the calculated SD by the Mean and multiplying the result by 100.
  It only applies to symmetric results.
- **Bias (%)**: It is the percentage of (Result - Target value) / Target value.
  It only applies to symmetric results.
- **Lower limit**: Minimum value defined for that instrument-test-lot combination.
  This value is mandatory for asymmetric results.
- **Upper limit**: Maximum value defined for that instrument-test-lot combination.
  This value is mandatory for asymmetric results.
- **Result type**: Type of expected value for this instrument-test-lot combination. It can have the following values:
  - Qualitative ( )
  - Symmetric ( )
  - Asymmetric ( )

About printing the Full QC report

The generation of a single report for all the quality controls can be performed for instruments or combinations determined by the configuration of instrument-test-control-lot settings.

This report can be created from various individual/batch reports and automatically compiled into one output. This process is not instantaneous so a proactivity alarm announces the end of this process.

Qualitative QC results are only displayed in the **Full QC report**.

Full QC report settings

These options need to be set for each report to be generated. The most important criteria to be set is the **Date** required:

- **Last 12 hours**: Includes 12 hours of prior data.
- **Today**: This period includes the last 24 hours.
- **Last 2 days**: The last 48 hours.
- **Since yesterday**: Includes data from the beginning of the previous day.
- **Yesterday**: Only considers data between 24-48 hours past.
- **Last week**: From current timepoint, to a week prior.
- **Last month**: From current timepoint, to a month prior (includes 30 days of data).
- **Prev. entire month**: Contains data for a full calendar month e.g., if the current month is June, then data for all 31 days in May will be included in the report.
- **From... to...**: Manually set the period between two specific dates.
- **Parameter time**: Custom time period, inherited from configuration.

The additional options include configured parameters for **Location**, **Instrument**, **Test**, and the **Control**/**Control lot** applied.

From the **Grouping period** drop-down list, choose from the available options. QC results are then grouped accordingly and calculated by group option selected:

- **Group mean**: Mean calculated for the grouped results.
- **Value (in SD)**: Grouped by standard deviation values.
- **Target value**: Target value from the lot.

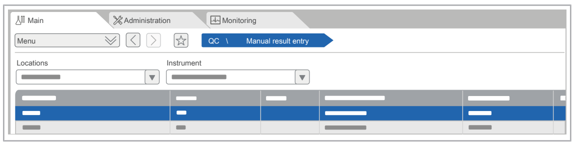
- **Group range**: Range of group results, separated by a hyphen.
- **SD index**: SD calculated for the grouped results.
- **Group CV**: Variance coefficient calculated for the grouped results.

Entering control or calibrator results manually

You can manually enter the results of controls or calibrations performed on the instrument, for example when the instrument is not connected to the software.

- ☐ **QC - Add, modify, delete QC results, and add comments to QC results** rights
- ☐ At least a control or calibrator

▸ To enter control or calibrator results manually



1 Choose **Main > QC > Manual result entry**.

2 From the **Location** drop-down list, choose the location of the analyzer whose control or calibration result you want to enter.

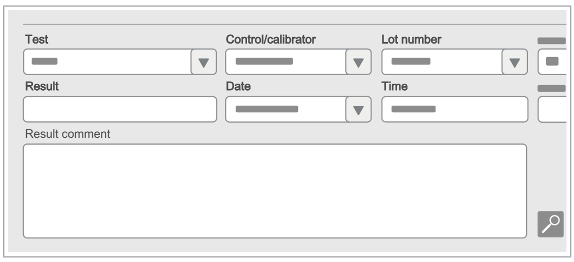
   ⓘ This option is only available for multisite environments.

3 From the **Instrument** drop-down list, choose the specific analyzer.

4 To enter a new result, do one of the following:

   - To enter a new result, choose the **Add** button.
   - To copy the settings of a previous result, choose the desired result in the table, and then choose the **Copy from** button.

   ⓘ You can use the filters to display the control or calibrations already performed. The **Date** default value depends on the **Default time for result display** general parameter configuration.



5 From the following drop-down lists, choose the relevant options:

   - **Test**
   - **Control/calibrator**

6 If you are entering a control result, enter information in the following fields:

   - **Lot number**
   - **R1 lot** and **R2 lot**: reagent lots.

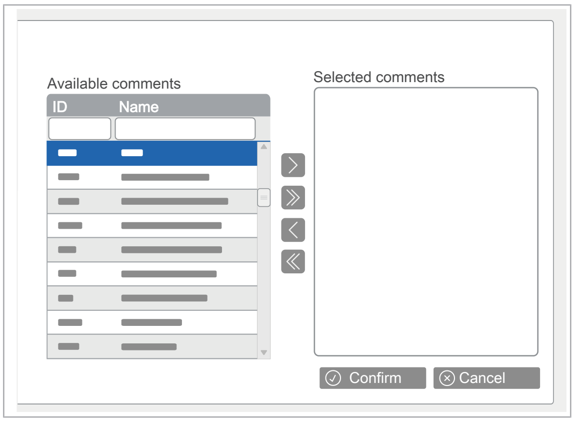
   ⓘ These fields are disabled for calibrator results.

7 Enter or choose the control or calibrator result.

8 From the **Unit** drop-down list, choose the units used for the result.

ℹ The units assigned in the **Administration > ICA > Instrument definition > QC tests** screen are displayed by default.

9 Optionally, if the date limit allowing for modification configured by the administrator is not exceeded, change the date and time of the control or calibrator result.



10 Optionally, to add a comment to the result, do one of the following:

- To enter a free text comment, in the **Result comment** field, enter it.
- To assign a coded comment, choose the 🔍 button and choose the required one.

11 Choose the **Confirm** button.

Displaying the cumulative chart for a control

You can display all the QC results obtained for a certain instrument (module - measuring cell, if informed)-test-control-lot combination as a single point.

This way, you can have an overview of the deviation of the results from the mean in a given period.

☐ Accepted symmetric QC results

▶ To display the cumulative chart for a control

1 Choose **Main > QC > Cumulative chart**.

- Alternatively, choose **Main > QC > QC result review**, and in the **Levey-Jennings chart** area, choose the **Cumulative chart** button.

2 If applicable, choose or enter the required options:

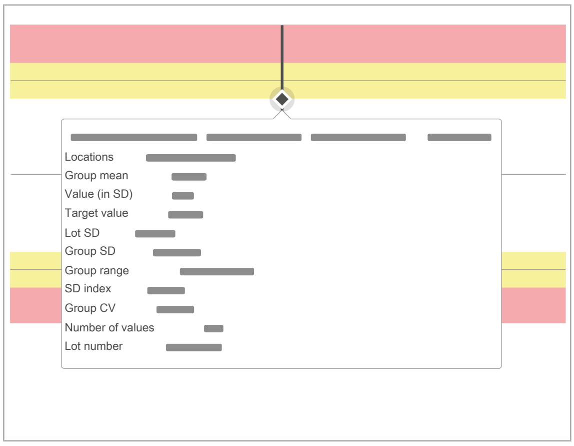
- **Location**
- **Instrument type**
- **Instrument**
- **Test**
- **R1 lot** and **R2 lot**: reagent lots
- **QC control**
- **Lot number**

ℹ The **Location** option is only available for multisite environments.

3 From the **Time period** drop-down list, choose the period of time for which you want to display QC results.

4 Choose the **Show** button.

→ The chart displays the mean of all the control results matching the criteria and their maximum deviation from the mean.



5 To display the statistics values for the cumulative result, hover the mouse over the result.

ⓘ The expected SD and the target values in the calculated statistics are the lot values from the last result for that combination.

6 Optionally, to change the magnification along the y-axis, choose the **Zoom in Y** button or the **Zoom out Y** button.

- Additionally, to return to the default zoom magnification, choose the **Reset zoom** button.

7 Optionally, to print a report of the cumulative chart and the statistic values, choose the **Print** button.

8 Additionally, to review, accept, and reject the QC results of a single point of the cumulative chart from the **QC result review** screen, do the following:

- Select the QC result you want to review.
- Choose the **QC result review** button.
- Then, in the **QC result review** screen, perform the required actions on the QC results.
- To continue reviewing the QC results, go back to the **Cumulative chart** screen.

ⓘ Only the QC results that match the filters from the cumulative chart are displayed. If any of the actions performed modify the QC result batch, the data displayed in the cumulative chart is recalculated.

Related topics

- About the cumulative chart (283)

About the cumulative chart

The cumulative chart shows the statistics of a control for a defined period of time.

Cumulative chart icons

Icon	Description
▲	QC result greater than visible chart parameters.
▼	QC result lower than visible chart parameters.

Cumulative chart icons

Statistics

In the chart, you can see the following calculated statistics:

- **Location**: Location of the instrument.
  Only available for multisite environments.
- **Group mean**: Mean calculated from the grouped results.
- **Value (in SD)**: (Group mean - Target value)/ Expected SD.
- **Target value**: Target result for that instrument-test-lot combination.
- **Lot SD**: Expected SD for that Instrument-test-lot combination.
- **Group SD**: Calculated SD for the grouped results.
- **Group range**: Range of results in that group, separated by a hyphen.
- **SD index**: Group SD/Expected SD.
- **Group CV**: Percentage of the Calculated SD/ Calculated Mean for the grouped results.
- **Number of values**: Number of accepted results used in the calculation.
- **Lot number**.

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Glossary

access rights

Authorization to perform operations associated with a specific shared resource, such as a file, folder, or printer. They must be granted by the system administrator to individual users or user groups.

administrator

User role that has the rights to manage users, configure, and monitor the system, validate results, and monitor the solution.

alarm

Audible or visual signal or message that warns about an error or potential error.

AON

Method of quality control based on data from patients in which an error condition is signalled if the average of selected consecutive data exceeds the control limits for the mean of the selected data.

authorization

Access rights granted to a person, program, device, or computer process or act of granting those rights to access certain information.

average turnaround time

Turnaround time that is based on completed and processed samples and calculated as the arithmetic mean. It indicates the average performance of a system.

batch

Group of orders or samples that are processed together.

bias

Estimate of systematic measurement error.

calculated QC result

QC result that is calculated from QC results of embedded tests.

calculated test

Test for which the result is calculated on the basis of other measured test results, with the help of algorithms and formulas.

calibration

Operation that, under specified conditions in a first step, establishes a relationship between the quantity values with measurement uncertainties provided by measurement standards and corresponding measurement indications with associated measurement uncertainties. In a second step, it uses this information to establish a relationship for obtaining a measurement result from an indication.

calibrator

Measurement standard used in calibration.

caution

Safety alert symbol indicating a hazardous situation which, if not avoided, could result in minor or moderate injury.

check box

User interface element that indicates whether an option is selected.

cobas e flow test

Product name for a test that consists of a pre-defined combination and sequence of embedded tests.

coefficient of variation

For a non-negative characteristic, the ratio of the standard deviation to the mean.

current bottle

Reagent bottle that is used by an instrument.

database

Collection of data formatted/arranged to allow for easy search and retrieval.

delay test

Test for which it takes more time to obtain the result than for the rest of the tests.

delta check

Comparison of the current result with a previous result of the same test performed on the same patient.

differential

Test that determines the number of each of the WBC types and reports the results in percentage and absolute numbers.

dilution

Process of adding a material, usually a liquid or gas, to another material or substance for purposes of decreasing the concentration of the former.

epidemiological notification

Message that physicians or laboratories send to a disease control center to notify a test result for a disease for which epidemiological outbreaks have to be tracked.

error

Fault condition classification for events occurring on the system.

error message

Message with the severity level error. An event that causes a message with this severity level may influence further proper functioning of the system and lead to failure.

expected values

Range of predefined values of test results expected for a defined group of healthy patients or materials.

Extensible Authentication Protocol

Protocol that supports multiple authentication methods.

function test

Test for analyzing substances at different intervals after the patient has taken a stimulation. Intervals and stimulations can be different for each of the tests included in a function test. An example of function test is the oral glucose tolerance test. There are different function tests: suppression test and stimulation test.

gender

Data type included in patient demographics.

hematology

Medical discipline that specializes in diagnosis, treatment, and prevention of diseases of the blood and bone marrow as well as of the immunologic, hemostatic (blood clotting), and vascular systems.

history

Record of all events that occurred to an object. It can be viewed by a user.

keyboard

Input device consisting of a set of individual keys similar to those on a typewriter. It is used to convey information from a user to a computer or data communications circuit.

laboratory

Facility that is part of an integrated health network and provides the conditions and instruments necessary to perform tests.

Levey-Jennings chart

Chart that shows QC results in relation to the expected mean and standard deviation.

lot

Definite amount of some product, material, or service collected together and submitted for examination or consumption.

lot number

Unique identification of a lot.

measurement unit

Definite quantity, defined, and adopted by convention, that is used as a standard for measurement.

medical validation

Evaluation of technically released test results in terms of their plausibility and in comparison with the patient's diagnosis.

message

Information to the user about an event that they should be aware of.

notice

Signal word indicating a hazardous situation which, if not avoided, could result in damage to the system.

operator

Person who physically interacts with the instrument on a regular basis.

order

Record or data structure that defines a command to the system or laboratory to prepare, test and/or analyze samples.

order demographics

Order-related data, such as test orders and orderer.

order ID

Unique identifier of an order on a system.

panel

Section on the user interface.

password length

Number of characters that a password contains.

patient

Person whose sample is tested on an instrument or system.

patient demographics

Data that is related to a patient.

patient evolution chart

Chart showing a patient's progress.

power supply

Electrical device that is used to convert electric current from a source to the correct voltage, current, and frequency to power the load.

pre-order ID

tbd

printer

Device that puts text or images on paper or other print media.

priority

Property of an element on a system that describes the urgency with which it has to be dealt with.

QC bracketing

Setting in which a test result must be preceded by, and followed by, a successful QC result before it is released.

QC result

Result of a QC test.

QC rule

Rule that validates the acceptability of a QC result.

QC target value

Expected value of a QC test for a given QC material or QC product.

reagent

Product used in laboratory testing to start a chemical reaction that is used to detect or quantify an analyte.

reference range

Range of test results expected for a defined group of healthy patients or materials.

release

Final step in the result validation workflow in which the evaluated test results are sent to the host.

report

Filtered set of data prepared and laid out for the purpose of displaying on screen, printing out, or exporting.

result

Outcome of a measurement.

safety precautions

Measures that are taken to avoid potential hazards.

screen

Component of the monitor that displays the information.

standby bottle

Reagent bottle that is used to replace the current bottle when this is empty.

stimulation

Metabolism and circulation stimulating substance used for function tests.

supergroup

Clustering of several test groups to one group.

table

One or more rows of cells commonly used to display numbers and other items for quick reference and analysis. Items in a table are organized into rows and columns.

target patient

Cumulative result of merging selective patient records.

technical validation

Validation of a patient result based on technical information such as valid QC results or calibration, as well as verifying and either confirming that measurements have been carried out according to the rules of laboratory best practices or taking the necessary actions if they have not.

test

Measuring procedure that requires laboratory equipment and reagents or assays in a specific clinical context and for a specific clinical purpose, in a specific population.

test group

Tests that are listed together on an order form or report form.

test status

Information about the position of a test in the workflow.

test type

Classification of tests based on how and with what a test measures something.

tree

Data structure containing zero or more nodes that are linked together in a hierarchy.

uninterruptible power supply

Device with a battery that allows limited continued operation of an instrument or other device during a power outage.

user rights

Tasks that a user is permitted to perform on a computer system or domain.

validation

Quality assurance process in which tests are evaluated before they are released to the host.

work area

Main user interface area for performing tasks and viewing data.

workplace

Higher level of organization that consists of functionally related components, and the lowest logical unit of organization within an information solution system below a work area.

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Index

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V

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