cobas® liat system

Host Interface Manual POCT1-A (DML)
Version 8.3
Software version 3.4 & 3.5

Publication information

Publication version	Software version	Revision date	Change description
1.0	2.1	December 2015	First release.
2.0	2.1.1	February 2016	Software update. Branding, address, and intended use updates.
3.0	3.0	June 2016	Software update Edition notice updated. Approvals section updated. Communication scenarios updated.
3.1	3.1	May 2017	New functionality: • Operator lists • Lot lists • Enhanced error and event handling • Observation (test) names updated so as to include the script used to process them, e.g.: Influenza A (FABA) Updated user interface Communication scenarios updated. Sequence and other UML diagrams added. Security enhancements, secure communications.
4.0	3.2	February 2018	New functionality: • `GEN_CFG` object barcode attributes added. Corrections: • Access control object (ACC) object permission_level_cd element supports the string "Administrator" for administrator rights. • Generic configuration object (GEN_CFGD) element: DateTime.TimeZone only supports certain strings. These must be exactly correct to prevent serious problems.
4.1	3.2	April 2020	New functionality: • Assay SARS-CoV-2 (SCFA) added • Removal of MRSA assay-related information

Revision history

Publication version	Software version	Revision date	Change description
5.0	3.3	Feb 2020	New functionality: • Support of patient verification workflow Patient verification (80) Patient verification objects (111) Patient verification request message (ROCHE.LIAT.PVI.R01) (154) Patient verification response message (ROCHE.LIAT.PVR.R01) (155) • Support of `note_txt` element in Acknowledgment object (ACK). Acknowledgment object (ACK) (89) • New section explaining the conversion of the manufacture lot number into the barcode lot number. About lot number (136) • Update of device configuration message Device configuration message (DTV.ROCHE.LIAT.CFG) (150) New settings added in the GEN_CFG object. Corrections: • Terminology of communication protocols • Supported range for the Autolock time (1 to 1440 minutes) • Connectivity item **Server**: fully qualified names are supported. • Connectivity item **Data synchronization**: list of supported data topics has been updated.
5.1	3.3	July 2020	New functionality • Assay SARS-CoV-2 (SCFA) added • Examples for SARS-CoV-2 (SCFA) added
5.2	3.3	February 2021	• Added information about Ethernet configuration and speed Corrections: • Description of un-acknowledged messages in Observations (results) • AutoReboot.Time formats in Generic configuration object (GEN_CFG) • Link to example in Keep alive message (KPA.R01) • Added related topics to Patient verification request message (ROCHE.LIAT.PVI.R01) and Patient verification response message (ROCHE.LIAT.PVR.R01) • Removed spurious ACC.expiration_date in Operators topic • Added description of message highlighting in Example message logs • Removed extra EVT in Communication scenario 5 - Send a validated assay lot to a DMS • Updated patient verification message example and table • Added missing PRContent.Users tag to message examples • Updated software version in message examples

Revision history

Publication version	Software version	Revision date	Change description
5.3	3.3	May 2021	New functionality: • Assay SARS-CoV-2 (COVA) added • Example for SARS-CoV-2 (COVA) added
6.0	3.3 patch 1	February 2021	Update for software version 3.3 patch 1. New functionality: • Detected Ct values (per target) are reported for valid positive results • Invalid results and information about aborted runs are now sent • Log level configuration • Result sending: AutoRelease replaces AutoSend Other changes: • Added new section 'Behavior regarding unknown device configuration settings, etc' • Tilt sensing removed
6.1	3.3 patch 1	May 2021	New functionality: • Assay SARS-CoV-2 (COVA) added • Example for SARS-CoV-2 (COVA) added
6.2	3.3 patch 1	September 2021	Corrections to text and formatting.
7.0	3.4	August 2022	Update for software version 3.4. New functionality: • 24/7 connection to DMS • Enhanced patient verification & send outcome workflow • Remote analyzer lock out • Remote service platform (**cobas**® **infinity** edge) • Data extraction tool • Remote deletion and archiving of results Other changes: • Added note that assay Influenza A (FABA) is no longer supported
7.1	3.4	May 2023	Corrections to text and formatting. What is new in publication version 7.1 (13)
8.0	3.4 & 3.5	October 2023	Update to include software version 3.5. What is new in publication version 8.0 (15)
8.1	3.4 & 3.5	November 2023	Added new assay **cobas**® **liat** SARS-CoV-2, Influenza A/B & RSV nucleic acid test (CFRA). What is new in publication version 8.1 (16)
8.2	3.4 & 3.5	December 2024	Added new assays **cobas**® **liat** CT/NG/MG nucleic acid test (CNMA) and **cobas**® **liat** CT/NG nucleic acid test (CNDA). What is new in publication version 8.2 (16)
8.3	3.4 & 3.5	May 2025	Added new assays **cobas**® **liat** SARS-CoV-2/Flu v2 nucleic acid test (SF2A) and **cobas**® **liat** SARS-CoV-2 v2 nucleic acid test (CV2A). What is new in publication version 8.3 (16)

Revision history

Edition notice

This publication is intended for Host Interface programmers and the Roche Service and Support organization of the **cobas® liat** analyzer.

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 **cobas® liat** system **User Guide** contains all information about the product, including the following:

- Safety
- Installation
- Routine operation
- Maintenance and calibration
- Troubleshooting information
- Configuration information
- Background information
- Approvals
- Contact addresses

The **cobas® liat Quick Start Guide** is intended as a reference during the **cobas® liat** analyzer setup.

The **cobas® liat Cleaning Tool Guide** is intended as an instruction for using the **cobas® liat** cleaning tool with the **cobas® liat** analyzer.

The **cobas® liat Advanced Tools Guide** is intended as a reference for performing various functions, including archiving data and syncing assay tube lots between **cobas® liat** analyzers.

The **cobas® liat** System **Host Interface Manual HL7** contains all necessary information about the HL7 interface.

The **cobas® liat** System **Host Interface Manual POCT1-A (DML)** contains all necessary information about the DML interface.

The **cobas® liat** System **User Assistance** is the online help version of the **cobas® liat** System **User Guide**.

Privacy notice
When you use User Assistance online, viewing events (topics viewed and searches performed) and IP addresses are logged.
The data collected is for Roche internal use only and is never forwarded to third parties. It is anonymized, and after one year it is automatically deleted.
Viewing events are analyzed to improve User Assistance content and search functionality. IP addresses are used to classify regional behavior.

⚠ 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.

⚠ Incident reporting

- Inform your Roche representative and your local competent authority about any serious incidents which may occur when using this product.

Images

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

Example communication messages

Any software version, build number and variable data included in the example communication messages is for illustration purposes only. It might not match what is actually transmitted by the analyzer or host.

Warranty

Any customer modification to the analyzer and the use of unauthorized assay tubes or accessories renders the warranty null and void.

Do not open the **cobas® liat** analyzer, change a component or install unauthorized software.

License information

cobas® liat software is protected by contract law, copyright law, and international treaties.

cobas® liat System contains a user license between F. Hoffmann-La Roche Ltd. and a license holder, and only authorized users may access the software and use it. Unauthorized use and distribution may result in civil and criminal penalties.

Open-source and commercial software

cobas® liat System may include components or modules of commercial or open-source software. For further information on the intellectual property and other warnings, as well as licenses pertaining to the software programs included in **cobas® liat** System, refer to the electronic distribution included with this product.

This open-source and commercial software and **cobas® liat** System as a whole can constitute a device regulated in accordance with applicable law. For more detailed information, refer to the corresponding user documentation and labeling.

Note that the respective authorization is no longer valid according to the corresponding legislation should any unauthorized changes be made to **cobas® liat** System.

Trademarks

The following trademarks are acknowledged:

COBAS and LIAT are trademarks of Roche.

All other product names and trademarks are the property of their respective owners.

Patents

See *http://www.roche-diagnostics.us/patents*.

Support

If you have any further questions, please contact your Roche Support representative with the system information collected as described in the Troubleshooting chapter in the **cobas® liat** system **User Guide**.

Feedback

Every effort has been made to ensure that this publication fulfills the intended use. All feedback on any aspect of this publication is welcome and is considered during updates. Contact your local Roche Service representative, should you have any such feedback.

In the U.S., call the following number: 1-800-800-5973.

Table of contents

About communication and workflows

POCT1-A protocol

Communication examples

Table of contents

Intended use

Refer to the **cobas® liat** system User Guide.

Symbols and abbreviations

Definitions

Even though this document is based on the POCT communication standard "POCT1-A2 - Approved Standard Second Edition" the common term "POCT1-A" is used in this document to name the POCT communication standard.

Throughout this document, the term "conversation" will be used when referring to an exchange of POCT1-A messages between the analyzer and a DMS. The boundaries of a conversation are marked by an initiation message and its correspondent termination message. All messages between the initiation and the termination, plus the initiation/termination themselves will determine the length of a conversation.

Product names

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

Product name	Descriptor
cobas® liat analyzer	analyzer
cobas® liat assay tube	assay tube

Product names

Symbols used in the publication

Symbol	Explanation
•	List item
	Cross-reference to related topics containing further information.
	Tip. Extra information on correct use or useful hints.
	Extra information within a task
	Figure. Used in figure titles and cross-references to figures.
	Table. Used in table titles and cross-references to tables.
	Code example. Used in code titles and cross-references to codes.

Symbols used in the publication

Symbols used in diagrams

Symbol	Definition
	POCT1-A message
	Timeline

Symbols used in diagrams

Abbreviations

The following abbreviations are used.

Abbreviation	Definition
ADT	Admission, Discharge and Transfer – a message type used in HL7 formatted communication
CDR	Clinical Data Repository
CIC	Connectivity Industry Consortium
CIS	Clinical Information System
CLSI	Clinical and Laboratory Standards Institute (formerly NCCLS)
DAP	Device and Access Point interface – specifies the POCT1-A interface between a POC device and an access point.
DML	Device Messaging Layer – specifies the complete POCT1-A messaging protocol (message types and message flow).
DMS	Data Management System (also called observation reviewer)
EDI	Electronic Data Interchange – term used in many industries to describe protocols to exchange data between enterprise-class information systems.
EUI-64	64-bit Extended Unique Identifier (for detailed information see http://standards.ieee.org/regauth/oui/tutorials/EUI64.html)
HIS	Hospital Information System – a comprehensive information system dealing with all aspects of information processing in a hospital. This encompasses human (and paper-based) information processing as well as data processing machines.
HL7	Health Level 7 - an organization that provides connectivity standards for the healthcare industry (see http://www.hl7.org/ for detailed information)
IEEE	Institute of Electrical and Electronics Engineers
LAN	Local Area Network – a computer network

Abbreviations used in the publication

Abbreviation	Definition
LIS	Laboratory Information System – a class of software which handles storing information generated by laboratory processes.
NACK	Negative acknowledgment
ORI	Observation Reporting Interface
OSI	Open Systems Interconnection
POC	Point of Care, the location or action of dealing directly with a patient
POCC	Point of Care Coordinator
POCT	Point of Care Testing – diagnostic testing performed near or at the patient care facility or bedside.
QC	Quality Control
SW	Software version
TCP/IP	Transmission Control Protocol/Internet Protocol. The standard internet communication protocol.
UTF	Unicode Transformation Format
TLS	Transport Layer Security
XML	Extensible Markup Language (see http://www.w3.org/XML/ for detailed information)

Abbreviations used in the publication

Supporting documents

This document makes references to or assumes familiarity with the information contained in the following documents:

External POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org.

Internal **cobas® liat** system User Guide

What is new in publication version 7.1

Minor changes Changed text about supported characters in note in About operators section.

Added Patient Verification definitions to Topics supported by analyzer table.

Corrected an instance of End of Topic in the message example in Communication scenario 9.

Added a reference to Message encoding to the introduction of the Generic configuration object.

Updated comments and fixed formatting for some elements in the Generic configuration object.

Corrected name of Connectivity.DataSynchronizationErrors element to Connectivity.DataSynchronizationWarningErrors in the Generic configuration object.

Changed name of ScheduledTasks.ArchiveDeleteResults. Schedule.Execution element to ScheduledTasks. ArchiveDeleteResults.Schedule.Trigger in the Generic configuration object.

Renamed elements in Generic configuration object from "ProblemReport.Content" to "ScheduledTasks.ProblemReport.Content", and updated message examples.

Renamed elements in Generic configuration object from "ShareLocations." to "SL".

Removed Printers.ThermalUser and Printers.ThermalPassword elements from Generic configuration object.

What is new in publication version 8.0

New branding

The cover page, the colors, and the fonts were updated. The product names, descriptors, and publication names were updated. The pictures of the analyzer and the screenshots were updated accordingly.

Product names (11)

Observation object (OBS)

Added Script name column to Observation ID's and script names used by the analyzer table, and resorted rows.

Observation ID's and script names used by the analyzer (SV=1.0) (100)

Example message logs

Replaced assay specific examples with a new generic observation message log.

Updated CT values in examples.

Example message logs (195)

Minor changes

Updated Publication information.

Added a note to CO.003 in the Device events table.

Updated the description of the Note object (NTE).

Updated Response Messages information in Request object (REQ).

Added notes to comments for SLNetworkSharex.Name and SLFTPSharex.Name in the Generic configuration object table.

Updated note about USB printers.

Device events (68)

Note object (NTE) (98)

Request object (REQ) (105)

Generic configuration object (GEN_CFG) (112)

Printer settings (130)

What is new in publication version 8.1

New assays

Added new assay **cobas® liat** SARS-CoV-2, Influenza A/B & RSV nucleic acid test (CFRA).

- Observation ID's and script names used by the analyzer (SV=1.0) (100)
- Values for universal_service_id (SV=1.0) (103)

What is new in publication version 8.2

New assays

Added new assays **cobas® liat** CT/NG/MG nucleic acid test (CNMA) and **cobas® liat** CT/NG nucleic acid test (CNDA).

- Observation ID's and script names used by the analyzer (SV=1.0) (100)
- Values for universal_service_id (SV=1.0) (103)

What is new in publication version 8.3

New assays

Added new assays **cobas® liat** SARS-CoV-2/Flu v2 nucleic acid test (SF2A) and **cobas® liat** SARS-CoV-2 v2 nucleic acid test (CV2A).

- Observation ID's and script names used by the analyzer (SV=1.0) (100)
- Values for universal_service_id (SV=1.0) (103)

Minor changes

Removed unsupported assays from examples.

About communication and workflows

About communication

In this chapter 1

About the analyzer functions

The analyzer and the associated disposable assay tubes are for in vitro diagnostic use. The analyzer identifies and/or measures the presence of genetic material in a biological sample. The analyzer automates all nucleic acid test (NAT) processes, including reagent preparation, target enrichment, inhibitor removal, nucleic acid extraction, amplification, real-time detection, and result interpretation in a rapid manner.

Overview

The assay tube uses a flexible tube as a sample processing vessel. It contains all assay reagents pre-packed in tube segments separated by seals. Multiple sample processing actuators in the analyzer compress the assay tube to selectively release reagents, move the sample from one segment to another, and control reaction conditions. A detection module monitors the reaction in real time, while an on-board computer analyzes the collected data and outputs an interpreted result. In a typical assay, a sample is first mixed with an internal control and then with lysis reagents. Magnetic glass particles are incubated with the lysed sample for nucleic acid enrichment, and are then captured and washed to remove possible inhibitors. Subsequently, nucleic acid is eluted from the magnetic glass particles and transferred alternately between tube segments at different temperatures for rapid PCR amplification and real-time detection.

For more detailed information about the analyzer, refer to the **cobas® liat** system **User Guide**, chapter **About the analyzer**.

About the POCT1-A communication standard

The analyzer can connect to hosts using the POCT1-A communication standard.

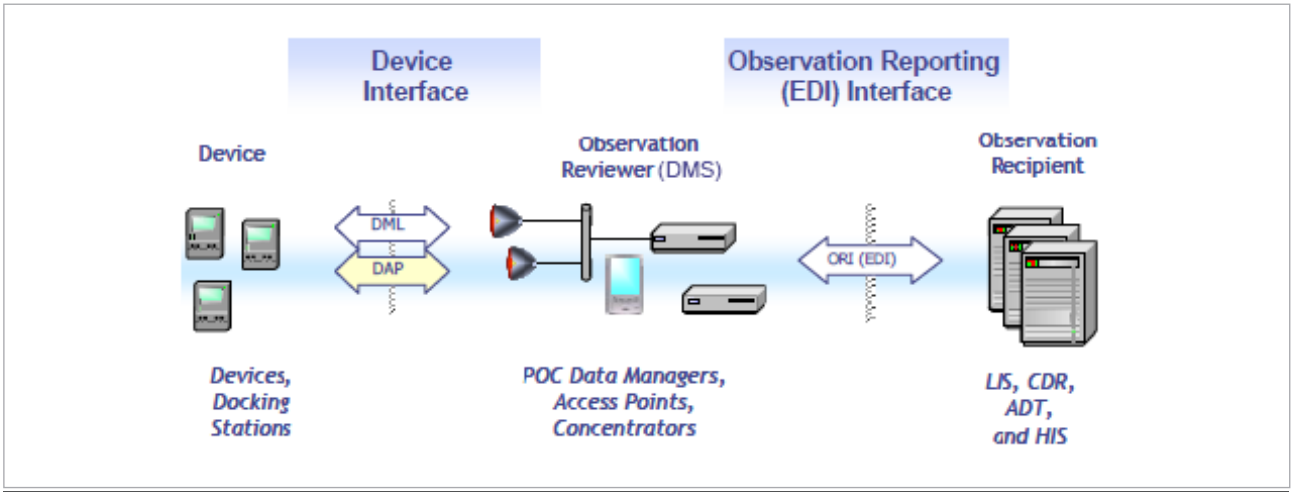
Host communication, using the POCT1-A standard, supports reading and adjusting settings, loading of users and patients and reading of measurement results (observations). The POCT1-A defines a minimal set for compliance, and a framework for extensions, because not all analyzer-specific requirements are covered by the POCT1-A standard objects and messages.

Additional vendor-specific objects and messages are specified in the sections Custom objects (110) and Message structure (141).

The communication with the data management server is shown below (in POCT1-A compatible terminology showing the POCT1-A interfaces).

The POCT1-A standard describes 2 types of communication interfaces for the data exchange:

- *Device Interface:* controls the flow of information between POC devices and Observation Reviewers (DMS).
- *Observation Reporting Interface:* describes messaging between Observation Reviewers and Observation Recipients (Hospital or Laboratory Information System) based on HL7 version 2.5.1. messages. This interface is used to send test and QC results from the analyzer to the HIS or LIS.



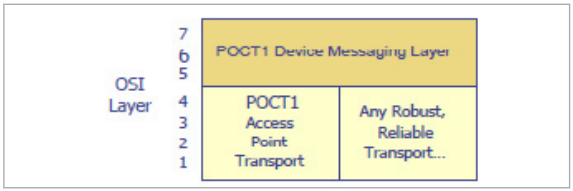
Overview of POCT1-A interfaces

This document defines the details of the Device Interface as shown in the figure above. The communication between the data management server (DMS) and any hospital information systems depicted through the Observation Reporting Interface or EDI is out of scope of this document.

The main objectives of making the analyzer POCT1-A compatible for communication with the DMS are:

- Bidirectional communication – allow the analyzer to send data to, and receive data from, an external DMS utilizing existing standards.
- QC and regulatory compliance – allow the analyzer to send QC data to the DMS.

Device interface



The Device Interface controls the communication between two parts of the deployed POC system – the POC device (device) and the POC Data Manager (DMS) – that need to be independent but are usually quite tightly coupled.

The Device Interface achieves the flexibility it needs as an interface while addressing the tight coupling that exists between the POC Device and the Observation Reviewer by defining its specification in two parts:

- Device Messaging Layer (DML) Specification – describes the structure, content, and flows of messages between a POC Device and an Observation Reviewer (OSI layer 5-7).
- Device and Access Point (DAP) Specification – defines a reliable, low-cost, and flexible means to communicate these messages (OSI layer 1-4). The analyzer DAP specification is detailed below.

Related topics

- The analyzer DML specifications is covered in Device messaging layer (30)

About connectivity

For connectivity related information, refer to the **cobas® liat** system **User Guide**, chapter **Connectivity**, which covers the following topics:

- How to connect the analyzer manually to the network
- How to connect the analyzer to the Roche remote service
- How to connect the analyzer to a host system
- Conceptual information about security, monitoring host connectivity, and data exchange with a DMS
- How to define and configure network resources
- How to back up results
- How to use the share lot folder
- How to configure the share lot function

Secure certificate validation

The analyzer uses TCP/IP based communication with the DMS through a wired LAN connection. The TCP/IP stack handles most of the lower-level communication protocol.

The analyzer can establish a secure connection with DMS hosts that support the Transport Layer Security (TLS) protocol version 1.2.

The secure communications server's certificate needed for establishing the secure TLS v1.2 connection shall be manually acknowledged on the analyzer by the Administrator. This acknowledgment just needs to be done once, prior to the first secure connection to the DMS. All upcoming secure connections will "remember" this first manual Acknowledgment, and will use the stored value to verify the identity of the DMS host.

Ethernet connection

The Ethernet connection does not need to be configured. The **cobas® liat** system is capable of communicating at 10/100 Mbps, at full or half duplex. The highest common speed between the connected devices is used.

Monitoring host connection

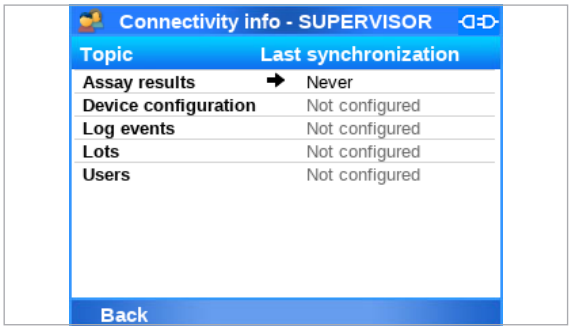
The analyzer provides a way to monitor the connection status in the graphical user interface.

When a connection to a host system is taking place, you can see the following icons in the upper right hand corner of the screen:

Icon	Description
	The connection between the analyzer and the host is configured, but is not currently active.
	There is an active connection between the analyzer and the host, but data is not currently being transferred.
	There is an active connection between the analyzer and the host and data is currently being transferred.

Connection status icons

To display information about the last connection, or force a connection to the DMS, choose the icon. The **Connectivity info** screen is displayed.



To view the synchronization status of each of the exchanged data topics (assay results, users, etc.), choose the **Details** button.

- If synchronization has not yet occurred, **Never** is displayed.
- At a displayed time stamp, the analyzer and the DMS were in sync:
  - The analyzer and the DMS were checked to be in sync at the displayed date and time.
  - Only if the analyzer and the DMS were found to be out of sync, data exchange for the topic workflow completed successfully at the displayed date and time.
- If a data topic is not configured for exchange with the DMS, **Not configured** is displayed.

The analyzer does not constantly connect to the host. The connection occurs in the following instances:

- During the configured intervals (when connected to the DMS)
- When transmitting results (when connected to the DMS or LIS)
- When verifying patient information (when connected to the DMS)
- When the analyzer is started (either initially or after the daily restart when connected to the DMS)

Related topics

- Supported workflows (43)

Device messaging layer

This section introduces the Device Messaging Layer for the analyzer. This layer is responsible for high-level communication between the analyzer and the DMS. This high-level communication is described in terms of concepts defined by the POCT1-A standard.

Messaging components (nomenclature)

The messaging components for POCT1-A compatible communication are described in POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org, appendix B, chap. 2.4.

The "SN" and "SV" attributes are used to specify the code set from which the value contained in the ‘V’ attribute is drawn.

- SN: The name of the registering authority for the code set
- SV: The version of the code set

If SN and SV attributes are transmitted, the value for the attribute "SN" is set to "ROCHE" and the attribute "SV" is set to "1.0".

If none of these coding system attributes (i.e. SN, SV) are specified, the code set is assumed to be the “POCT1-A” standard. In this case these attributes are not transmitted.

Message encoding

The analyzer uses XML for application-level message encoding. The XML encoding rules are those defined in the section on Data Types in the HL7 specification.

Both the DMS and the analyzer are responsible for encoding (and decoding) data values according to the XML 1.0 (Fifth edition) specifications.

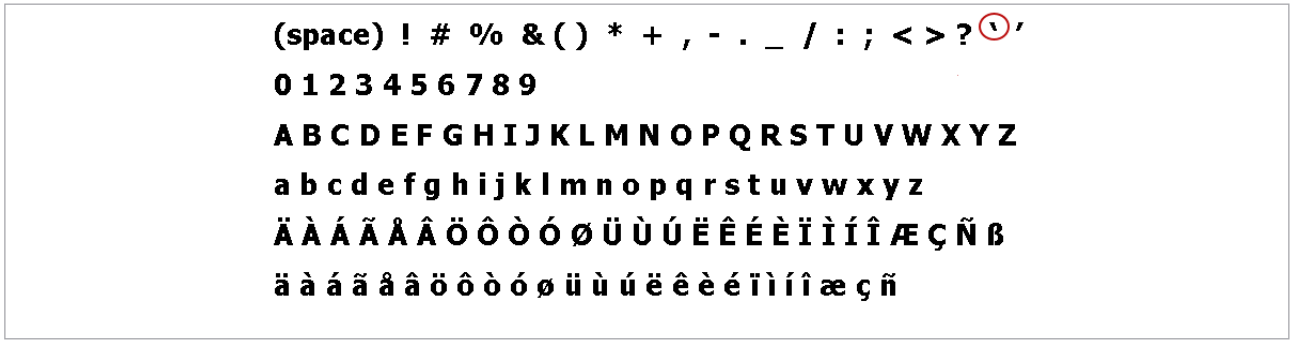
Character encoding used in the message is UTF-8 and is identified in the message XML header.

```
<?xml version="1.0" encoding="UTF-8"?>
```

If a received POCT message does not include the used character set encoding in the XML declaration, the default XML character set encoding UTF-8 is assumed.

Supported characters by the analyzer

The supported characters that can be entered via the touch screen of the analyzer are limited to ASCII characters without the following character: “” (char 96 ASCII).



Nevertheless, other characters received by a connected DMS can be displayed on the UI.

Non-supported characters

For any attribute received by the analyzer (e.g. user ID, user name, lot number etc.), the following characters are not supported:

Character	Hex value	Description
"	22	Double quote
’	27	Single quote
`	60	Grave / accent

Non-supported characters for any attribute received by the analyzer

In addition, when receiving user IDs or sample IDs, the following characters are not supported:

Character	Hex value	Description
[NUL]	00	Null
[SOH]	01	Start of heading
[STX]	02	Start of text
[ETX]	03	End of text
[EOT]	04	End of transmission
[ENQ]	05	Enquiry
[ACK]	06	Acknowledge
[BEL]	07	Bell
[BS]	08	Backspace
[HT]	09	Horizontal tab

Non-supported characters for user IDs or sample ID

Character	Hex value	Description
[LF]	0A	Line feed
[VT]	0B	Vertical tab
[FF]	0C	Form feed
[CR]	0D	Carriage return
[SO]	0E	Shift out
[SI]	0F	Shift in
[DLE]	10	Data link escape
[DC1]	11	Device control 1
[DC2]	12	Device control 2
[DC3]	13	Device control 3
[DC4]	14	Device control 4
[NAK]	15	Negative acknowledge
[SYN]	16	Synchronous idle
[ETB]	17	End of transmission block
[CAN]	18	Cancel
[EM]	19	End of medium
[SUB]	1A	Substitute
[ESC]	1B	Escape
[FS]	1C	Field separator
[GS]	1D	Group separator
[RS]	1E	Record separator
[US]	1F	Unit separator
[Space]	20	Space
&	26	Ampersand
;	3B	Semicolon
\	5C	Backslash
^	5E	Caret / circumflex
|	7C	Vertical bar
~	7E	Tilde
[DEL]	7F	Delete

Non-supported characters for user IDs or sample ID

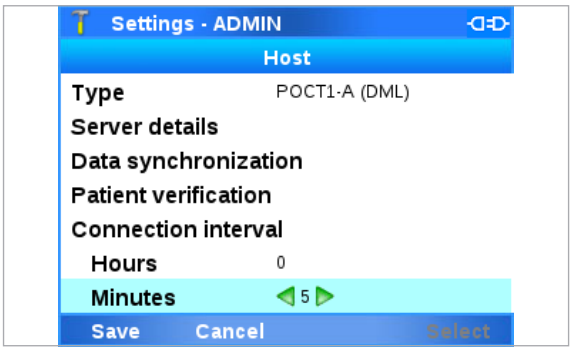
Messaging profile

The analyzer supports the Basic Profile as described in Appendix B, Section 4.1 of *POCT1-A2 Point-of-Care Connectivity - Approved Standard Second Edition*, standardized under CLSI Vol. 26 No. 28. The analyzer uses the *Synchronous Acknowledgment* connection profile – all conversations have to be synchronous.

The analyzer does not support Continuous Mode (described in Section 4.2 of the same appendix) or Asynchronous Observation Acknowledgments (described in Section 4.3 of the same appendix).

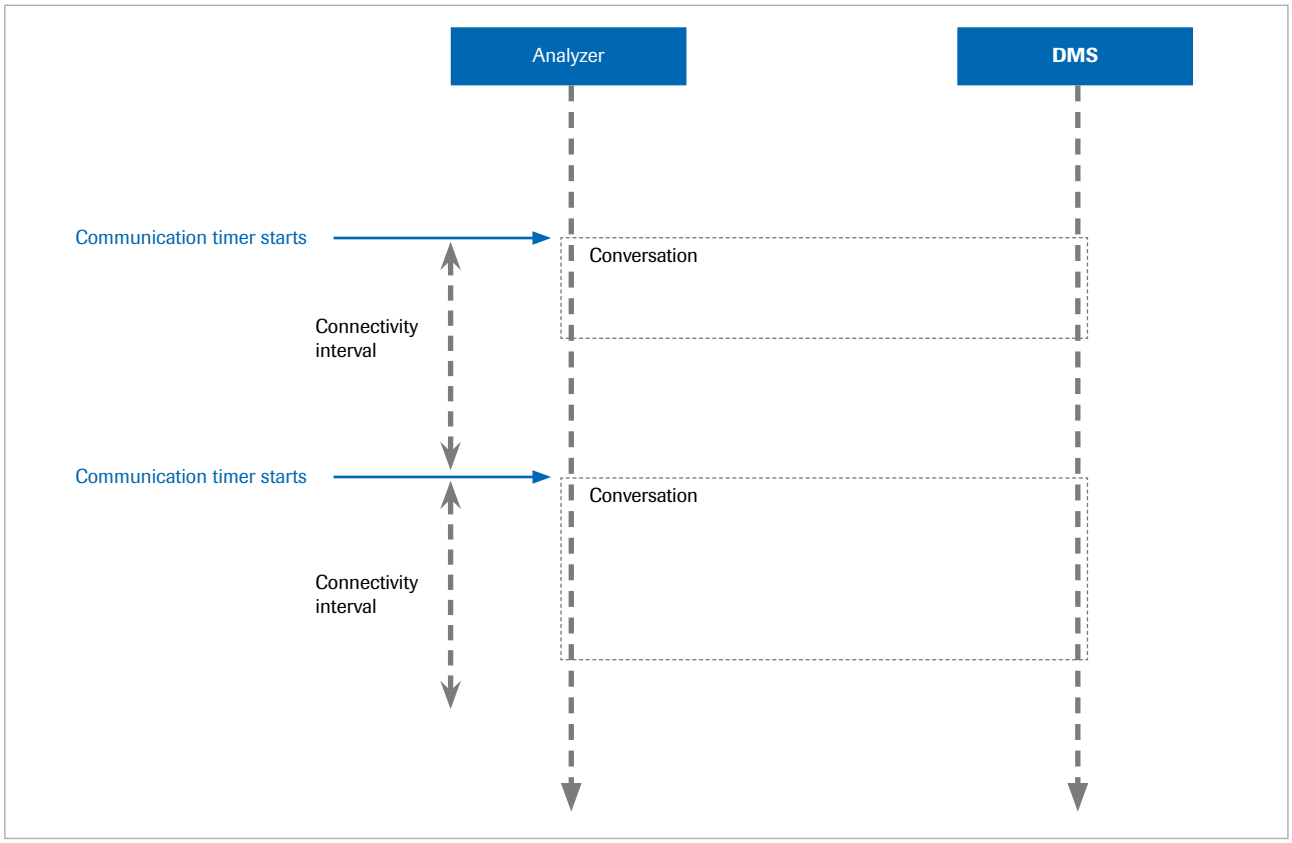
Communication initialization

Periodic communication



The analyzer periodically establishes a connection with the DMS, according to the value configured in the Connectivity interval setting:

The interval allows a programmed periodic communication with the DMS that can be configured from 5 minutes to 24 hours. The interval starts counting as soon as the connection is established with the DMS. Most DMS "conversations" should fit on the lowest value for the interval (5 minutes), nevertheless, the true purpose of this programmed interval is to keep the DMS updated with the analyzer's data as often as it is required by the POCC.



Periodic communication and connectivity interval

This periodic interval communication can be interrupted by a "forced communication".

Forced communication

Besides the configured periodic communication, the analyzer forces a connection with the DMS when it enters or leaves the Busy state. The analyzer is in Busy state during the following processes:

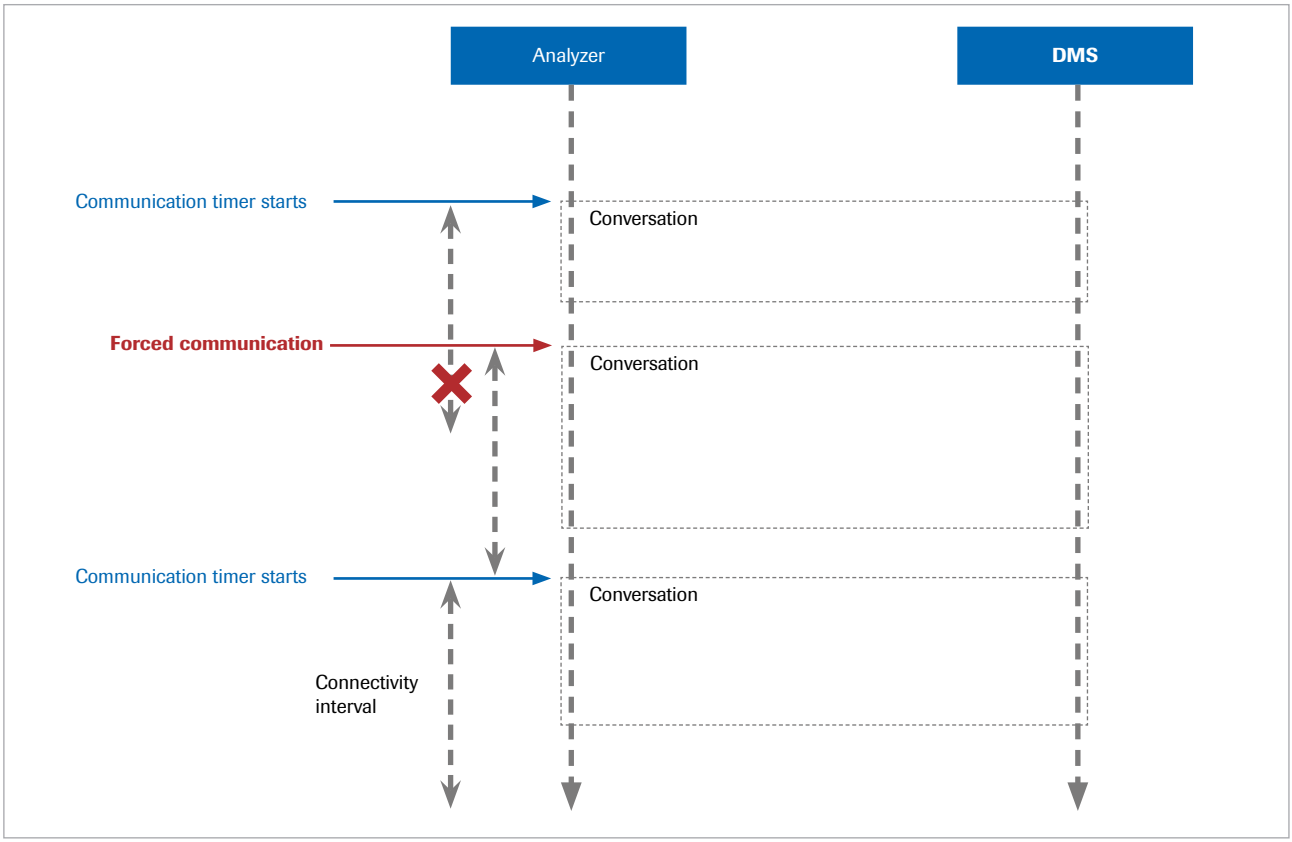
- An assay run is being executed.
- A lot validation is being performed.
- Any of the import, export, or archive functionalities is triggered from the **Tools** menu.
- The software update process is being executed.
- When a problem report (manually triggered or scheduled) is executed.

The analyzer also forces a connection for the following processes, which are not based on state changes:

- A result is released.
- A result is sent manually from the user interface.

For detailed information on any of the above processes, including using the connection button, refer to the **cobas® liat** system User Guide.

A “forced communication” is basically a connection that the analyzer establishes with the DMS host outside of the periodic intervals explained in the previous section, as it is depicted in the following figure.

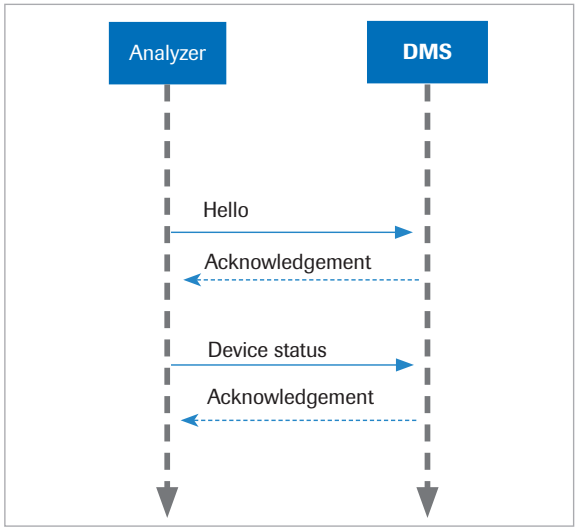


Communication initialization with forced communication

If one of the described user actions (entering/exiting the Busy state) starts (tries) a “forced communication” while there is an ongoing communication, the “forced communication” takes place as soon as the current one finishes.

For more information about when and how the communication is terminated, refer to the section Communication termination (37) in this manual.

Initialization flow



As soon as a connection is established between an analyzer and a DMS, the analyzer starts a conversation by sending a Hello message and wait for an Acknowledgment message sent by the DMS. All established connections (sockets) are always started (opened) from the analyzer.

After receiving a valid Acknowledgment message in response to a Hello message, the analyzer sends the Device status and is waiting again for an Acknowledgment.

If the analyzer does not receive a positive Acknowledgment message in response to its Hello message or its Device status message, the analyzer will immediately disconnect from the DMS by tearing down the lower-level link (without sending a Terminate message).

Communication termination

After a conversation has been established it can be terminated.

According to POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org, Sect. 4.1.11 abnormal terminations and initiated terminations can be distinguished:

Initiated termination

An *initiated termination* can be initiated from each participant by sending a Terminate message. The recipient of a Terminate message must send an Acknowledgment message.

If the analyzer finished the Terminate topic, the analyzer disconnects from the DMS by tearing down the lower-level link.

It is important that both a DMS as well as an analyzer are prepared to receive and process a Terminate message at any time during a conversation.

Preferred termination

The analyzer under normal circumstances expects to receive the Terminate message from the observation reviewer (the external DMS), as described in the external supporting document, Appendix B, Section 4.1.11.1.

Supporting documents (13)

If the analyzer does not receive a Terminate message after successfully sending the observations in a reasonable amount of time, it will initiate the conversation termination by itself. The same applies to any other topic supported by the analyzer.

Abnormal termination

Under normal circumstances, a conversation is always terminated by the DMS. However, there are situations in which the analyzer is required to terminate an ongoing conversation:

- Operator needs to perform patient tests
- Network connection is lost
- Abnormal program termination

Operator initiated termination

To support this scenario, the analyzer must be allowed to terminate a conversation at any time. It is important for the DMS to be prepared to handle such termination requests promptly; otherwise the analyzer is forced to terminate the lower level TCP/IP connection abruptly.

Network connection loss

Since the TCP/IP-based lower level transport is robust and reliable, network connection loss is detected by the lower level protocol, which informs the application layer. When the analyzer is informed by the lower level protocol of the loss of network connectivity during a conversation, it must clean up the connection and any local states in the context of the current conversation.

Abnormal analyzer program termination

The analyzer will send a protocol termination message if the Software ends abruptly.

There might be scenarios where the analyzer will not be able to send the protocol termination message. In this case it is up to the DMS to implement a Timeout strategy, as suggested by the POCT1-A specification.

Error handling

According to POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org, Sect. 3.4 *application errors* and *protocol errors* are distinguished.

Application errors

From the communication perspective application errors are the set of errors that occur during the processing of messages.

If an error occurs on the analyzer's side while processing a received valid message, the analyzer returns an Application-error-acknowledgment message. In the message, it informs the DMS why the message has been rejected. At any time, the DMS can also request an error report by sending an Event message.

If an Acknowledgment reports an error condition ("error_detail_cd" attribute value = `AE`), it might include an element (attribute "note_txt") containing a specific error description (whenever available). The receiving system may process, log, display, or discard the error description.

Note: The AE acknowledgment is also referred to as "negative acknowledgment", or NACK.

Errors processing topics (40)

Acknowledgment object (ACK) (89)

When receiving an Application error-acknowledgment in reply to any other POCT message, the analyzer returns an Escape message to finish the current topic.

Escape message (ESC.R01) (144)

Protocol errors

Protocol errors are faults that occur either in the delivery of messages or the receiver cannot handle the message. Receiving wrong, unknown or unexpected messages or when the analyzer is in a state where it cannot handle the message (e.g. incompatible with current topic context) causes a protocol error.

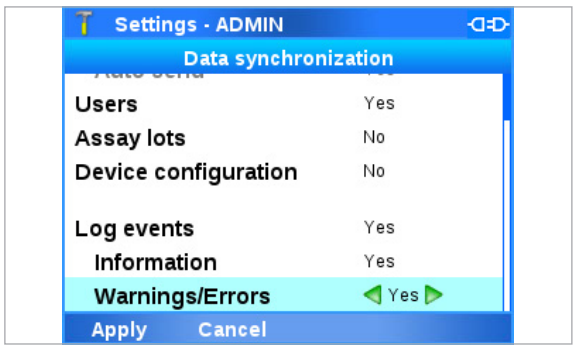
All errors that occur in the lower level transport layer i.e. transport errors in the use of the TCP/IP stack are also translated as protocol errors.

Protocol errors are always answered by the analyzer with the Escape message. Table 30 in Appendix B of the POCT1-A Specification POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org lists the different escape error codes.

Errors processing topics

Whenever the analyzer detects an error after receiving or processing a message/topic, it is stored locally. During the next communication with the DMS, the error is reported as an Event, and it is up to the DMS to request the analyzer Events and receive the error.

Depending on the nature of the error, Events that represent a detected error while processing messages/topics are reported as “CO.[number]” or "SC.[number], where number is a 3 digit identifier.

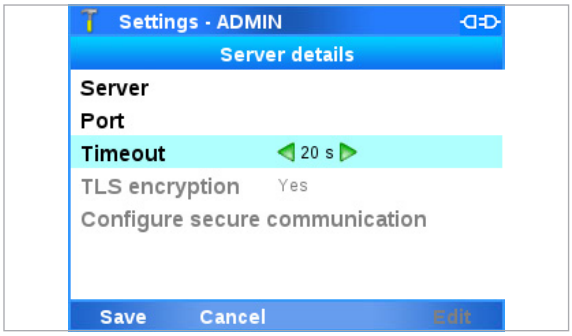


In order to store errors and send them as events to the connected DMS, the analyzer should be configured to do this, as in the screenshot.

Related topics

- Events (68)
- Device events (68)

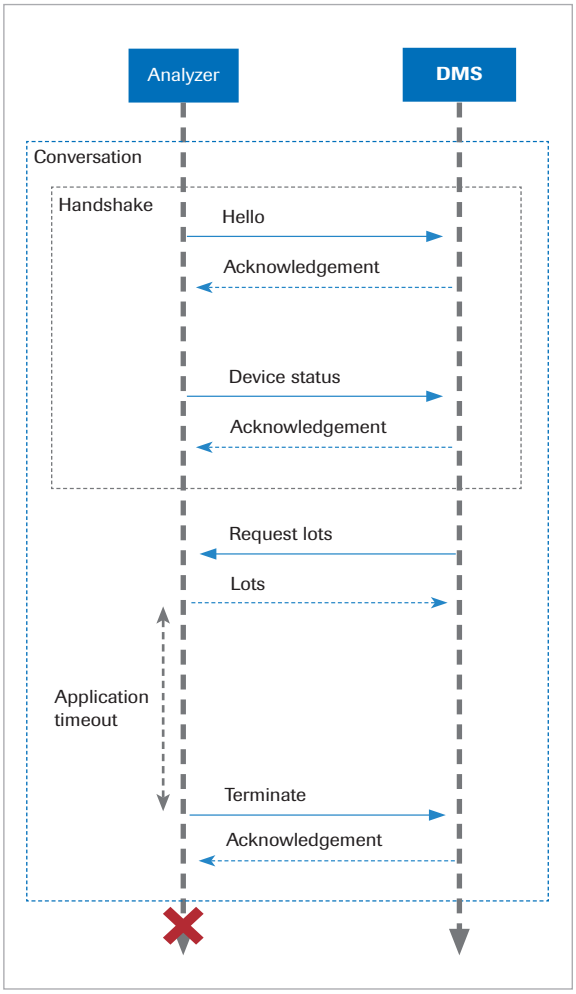
Application timeout



An application timeout occurs when one participant in a Conversation does not send an expected response within a predetermined period. An application timeout is distinct from lower-level timeouts that occur when the data link is broken.

Configure the application timeout in **Settings > Connections > Host > Server details**.

Supported range: 1 - 120 seconds



In this scenario, if the analyzer does not receive a final Acknowledgment message after sending the Terminate message, it closes the connection anyway after waiting for a short period of time.

Whenever the timeout is changed via a Device Configuration directive, any active connection with the DMS is reset, and on the next connection the new Timeout is considered.

Keep alive

The analyzer can process Keep alive messages from a connected DMS, but it does not send this kind of message.

The DMS sends a Keep alive message to maintain the connection if it has not received a message within a given period. The analyzer immediately replies with an Acknowledgment message.

Related topics

- Keep alive message (KPA.R01) (145)
- Example: Keep alive message (189)

Supported workflows

In this chapter 2

Workflows

NOTICE

Avoid large data transfers

A simultaneous transfer of large amounts of data to the analyzer can cause it to become inoperable.

- Split large amounts of data into smaller chunks.

Conversations and topics

When the analyzer establishes a connection to a remote host (DMS) using the POCT1-A protocol, a “conversation” is started. The analyzer starts the conversation by sending a Hello and a Device status message. The conversation ends when either the DMS or analyzer sends a Terminate message.

Within a conversation, the DMS is able to send one or more of the following requests to the analyzer:

- Events
- Lots
- Operators
- Patient verification
- QC and/or test results (observations)

All the listed requests are standard POCT1-A messages, except the Lots and patient verification messages, which are custom messages for the **cobas® liat** analyzer.

Events, lots, operators and results topics are confirmed with an Acknowledgment message and are finished by an End of topic message. The analyzer can also receive a Device Configuration directive from the host. Directives just receive an Acknowledgment message and no End of topic message.

Communication scenarios

The following table lists all the communication scenarios (topics) that are currently supported by the analyzer.

Note: the topics *Operators (update)*, *Lots (update)*, and, *Device Configuration* only work if no user is logged on, or when the walk-by screen is active when the communication is started.

Name	Description	Communication flow	Input	Output
Results	The analyzer sends observations (test results or QC results) to the host: • Automatically after measurement • Or, triggered manually by the operator	Unidirectional: from analyzer to host	• Request from host • Acknowledgment	Test results / observations
Operators	• The host sends a command to synchronize the analyzer's operators with the host. The user must configure the analyzer to enable this. This communication workflow is initiated only when no user is logged on, or when the walk-by screen is active. • The analyzer sends a user list (full or partial) to the host.	Bidirectional: from/to analyzer from/to host New users cannot be added on the device if operators are shared over DMS.	Acknowledgment from host	Operators
Lots	• The host sends a command to synchronize the lots with the host. The user must configure the analyzer to enable this. This communication workflow is initiated only when no user is logged on, or when the walk-by screen is active. • The analyzer sends a lot list (full or partial) to the host.	Bidirectional: from/to analyzer from/to host Lots cannot be deleted on the device if lots are shared over DMS.	Acknowledgment from host	Validated Lots
Device Configuration	The host sends a command to synchronize the device configuration with the host. The user must configure the analyzer to enable this. This communication workflow is initiated only when no user is logged on, or when the walk-by screen is active.	Unidirectional: from host to analyzer	Acknowledgment from host	Analyzer configuration

Communication scenarios

Name	Description	Communication flow	Input	Output
Patient verification	The analyzer sends a Hello message to initiate communication with only two values in the device capabilities object	Bidirectional: from/to analyzer from/to host	• Request from host • Acknowledgment	• Patient ID PHI information: • Name • Gender • DOB
Events	The analyzer sends all relevant events. These events contain Information/Warning/Error messages for the POCC.	Unidirectional: from analyzer to host	• Request from host • Acknowledgment	Device events
Lock / unlock	The host sends a request to lock the analyzer so that it cannot run tests, or a request to unlock it again.	Unidirectional: from host to analyzer	• Request from host • Acknowledgment	

Communication scenarios

Observations (results)

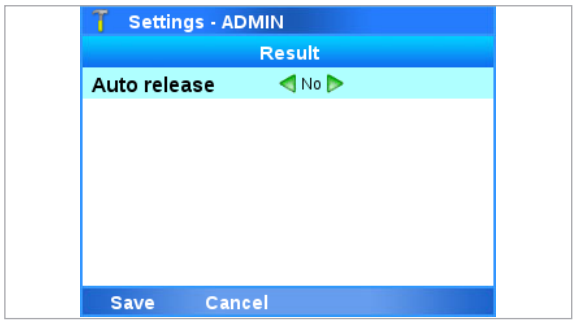
The analyzer can generate positive, negative, invalid, indeterminate, or aborted overall results. The individual target results can be sent for positive, negative, invalid or indeterminate results.

The following table shows the communication scenarios as they are currently supported by the analyzer.

Name	Description	Input	Output
Auto release results	The analyzer releases patient results (observations) to the DMS automatically after measurement. All released results are automatically sent.	Acknowledgment from DMS	Test results
Release results manually	The user selects patient results (observations) that are stored on the analyzer and sets their status to released. Once a result is released, it is automatically sent.	Acknowledgment from DMS	Test results

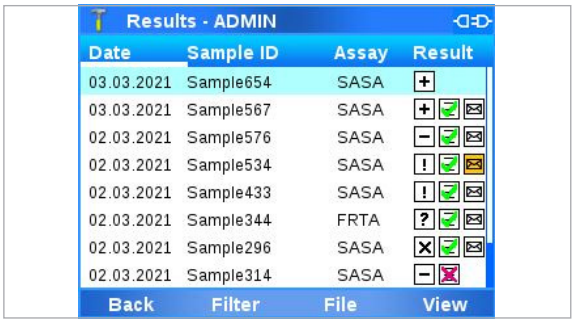
Supported communication scenarios

Releasing results manually

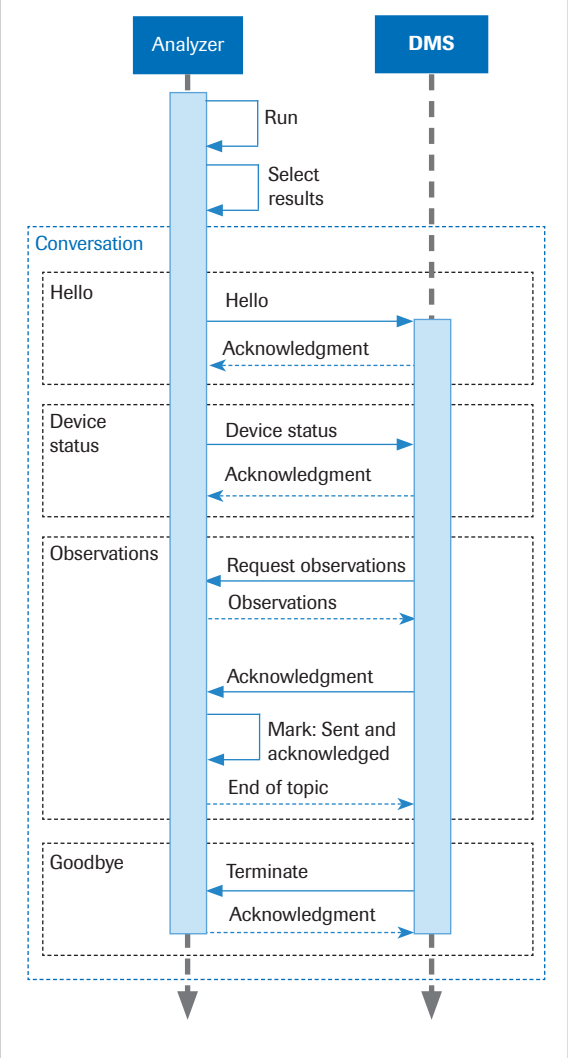


You can configure the analyzer to release results only manually to a connected DMS. In the **Settings > System > Result settings** screen, set the field **Auto release** to “**No**”.

On the Results view screen there is an option called “Approval” which allows an operator to either release or reject the result. Rejected results cannot be sent to a DMS. On the other hand, the analyzer sends released results automatically.



The icons on the right-hand column of the screen indicate the status of the result.



To send a result, the operator releases a result on the analyzer. The analyzer waits for a Request observation message, after which it sends the result itself. The host processes the received message, stores the result and sends back an acknowledgment. When the acknowledgment is successfully received by the analyzer, the result is marked by a white envelope indicating “sent to host and acknowledged”.

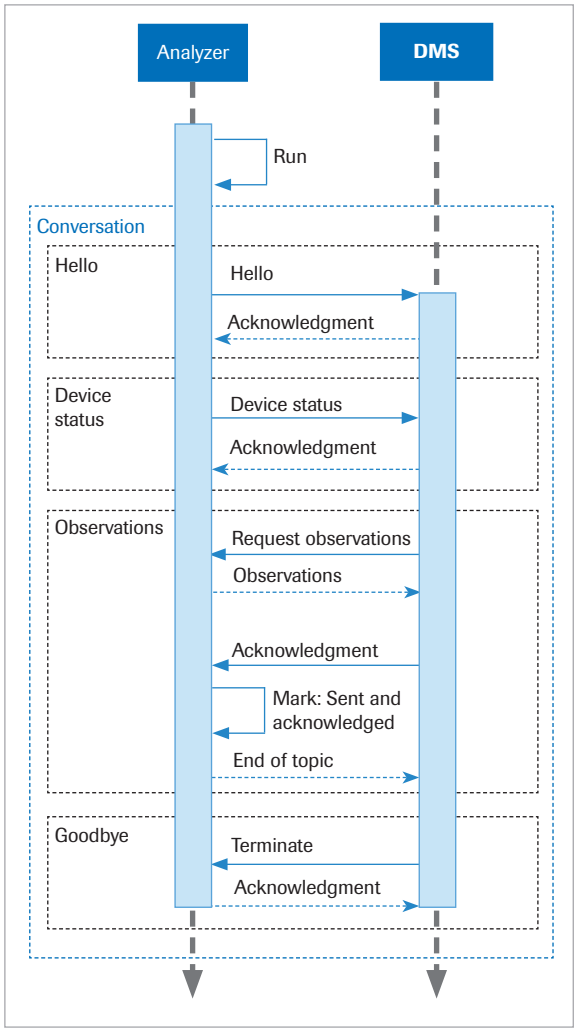
The acknowledgment is logically linked by the control ID from the Observation message (test result). When the host encounters an error, the acknowledgment contains information about the error condition. When the host does not send an acknowledgment, the analyzer times out. An orange envelope indicates a result has been released, and possibly sent, but there is no further information about an acknowledgment. This may be due to an error, because the message was not accepted by the host, because the host did not send a proper response, or simply because the host has not yet requested results (subsequent to the result being released), hence the result has not actually been sent yet.

- Acknowledgment object (ACK) (89)
- Observation object (OBS) (99)
- Request object (REQ) (105)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Releasing results automatically

The **Auto release** option allows the analyzer to automatically release overall results and send them to the host once the results are generated. Indeterminate, or invalid overall results, and information about aborted runs, are also sent to the host.

When the analyzer completes a run, it automatically releases the results, which are then sent to the host. The host processes and stores the received results and sends back an acknowledgment so that the analyzer can mark the results as “sent to host and acknowledged”.



Configure the **Auto release** option in the **Settings > System Result settings** screen.

After the analyzer has completed an assay run, it automatically tries to send the result to the host, as follows.

1. The analyzer opens a POCT1-A 'conversation'. In the 'conversation startup' (Hello, Acknowledgment, Device status, Acknowledgment), specifically on the Device status, it is stated if there are new results and/or device events that have not been reported to the POCC.
2. After receiving an Acknowledgment message from the host, the analyzer sends a Device status message to indicate that a new observation (test result) is available. All stored results are reported in the Device status message.
3. If the analyzer receives a Request observation message from the host, it sends the completed result.
4. After the host has processed and stored the result, it sends an acknowledgment
5. After receiving the acknowledgment from the host, the analyzer marks the result with a white envelope indicating “sent to host and acknowledged”.

The acknowledgment is logically linked by the received message control ID from the Test Result message. When the host encounters an error, the acknowledgment contains information about the error condition. When the host does not send an acknowledgment, the analyzer times out. In either error condition, the analyzer marks the results as “not acknowledged” (marked as an orange envelope).

- Acknowledgment object (ACK) (89)
- Observation object (OBS) (99)
- Request object (REQ) (105)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Result requests when database is locked

Sensitive health information of results, for example patient ID, is secured in an encrypted database on the analyzer. The encrypted database is unlocked on the first user login after instrument startup/reboot. Before this first login, results are not accessible and the analyzer rejects any requests for results.

Operator and lot lists

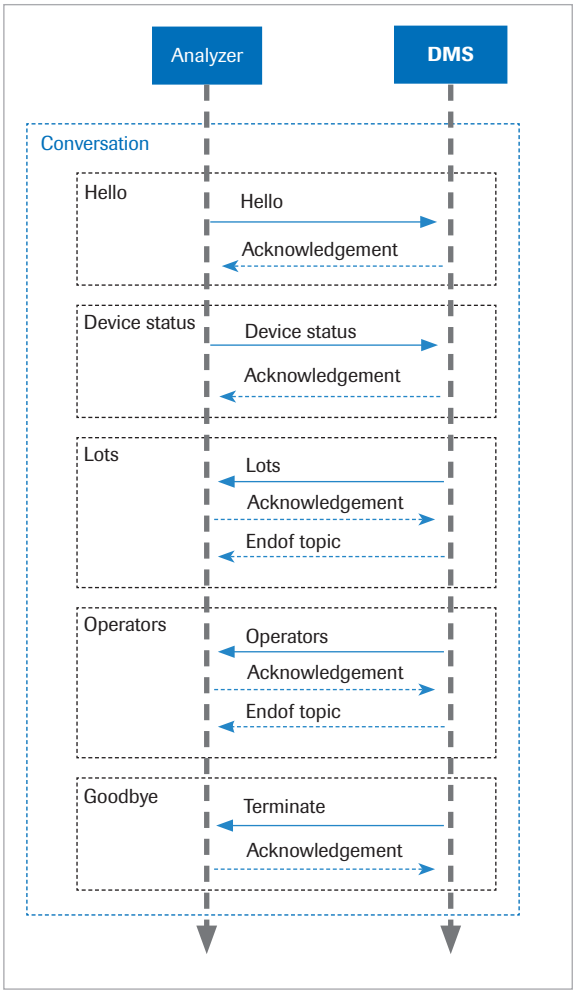
The analyzer allows the exchange of operators and lots.

- Operator refers to a user who can access and use the analyzer.
- Lot refers to a validated lot implying that the assay tubes have been validated by successfully passing negative and positive lot validation runs.
- For more information, refer to the **cobas® liat** system User Guide.

The Lots message is a custom POCT1-A topic and bidirectional: a POCC can send lots to the analyzer (DMS ➔ Analyzer) and request lots from the analyzer (DMS ← Analyzer).

The operator and lot topics are both POCT1-A update lists.

To be able to receive operators or lots from the DMS, the analyzer must be in standby mode. The analyzer enters this mode when no user is logged on, or when the walk-by screen is active.



The DMS sends an Acknowledgment message to the analyzer when receiving the Update list message and the analyzer sends an End of topic message.

The example scenario shows a complete conversation that includes topics on “Lots and Operator Lots”.

The DMS must send the Update List message and wait for an Acknowledgment message from the analyzer. The DMS must send an End of topic message after receiving the Acknowledgment in response to the message containing the Update List data.

If an analyzer receives an Update List message that it cannot parse or process, it shall respond with a Negative Acknowledge message and an event indicating the error.

- Trigger events (79)
- Acknowledgment object (ACK) (89)
- Operator object (OPR) (103)
- Request object (REQ) (105)
- Message structure: Operator messages (OPL) (148)
- Message structure: Lot full list messages (ROCHE.LIAT.LOTS.R01) (153)
- Message structure: Lot partial list messages (ROCHE.LIAT.LOTS.R02) (153)
- Examples: Lot topic (165)
- Examples: Operators topic (182)

Update lists

There are 2 types of update lists messages:

Full (complete) list

The full update list message provides a complete (full) set of information. If the DMS sends a complete operator list to the analyzer, the analyzer replaces its current list with the one received from the DMS. Local operators not included in the list received from the DMS are removed and can no longer access and use the analyzer.

Partial (incremental) list

The partial update list message provides a specific (partial) modification of existing information. For example, to update the operator list on the analyzer, the DMS can choose to send a partial list containing the changes since the last update of the analyzer. In a partial list, an operation (insert or delete) must be specified for a particular group of elements. In the following example, operators 11 and 12 are added to the analyzer, and operators 1, 2, and 3 are removed.

Operators

- Add
  - Operator_11, "John Smith"
  - Operator_12, "Jane Doe"
- Delete
  - Operator_1
  - Operator_2
  - Operator_3

To change an existing operator, do the following:

- Send a “Delete” operation.
- Send an “Add” operation with relevant information about the operator. In a partial list, the “Add” operation does not need to follow immediately the “Delete” operation.

For further understanding Update Lists refer to the POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, section 4.1.7 “Operator and Patient Lists”, and section 4.2.5: "Update Lists".

Requesting information from the analyzer

You can request lots and/or operators from the analyzer. You can request full (complete) or partial (incremental) information.

Full data request

For a full data request, the “request_cd” field of the request object must contain the following information:

- `RRDL` for lots.
- `ROPL` for operators.

Partial data request

For a partial data request, the “request_cd” field of the request object must contain the following information:

- `RRDL_D` for lots.
- `ROPL_D` for operators.

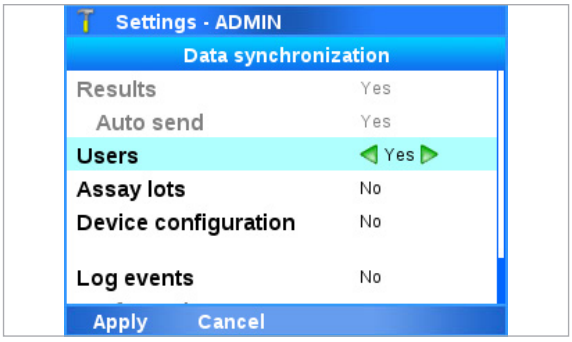
The analyzer sends the lots added, or the operators modified, since the last synchronization with the DMS.

Related topics

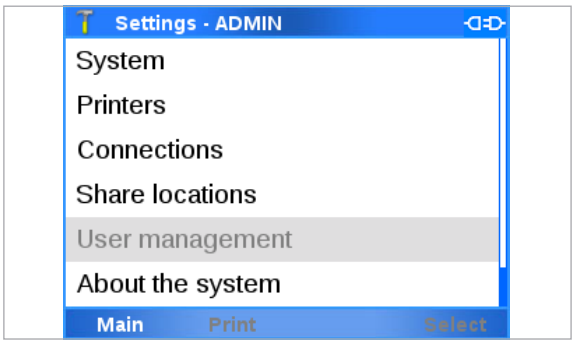
- Trigger for notifying operator changes (59)
- Trigger for notifying lot changes (60)
- Trigger events (79)

Requesting operators

If you configure operators to be managed remotely by a DMS, you can no longer manage operators locally.



Operators are referred to as users on the user interface. If the **Users** option is set to **Yes**, operators are managed by the DMS.



➔ Local user management is disabled.

About operators

All changes on operators must be sent as a full or partial list. No additional commands or messages are supported that insert or delete an operator on the analyzer.

Changes on a specific operator's attribute (like the password) are recommended to be sent via a partial list.

Preinstalled operators

The following operator types are preinstalled: ADMIN, SUPERVISOR, USER1, and USER2

- You cannot delete the ADMIN user via User Interface or DML.
- You cannot modify the role of the ADMIN user.
- You can delete or modify SUPERVISOR, USER1, and USER 2.

Ensure that operator information is provided in the correct format:

- User IDs, user names, and passwords can only contain a subset of ASCII printable characters.
- User names are case-insensitive.
- The minimal password length is 4 characters.
- If the host sends a user name or password that uses special characters, the **cobas® liat** analyzer ignores that user name's data.

For details of supported characters, refer to Message encoding (30)

NOTICE

One account, one user

Shared accounts are a security risk

- Instruct users not to share accounts.

Related topics

- Operator and lot lists (52)
- Additional attributes of operators (58)
- Access control object (ACC) (88)
- Operator object (OPR) (103)
- Reagent object (RGT) (104)
- Message structure: Operator messages (OPL) (148)
- Examples: Operators topic (182)

Allowed number of users and protected users

The analyzer supports up to 1000 users (excluding the protected users). If this number is reached, additional users will not be accepted on the device.

The following table lists the protected users (operator_id of the Operator object (OPR)) defined on the analyzer. These users follow special rules.

The following changes to protected users, received by a full or partial operator list, will not be accepted and will cause a rejection of the message:

- Deletion of the user
- Changes for the “LIAT.Locked” attribute (see Additional attributes of operators in related links)
- Changes for the “permission_level_cd” attribute (see the Access control object (ACC) in related links)

operator_id	Special rules
MANUF / SERVICE	• MANUF and SERVICE (case-insensitive) are protected user defined on each device. They can neither be added, changed nor deleted by a connected DMS system. • DMS messages containing these users will be rejected by the device. • MANUF and SERVICE are never contained in a full operator list requested by a connected DMS system.
ADMIN	• ADMIN (case-insensitive) is a protected user defined on each device. • The ADMIN user can be synchronized with a connected DMS system and will be contained in a full operator list requested by the connected DMS system.

Protected users on the analyzer

Related topics

- Operator and lot lists (52)
- Additional attributes of operators (58)
- Access control object (ACC) (88)
- Message structure: Operator messages (OPL) (148)
- Examples: Operators topic (182)

Validation of operator data

Some fields of an Operator Object (OPR) or a referenced object are validated by the analyzer prior to accepting the message, meaning that the values of those specific fields get validated before the received operator list gets applied on the device. If one of these validations fails, the whole list is rejected by the device.

For additional information on validation rules, consider the details of the following objects:

- Access control object (ACC) (88)
- Operator object (OPR) (103)

If there was an error with any of the attributes sent from the DMS, this is reported back to the DMS with an Event message.

- Event UM.010, see Events (68).

Additional attributes of operators

Operators exchanged with a full (or partial) list can have the following additional information attached as a Note object (NTE).

Attribute	Limited range of values	Comment
LIAT.Contact		Additional optional contact information of the operator
LIAT.Department		Additional information regarding the department of the operator
LIAT.ReadGeneralUserManual	“YES”/“NO”	Defines whether the operator has read the general user manual so that he can use the instrument or not.
LIAT.ChangePasswordOnNextLogin	“YES”/“NO”	Defines whether the operator is requested to change his password at next logon or not
LIAT.Locked	“YES”/“NO”	Indication whether the user is locked, meaning not allowed to log in. Protected users cannot be locked. (MANUF, SERVICE, ADMIN)
LIAT.BadgeBarcode		Badge barcode that is used for the authentication of the user if the authentication mode uses the badge barcode. LIAT.BadgeBarcode has to be unique across all defined operators.
LIAT.ReadAssayUserManuals	The assay names. See the link in the related topics below for possible values.	Defines a list of comma separated assay names whose manuals the operator has confirmed reading. Operators who attempt to execute an assay not in this list, receive a prompt instructing them to confirm reading the appropriate manual.

Additional attributes of operators

Related topics

- Values for universal_service_id (SV=1.0) (103)
- Note object (NTE) (98)

Allowed assays to be executed by a specific operator

On the Operators level it can be defined which assays the operator is allowed to execute. The method_cd elements of the Access control object (ACC) define the assays which the operator is allowed to execute.

This information is persisted in a separate node LIAT.ReadAssayUserManuals, assigned to the operator object see Additional attributes of operators.

Related topics

- Additional attributes of operators (58)
- Access control object (ACC) (88)

Trigger for notifying operator changes

Whenever there are changes on operators that could be uploaded to the connected DMS system, the analyzer sends a DMS Event, informing about this change.

Event code	Severity	Event text
TR.002	N	Trigger notification for user data upload to DMS

DMS event trigger for user data

Whenever this device event is received by a connected DMS system, it is recommended to request a partial operator list. This list will contain the operator(s) that changed, along with all its attributes.

With the 24/7 connection implementation introduced in software version 3.4, it is not recommended that the host requests trigger events before a user has logged into the system. This is because the Operator request (that would come subsequent to the trigger event being received) will be rejected because encryption has not been unlocked. This will essentially "waste" the trigger event, because the host will not be able to receive the modified operator list, and the host will most likely not request the operator list again until a new trigger event is received.

Lots

General

All changes on lots must be sent as a full or partial list. No additional commands or messages are supported in order to add or delete a lot on the analyzer.

Changes on a specific attribute of a lot, like the lot validation, are recommended to be sent by a partial list to the analyzer.

A successful exchange (sending / reception) between the analyzer and DMS is acknowledged with a positive Acknowledgment message.

If there was an error with any of the attributes sent from the DMS, this is reported back to the DMS with an Event message.

Event AM.014, see Events (68).

Validation of lot data

Some fields of a Lot Object (LOT) or a referenced object have limitations which are validated. The values of those specific fields get validated before the received lot list is accepted/stored by the analyzer.

If one of the validations fails, the whole list is rejected by the analyzer. Locally validated lots are automatically digitally signed by the analyzer before being sent to an external source (e.g.: DMS, archived lots etc). The signatures of lots received from a DMS are validated before they get applied on the analyzer. The whole list is rejected if the validation fails.

Trigger for notifying lot changes

Similar to the Operator's case, whenever there are new Lots that could be uploaded to the connected DMS system, the analyzer sends a DMS Event:

Event code	Severity	Event text
TR.001	N	Trigger notification for lot data upload to DMS

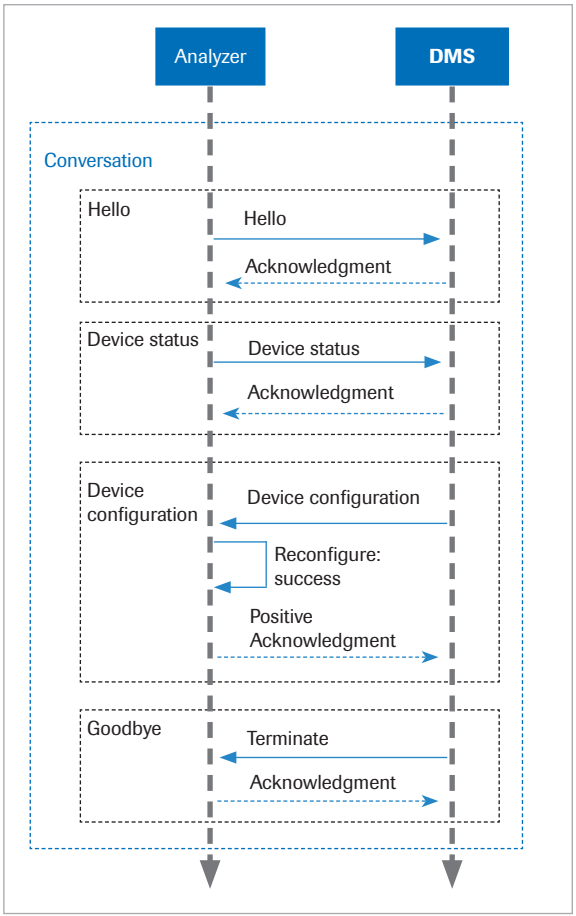
DMS event trigger for lot data

Whenever this device event is received by a connected DMS system, it is recommended to request a partial lot list. This list will contain the newly validated lots. It is also possible to request a full lot list. In this case, it is up to the DMS to determine the new lots from the received full list.

Related topics

- Operator and lot lists (52)
- Event object (EVT) (97)
- Request object (REQ) (105)
- Lot object (LOT) (135)
- Message structure: Lot full list messages (ROCHE.LIAT.LOTS.R01) (153)
- Message structure: Lot partial list messages (ROCHE.LIAT.LOTS.R02) (153)
- Examples: Lot topic (165)

Device Configuration

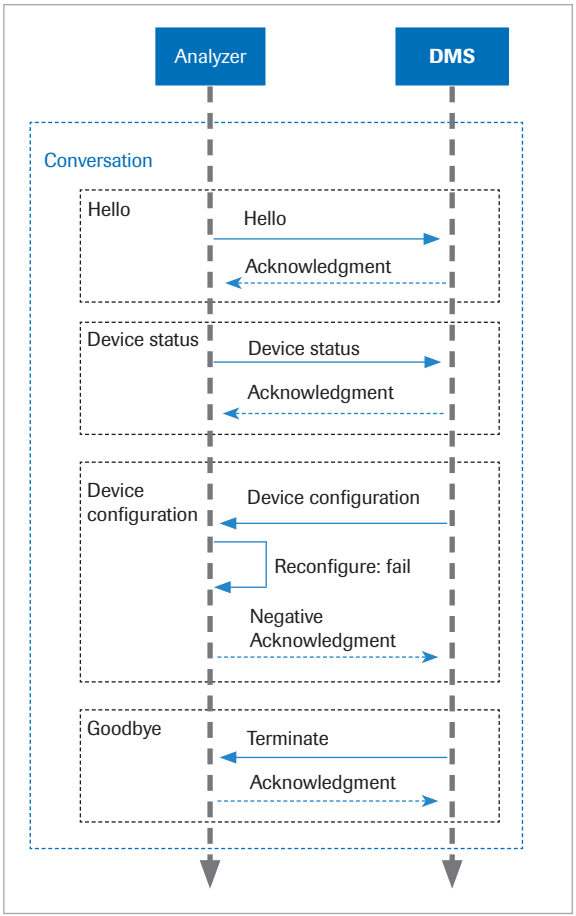


The Device Configuration is a custom **cobas® liat** directive designed to configure certain analyzer settings via DML.

To be able to receive a Device configuration message from the DMS, the analyzer must be in standby mode, and the **Device configuration** option set to **Yes** (**Host Settings > Connections > Host > Data Synchronization > Device Configuration**). The analyzer enters the standby mode when no user is logged on, or the walk-by screen is active.

The analyzer acknowledges the successful reception by returning a positive Acknowledgment message.

The connected DMS either sends all possible settings or a specific subset. The device then overwrites the local settings with the settings received from the DMS. An administrator can still change the local settings on the device. They are kept for the period configured in the connection interval after which they are overwritten by the device configuration directive received from the connected DMS.



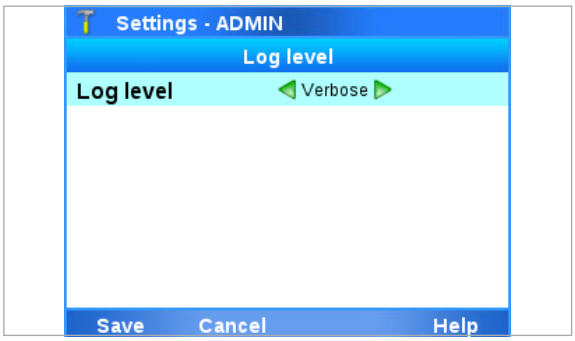
If there was an error with any of the attributes sent from the DMS, this is reported back to the DMS with an Event message:

Event code	Severity	Event text
CO.001	W	Error processing message received from DMS

DMS event to inform about errors

The Acknowledgment or Negative Acknowledgment can contain a “note_txt” attribute with an optional error description providing the reasons for the error.

Log level



The log level used by all the analyzer software modules (IM, IC, etc) can be configured. This can be done either by a SUPERVISOR, ADMIN or MANUF user via the user interface (see screenshot on the left) or with the LoggingLevel tag in the DeviceConfiguration (POCT1-A) message (see Generic configuration object below).

Generic configuration object (GEN_CFG) (112)

Behavior regarding unknown device configuration settings, etc.

When the analyzer receives a device configuration message from the DMS, the message is validated:

1. Unknown items are ignored.
2. If the message contains invalid data types for known items, a negative acknowledgment is returned. In this case the deserialization of the entire message fails.
   Example: The expected data type is boolean for GEN_CFG.Printers.ResultPrinting.Autoprinting. If a value other than "true" or "false" is submitted the data type is invalid.
3. If numerical values are out of range, they are adjusted into the allowed range. A positive acknowledgment is returned and a device event informing about the adjusted value is created.
   Example:
   GEN_CFG.TubeInsertTime.iTubeInsertTime must be between 1 - 20 seconds. If the value in the message is 30, the value is adjusted to 20.
4. If string values are not in the allowed range, a negative acknowledgment is returned with a message informing about the not accepted values. If multiple values are affected, the message contains information about all affected values.
   Example: GEN_CFG.LoggingLevels.LoggingLevel must be either "Normal" or "Verbose". Otherwise the message is not accepted.

Related topics

- Additional attributes of operators (58)
- Generic configuration object (GEN_CFG) (112)
- Message structure: Device configuration message (DTV.ROCHE.LIAT.CFG) (150)
- Examples: Device configuration directive (185)

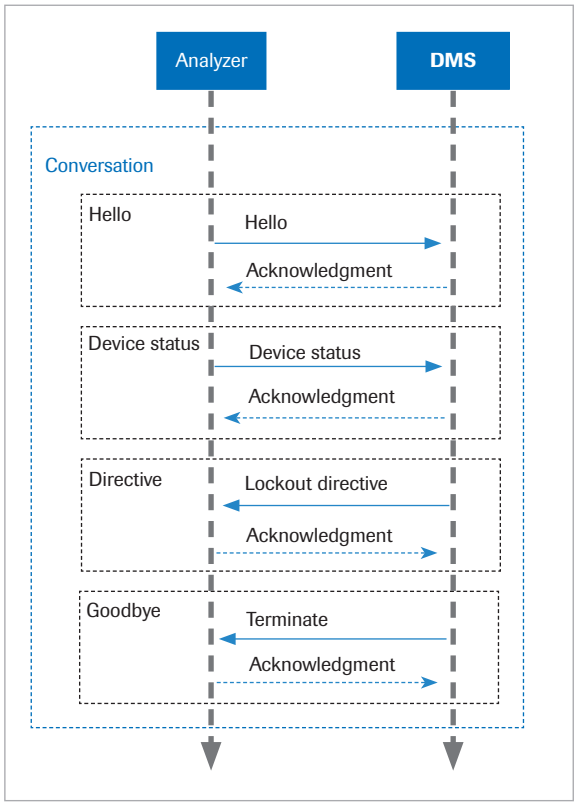
Device lock / unlock

The device lock / unlock feature allows the analyzer to be locked so that it cannot run tests. When locked, only users with supervisor role or administrator user role can access the analyzer in order to run checks, do maintenance, and so on. This is also known as "device lockout".

After locking, the analyzer must be unlocked before users can access it again and perform assay runs. This is also known as "release lockout".

This feature is not the same as the walk-by screen. The walk-by screen just locks the screen after a configured time of user inactivity or on demand of the currently logged on user.

Lockout



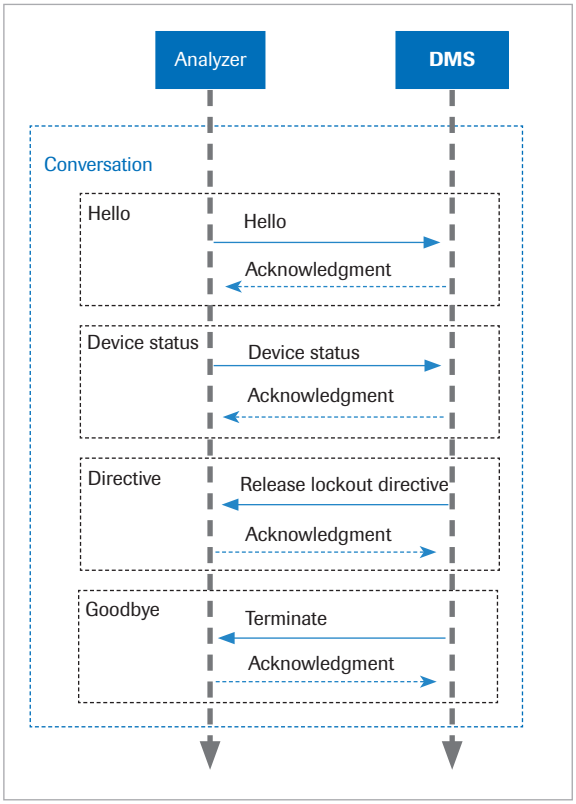
The DMS uses the Lockout directive to instruct the analyzer to prevent further analysis operations. This directive might be used by a POC coordinator who has detected that the analyzer is operating outside acceptable ranges.

The Lockout directive is only accepted when the device status is Standby.

On receiving the Lockout directive, the device status changes to Locked.

A user with supervisor role or administrator user role can also lock out the analyzer manually. This also changes the device status to Locked.

Release lockout



The DMS uses the Release lockout directive to restore the analyzer to full analytic functioning status.

The Release lockout directive is only accepted when the device status is Locked.

A user with supervisor role or administrator user role can also release the analyzer manually.

Full analytic functioning of the analyzer will not be achieved by just sending the Release lockout directive or by unlocking the analyzer manually. This depends on the device status reached after unlocking the analyzer. For example, if the device status is Partial lock, it will not be possible to perform some or all assays.

Partial lock may be caused by the following:

- Software license expired (activation overdue).
- Assay disabled (activation overdue).
- Instrument initialization failed.
- Event log is full.

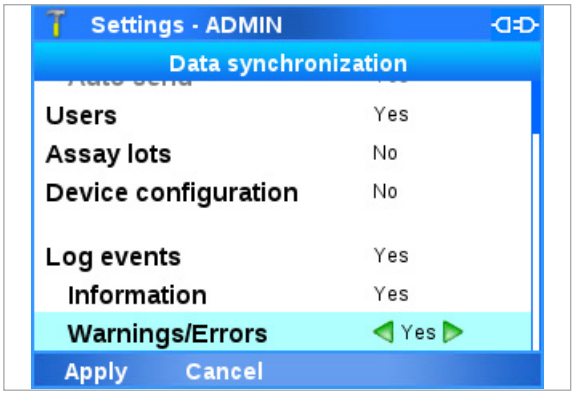
Capability reporting

The capability to accept either the Lockout or Release lockout directives is reported in the hello message.

Related topics

- Directive object (DTV) (95)
- Message structure: Basic directive message (DTV.R01) (142)
- Hello message (HEL.R01) (145)
- Examples: Device lock/unlock messages (190)

Events



The events inform about the analyzer activity. These events are sent to the DMS when they are enabled (set to “Yes”) on the **Host Settings > Connections > Host > Data Synchronization** screen.

Event categories

Events are categorized either as “Information” or “Warnings/Errors” (Device events). However, the trigger events (local changes on operators and lots) are always sent to a connected DMS, no matter how this attribute is set.

The system stores a log of the events.

- Send and confirm events (acknowledgments) are not stored, but deleted immediately they have been confirmed.
- In order to save space, the analyzer stores at most only the most recent 1000 device events.
- Trigger events are stored separately.

An event log is deleted once the DMS has acknowledged receiving it.

Device events (68)

Trigger events (79)

Device events

The Event code consist of a two digit abbreviation for the function group it belongs to and a three digit number which is unique across the function group. Each device event has assigned one out of three possible severity levels:

Code	Value	Description
N	Note	Indicates information about the normal operation of the Device.
W(1)	Warning	Indicates that the Device has encountered a situation that may affect the normal operation of the Device.
C(2)	Critical	A critical event requires operator intervention to restore normal operation of this Device. On the User interface, a critical event is displayed as “Error”.

Device event severity levels

(1) All received Warning Events should be analyzed by the POCC. Most Warnings either report a malformed/incomplete message (i.e. a POCT1-A Lot message without Lot ID), an alert (i.e. “Service is due in 30 days”) or any non-critical error.

(2) All received Critical Events should be immediately analyzed by the POCC, as the analyzer might not be operational anymore, and Roche service might need to be contacted.

The following table lists all the possible device events:

Function group	Event Code	Severity	Event message	Remarks
Startup System	SS.001	N	Device initialized successfully - no user logged on	
	SS.002	C	Error during initialization - not possible to run assays	
	SS.003	C	Registration period for Software version [SW version] has expired - not possible to run assays	
	SS.004	C	Registration period for Assay(s) [assay name(s)] has expired - assays cannot be used	
	SS.005	W	Software not registered - [nn] days left for registration	
	SS.006	W	Assay(s) [assay name(s)] expired - [nn] days left for registration Note: ’nn’ is the same number of days as displayed in the user message (coming from the oldest installed assay → smallest number of left days)	

Device events

Function group	Event Code	Severity	Event message	Remarks
Access Control	AC.001	N	User [user id] logged on with authentication mode [mode]	
	AC.002	N	User [user id] logged off	
	AC.003	N	User [user id] has confirmed the action [action]. The current authentication mode is [auth_mode]	ADMIN/SUPERVISOR confirms an assay installation
	AC.004	N	User [user id] has confirmed the action [action]. The current authentication mode is [auth_mode]	
	AC.005	N	User [user id] has confirmed the action [action]. The current authentication mode is [auth_mode]	ADMIN/SUPERVISOR confirms a run abortion
	AC.007	N	Device unlocked by user [user id]	
	AC.008	N	Device locked automatically due to inactivity	
	AC.009	N	Device locked by user [user id]	
	AC.010	N	User [user id] logged off by user [user id]	
	AC.011	N	Unsuccessful login by User [user id]	
	AC.013	N	Unsuccessful login with an unknown badge	
	AC.014	N	Not possible to unlock User [user id] due to account changes by remote system.	
	AC.015	N	User [user id] has confirmed the action [action].	ADMIN/SUPERVISOR confirms a software update
	AC.016	N	Instrument has been reset	
	AC.017	N	User [user id] has confirmed the action [action]. The current authentication mode is [auth_mode].	
	AC.018	N	Device locked out by DMS Directive	If a user is logged on
	AC.019	N	Device released by DMS Directive	
	AC.020	N	User [user id] logged off due to ‘Lock out device’ Directive	
	AC.021	N	User [user id] logged on to locked out device	
	AC.022	N	User [user id] logged off from locked out device	

Device events

Function group	Event Code	Severity	Event message	Remarks
Run Assay	RA.001	N	Assay [assay name run id tube id] started by user [user id]	
	RA.002	N	Assay [assay name run id] finished successfully	
	RA.003	N	Assay [assay name run id] aborted by user [user id]	
	RA.004	W	Assay [assay name run id] aborted by system	If sample ID is entered manually.
	RA.005	N	Result file created for Assay [assay name, run id]	
	RA.006	W	Unable to connect to Share Lot folder. Result for [Sample ID] not stored.	
	RA.007	W	Unable to connect to Share Lot folder. Result for [Run ID] not stored.	
	RA.008	N	Assay [assay name, run id] sample id entered manually started by user [user id]	If Sample ID is entered manually
	RA.009	W	Assay [assay name, run id, tube id] started without patient verification by user [user id]	Given ID could not be verified by the host
	RA.010	N	Assay [assay name, run id, tube id] started with ignoring the patient verification by user [user id]	Operator has canceled and/or ignored the patient verification and the result has been created without verification
	RA.011	W	Assay [assay name, run id] aborted by script. Reason: [reason as defined in the script]	

Device events

Function group	Event Code	Severity	Event message	Remarks
Assay Management	AM.001	N	Lot(s) [Lot ID] validated by user [user id]	
	AM.002	N	Assay(s) [assay name, version] installed/updated from USB key by user [user id]	
	AM.003	N	Assay(s) [assay name, version] installed/updated from Axeda by user [user id]	
	AM.004	N	Assay(s) [assay name, version] installed/updated from Share Folder by user [user id]	
	AM.005	N	Assay(s) [assay name, version] installed/updated from FTP by user [user id]	
	AM.006	N	Assay(s) [assay name, version] activated by user [user id]	
	AM.007	N	Assay(s) [assay name, version] activated by system	
	AM.008	N	Assay(s) [assay name] deleted by user [user id]	
	AM.009	N	Lot [Lot ID] deleted by user [user id]	
	AM.010	W	Assay lots [assay name(s), lot ids] invalidated after/during update of assay(s)	
	AM.013	N	[Count] lots successfully synchronized with remote system	
	AM.014	W	Lot synchronization with remote system failed. [Count] successful, [Count] unsuccessful	
	AM.016	N	Export Assay Lots started by user [user id]. The export mode is [export-mode]. Share lot is [use share lot]	
	AM.017	N	Export Assay Lots finished successfully by user [user id]	
	AM.018	N	Export Assay Lots aborted by system	
	AM.019	N	Export Assay Lots aborted by user [user id]	
	AM.020	N	Import Assay Lots started by user [user id]. The import mode is [import-mode]. Share lot is [use share lot]	
	AM.021	N	Import Assay Lots finished successfully by user [user id]	
	AM.022	N	Import Assay Lots aborted by system	
	AM.023	N	Archive Assay Lots started by user [user id]	
	AM.024	N	Archive Assay Lots finished successfully by user [user id]	
	AM.025	N	Archive Assay Lots aborted by system	
	AM.026	N	Archive Assay Lots aborted by user [user id]	
	AM.027	N	Assays [assay name, version] installed/updated automatically by remote system	
	AM.028	N	Assay(s) [assay name, version] installed/updated from remote system by user [user id]	
	AM.029	N	Assay(s) [assay name, version] installed/updated from Staging folder by manufacturer	
	AM.030	N	Assay(s) [assay name, version] activated automatically by manufacturer	

Device events

Function group	Event Code	Severity	Event message	Remarks
Result Management	RM.001	N	Result [result id] released by user [user id]	
	RM.002	N	Result [result id] was rejected by user [user id]	
	RM.003	N	Result [result id, result state] sent to [host] by user [user id]	
	RM.004	N	Result [result id, result state] sent to [host] by system	
	RM.005	N	Result [result id] was exported and deleted by user [user id]	
	RM.006	N	Results [result ids] have been exported and deleted by user [user id]	
	RM.007	N	Result [result id] was transferred into [media] by user [user id]	
	RM.008	N	Failed sending result [result_id] to host [host] by user [user_id]	
	RM.009	N	Failed sending result [result_id] to host [host] by system	
	RM.010	N	Archive Results started by user [user id]	
	RM.011	N	Archive Results finished successfully by user [user id]	
	RM.012	N	Archive Results aborted by system	
	RM.013	N	Archive Results aborted by user [user id]	
	RM.014	N	Archive and Delete Results started by user [user id]	
	RM.015	N	Archive and Delete Results finished successfully by user [user id]	
	RM.016	N	Archive and Delete Results aborted by user [user id]	
	RM.017	N	Archive and Delete Results aborted by system	
	RM.018	N	Sending result [result_id] to host [host] cancelled by user [user_id]	
System Configuration	SC.001	N	'Connectivity' settings changed by user [user id]	
	SC.002	N	'Install Source' settings changed by user [user id]	
	SC.003	N	'System' settings changed by user [user id]	
	SC.004	N	'Network ' settings changed by user [user id]	
	SC.005	N	Software Update started from USB key by user [user id]	
	SC.006	N	Software Update started from download by user [user id]	
	SC.007	N	Software Update from [version] to [version] finished successfully	
	SC.008	W	Software Update aborted by system. Reason: [Reason]	
	SC.009	N	Software [version] activated by [user id]	
	SC.010	N	Software [version] activated by system	

Device events

Function group	Event Code	Severity	Event message	Remarks
System Configuration	SC.011	N	The received [value] value on the Device Configuration [DeviceConfiguration.Setting] attribute is out of range. The following value was assigned instead: [new value] The received [value] value on the Device Configuration [DeviceConfiguration.Setting] attribute is not valid. The following value was assigned instead: [new value]	
	SC.012	N	Audit trail format change: From software version 3.2 on, the audit trial entries creation date and time are including the configured time zone	
	SC.013	N	'Host' settings changed by user [user id]	
	SC.014	N	'Share Locations' settings changed by user [user id]	
	SC.015	N	'Remote Service' settings changed by user [user id]	
	SC.016	N	Export settings started by user [user id]	
	SC.017	N	Export settings finished successfully by user [user id]	
	SC.018	N	Export settings aborted by system	
	SC.019	N	Export settings aborted by user [user id]	
	SC.020	N	Import settings started by user [user id]	
	SC.021	N	Import settings finished successfully by user [user id]	
	SC.022	N	Import settings aborted by system	
	SC.023	N	'Printers' settings changed by user [user id]	
	SC.024	W	The following settings parameters are unknown and could not be applied: [List of ignored settings]	
	SC.025	N	Settings migrated from [start version] to [end version]	
	SC.026	W	Settings failed to migrate from [failed version]. All settings set to defaults for [end version]	
	SC.027	N	Database migrated from version [start version] to version [new version]	
	SC.028	W	Database failed to migrate from version [failed version] to version [new version]	
	SC.029	N	Result '[result id]': result type changed from "external QC" to "patient result" during migration to SW v3.3.1	
	SC.030	W	Result '[result id]': result type failed to change from "external QC" to "patient result" during migration to SW v3.3.1	
	SC.031	N	Software Update started by user [user id]	
	SC.032	N	Remote System changed to Infinity Edge by user [user]	
	SC.033	N	Manual registration to infinity Edge was requested by user [user]	
	SC.034	N	'Scheduled Tasks' settings changed by user [user id]	

Device events

Function group	Event Code	Severity	Event message	Remarks
System Configuration	SC.035	N	Software Update started automatically by remote system	
	SC.036	N	Instrument specific certificate retrieved and successfully installed by user [user]	
	SC.037	W	Instrument specific certificate could not be installed by user [user]	
	SC.038	N	Instrument specific certificate requested by user [user] [without pin / with pin 'PIN']	
	SC.039	N	Instrument specific certificate requested to be re-retrieved by user [user] [without pin / with pin 'PIN']	
	SC.040	N	Remote System changed to Axeda by user [user]	
	SC.041	W	Disabling the 'Axeda' client was not successful	
	SC.042	W	Enabling the 'Axeda' client was not successful	
	SC.043	W	Disabling the 'Infinity Edge gateway' client was not successful	
	SC.044	W	Enabling the 'Infinity Edge gateway' client was not successful	
	SC.045	W	Failed to copy Axeda files to Infinity Edge	
	SC.046	W	Failed to copy Infinity Edge files to Axeda	
	SC.047	W	Package file '[file name]' is not a valid installation package type	
	SC.048	W	Not enough available space	
	SC.049	W	System date is invalid	
	SC.050	W	Assay package is invalid	

Device events

Function group	Event Code	Severity	Event message	Remarks
Tools	TO.001	N	Audit Trail export started by user [user id]	
	TO.002	N	Audit Trail export finished successfully by user [user id]	
	TO.003	N	Audit Trail export aborted by user [user id]	
	TO.004	N	Audit Trail export aborted by system	
	TO.005	N	Audit Trail deleted by user [user id]	
	TO.006	N	Lot Data Sync started by user [user id]	
	TO.007	N	Lot Data Sync finished successfully	
	TO.008	N	Lot Data Sync aborted by system	
	TO.009	N	Backup [type] started by user [user id]	
	TO.010	N	Backup [type] finished successfully	
	TO.011	N	Backup [type] aborted by system	
	TO.012	N	Restore [type] started by user [user id]	
	TO.013	N	Restore [type] finished successfully	
	TO.014	W	Restore [type] aborted by system	
	TO.015	N	Lot Data Update started by user [user id]	
	TO.016	N	Lot Data Update finished successfully	
	TO.017	N	Lot Data Update aborted by system	
	TO.018	N	Display calibrated by user [user id]	
	TO.019	N	Archive Audit Trail started by user [user id]	
	TO.020	N	Archive Audit Trail finished successfully by user [user id]	
	TO.021	N	Archive Audit Trail aborted by user [user id]	
	TO.022	N	Archive Audit Trail aborted by system	
	TO.023	N	Archive and Delete Audit Trail started by user [user id]	
	TO.024	N	Archive and Delete Audit Trail finished successfully by user [user id]	
	TO.025	N	Archive and Delete Audit Trail aborted by system	
	TO.026	N	Archive and Delete Audit Trail aborted by user [user id]	
	TO.027	N	Problem Report creation started by user [user id]	
	TO.028	N	Manual Problem Report creation aborted by user [user id]	
	TO.029	N	Manual Problem Report creation aborted by system	
	TO.030	N	Manual Problem Report creation finished successfully by user [user id]	
	TO.031	N	Problem Report creation started by system	
	TO.032	N	Automatic Problem Report creation aborted by user [user id]	
	TO.033	N	Automatic Problem Report creation aborted by system	
	TO.034	N	Automatic Problem Report creation finished successfully by system	
	TO.035	N	Backup instrument started by user [user id]	

Device events

Function group	Event Code	Severity	Event message	Remarks
Tools	TO.036	N	Backup instrument finished successfully by user [user id]	
	TO.037	N	Backup instrument aborted by system	
	TO.038	N	Backup instrument aborted by user [user id]	
	TO.039	N	Restore instrument started by user [user id]	
	TO.040	N	Restore instrument finished successfully by user [user id]	
	TO.041	N	Restore instrument aborted by system	
	TO.042	N	Device locked out by user [User ID)	
	TO.043	N	Device released by user [User ID]	
User Management	UM.001	N	Password changed for user [user id] by user [user id]	
	UM.002	N	Access Badge assigned for user [user id] by user [user id]	
	UM.003	N	User [user id] locked by user [user id]	
	UM.004	N	User [user id] unlocked by user [user id]	
	UM.005	N	User [user id] added by user [user id]	
	UM.006	N	User [user id] modified by user [user id]	
	UM.007	N	User [user id] deleted by user [user id]	
	UM.008	N	Access Badge unassigned from user [user id] by user [user id]	
	UM.009	N	[Count] users successfully synchronized with remote system	
	UM.010	W	User synchronization with remote system failed. [Count] successful [Count] unsuccessful	
	UM.011	N	All users deleted by user [user id]	
	UM.012	N	ADMIN Password has been reset	
	UM.013	N	Export users started by user [user id]	
	UM.014	N	Export users finished successfully by user [user id]	
	UM.015	N	Export users aborted by system	
	UM.016	N	Export users aborted by user [user id]	
	UM.017	N	Import users started by user [user id]	
	UM.018	N	Import users finished successfully by user [user id]	
	UM.019	N	Import users aborted by system	
System Management	SM.001	N	Auto-Calibration [Motor] done	
	SM.002	N	Auto calibration [Photometer] done	
	SM.004	C	Service Due Date reached – contact Roche	
	SM.005	N	The data encryption is initialized successfully	
	SM.006	N	Auto-reboot configured at [HH:mm] was executed at [HH:mm:ss]	
	SM.007	N	File [fileName] removed due to cleanup policy	
	SM.008	N	File [fileName] reduced due to cleanup policy	

Device events

Function group	Event Code	Severity	Event message	Remarks
Internal Functions	IF.001	N	Assay [assay name] executed via service backdoor by user [user id]	
	IF.002	N	Assay [assay name] icl file installing by user [user id]	
	IF.003	N	Assay [assay name] installing by user [user id]	
Trigger events	TR.001	N	Trigger notification for lot data upload to DMS	
	TR.002	N	Trigger notification for user data upload to DMS	
Connectivity events	CO.001	W	[Root cause error]	
	CO.002	N	File [file name] upload to remote system successful	
	CO.003	W	File [file name] upload to remote system failed	Only the initial failed upload attempt will create an event. If there are subsequent failed (re)upload attempts, no additional event(s) will be created.
DCP Management	DM.001	N	Data collection triggered for [DCP package name, version]	
	DM.002	N	Data collection finished for [DCP package name, version]	
	DM.003	W	Data collection aborted for [DCP package name, version]	
	DM.004	W	Data collector installation skipped for [DCP package name, version]	
	DM.005	W	Data collector plugin [DCP package name, version] validation for installation failed with [precondition failure]	
	DM.006	N	Data collector plugin [DCP package name, version] installed successfully	
	DM.007	N	Data collector plugin [DCP package name, version] updated successfully	
	DM.008	W	Installation of DCP [DCP package name] with version [Version] failed	
	DM.009	W	Update of DCP [DCP package name] with version [Version] failed.	
	DM.010	N	Data collector plugin [DCP package name] uninstalled successfully	
	DM.011	W	Uninstallation of DCP [DCP package name] failed	

Device events

Function group	Event Code	Severity	Event message	Remarks
Scheduled tasks	ST.001	N	Scheduled Problem Report creation cancelled by user [user id]	
	ST.002	N	Scheduled Problem Report creation aborted by user [user id]	
	ST.003	N	Scheduled Problem Report creation failed	
	ST.004	N	Scheduled Archive and reduce audit trails execution cancelled by user [user id]	
	ST.005	N	Scheduled Archive and reduce audit trails execution aborted by user [user id]	
	ST.006	N	Scheduled Archive and reduce audit trails execution failed	
	ST.007	N	Scheduled Archive and reduce audit trails execution finished successfully	
	ST.008	N	Archive and reduce audit trails triggered by threshold monitor and executed by user [user id]	
	ST.009	N	Scheduled Archive and delete results execution cancelled by user [user id]	
	ST.010	N	Scheduled Archive and delete results execution aborted by user [user id]	
	ST.011	N	Scheduled Archive and delete results execution failed	
	ST.012	N	Scheduled Archive and delete results execution finished successfully	

Device events

Trigger events

The trigger events are notifications (for the connected DMS) reporting changes on operators or lots that are ready to be requested (from the connected DMS). The table below lists the 2 possible trigger events:

Event code	Severity	Event text
TR.001	N	Trigger notification for lot data upload to DMS
TR.002	N	Trigger notification for user data upload to DMS

DMS event trigger for lot data

These trigger events are always sent, even if the Events topic was disabled on the Data Synchronization screen.

Related topics

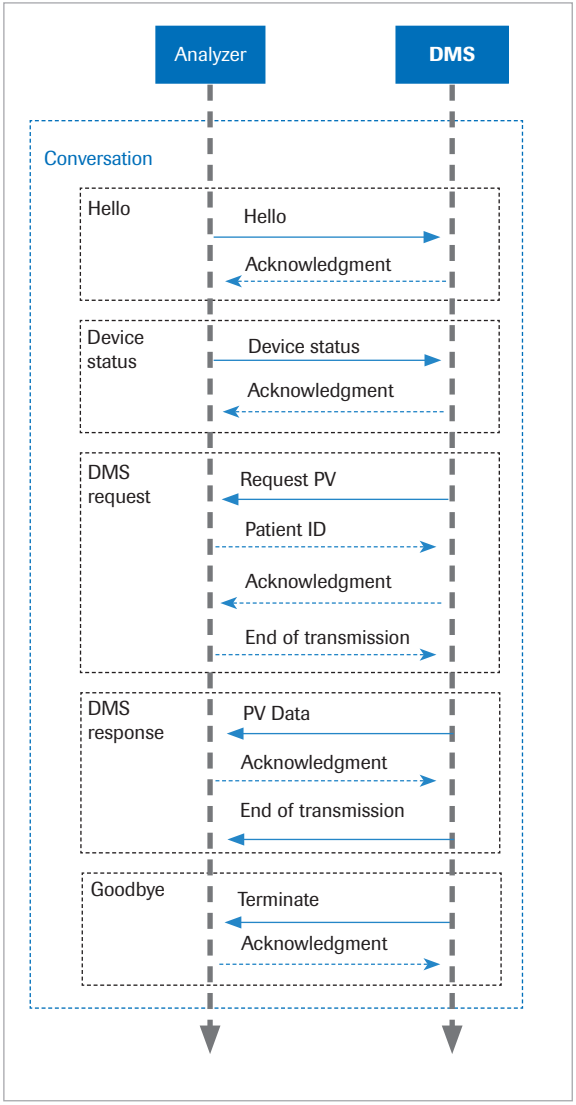
- Additional attributes of operators (58)
- Event object (EVT) (97)
- Message structure: Event message (EVS.R01) (144)

Patient verification

The patient verification workflow requests patient information from the DMS. The analyzer initiates the workflow by sending a Hello message containing the following 2 values in the device capabilities object (DCP): `ROCHE.LIAT.PVI` and `ROCHE.LIAT.PVR`.

Note that the patient verification enhancements do not affect the basic patient verification workflow described here.

Patient verification workflow



- To initiate the workflow, the analyzer sends a Hello message to the DMS with the device capabilities object values `ROCHE.LIAT.PVI` and `ROCHE.LIAT.PVR`.
- To request patient information from the analyzer, the DMS sends a request message (REQ.RO1) with the value request_cd V= `RPVI` in the request object.
- The analyzer returns the patient information to the DMS by sending a patient verification request message (ROCHE.LIAT.PVI.R01) including a patient verification object containing type and value of the patient identifier.
- The DMS checks whether the requested patient identifier matches with a patient record in its database and returns a patient verification response message (ROCHE.LIAT.PVR.R01).
  - If the patient ID matches, the DMS returns a patient verification found object with status `T` (true) and a patient object with the patient demographics.
  - If the patient ID does not match, the DMS returns a patient verification found object with status `F` (false).

The patient verification workflow is a high priority workflow as the user actively waits for a reply. To minimize the waiting time, the DMS should request the patient verification message ROCHE.LIAT.PVI.R01 immediately. During a patient verification workflow, any other topic is rejected.

Unexpected response handling

Response received	Expected handling
The DMS initiates any other communication topic not supported by the workflow.	The communication topic is rejected.
Request for other data (including results) while in patient verification mode	The request is rejected.
The DMS sends patient verification information/request in a non-patient verification workflow.	The message is rejected.
An unexpected message is received during a patient verification workflow.	The message is rejected.
Inconsistent data: ROCHE.LIAT.PVR.R01 reports patient not found, but contains data	The message is processed as a no match.
Mandatory patient ID not received.	A NACK is sent and the communication is closed. Application errors (39) Acknowledgment object (ACK) (89)
More or less patient information as expected is received.	The message is processed as a valid message.
The DMS sends patient verification information before receiving the ROCHE.LIAT.PVI.R01 message from the analyzer.	The message is rejected.

Unexpected response handling

Related topics

- Additional attributes for patient verification in Service Object (SVC) (106)
- Patient verification identifier object (PVI) (111)
- Patient verification found object (PVF) (111)
- Patient verification request message (ROCHE.LIAT.PVI.R01) (154)
- Patient verification response message (ROCHE.LIAT.PVR.R01) (155)

POCT1-A protocol

POCT1-A objects

The **cobas® liat** system supports a subset of the standard POCT1-A objects, as well as some custom vendor defined objects.

In this chapter 3

Standard POCT1-A Objects

Only a minimum subset of objects and attributes from the POCT1-A protocol are used by the analyzer and specified here. To get an overview about all POCT1-A standard objects and all their elements and attributes see POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, chap. 5.

POCT1-A abbreviations

The following abbreviations are used in this section.

Abbreviation	Description
ENC	The encoding of the data value
V	The value code
S	An IOS object identifier (IOD) denoting the authority this code set is registered to
SN	The name of the registering authority for this code set
SV	The version of this code set

POCT1-A attribute definitions

Abbreviation	Description
CE	Coded with equivalents
CS	Coded simple value
CV	Coded value
ED	Encapsulated data
INT	Integer number
ON	Organization name
PN	Person name
REAL	Real number
SET<T>	An unordered collection of unique values of any type T.
ST	Character string
TS	Time stamp

POCT1-A data type definitions

Access control object (ACC)

The access control object is a component of the operator messages (OPL.R01, OPL.R02).

Definition

Element	Data type	Attribute	Comment
method_cd	SET<CV>(1)	V SN SV	This value indicates an assay name that can be performed by the current operator. The SN attribute is always "ROCHE". The SV attribute defines the version of the element definition.
password	ED	V	This operator's password to access the analyzer. The following validations for the operator_id are done by the analyzer before applying the changes: • The password needs to consist of ASCII alphanumeric characters, symbols and/or spaces. It is case-insensitive. • The minimum length of a password is 4 characters • The maximum length of a password is 20 characters
permission_level_cd	CV	V SN SV	Indicates what roles are authorized to execute the assay name in scope (the ones indicated on the method_cd attribute). For the possible values, see Access Control Permission Level Values (permission_level_cd) (88) The SN attribute is always "ROCHE". The SV attribute defines the version of the element definition.

Access control object (ACC)

(1) The SET data type is used to communicate an unordered collection of related values. This type is represented as a repeating element of the given type.

The permission_level_cd element supports the following Access Control Permissions.

Value	Description
User	• Run authorized assays and view assay tube lots • Change own password and badge barcode
Supervisor	As user, plus: • Review results • Manage users (with security level Supervisor or User) • See up the analyzer (except network settings and data import) • Manage assay tube lots • Install assays
Administrator	As Supervisor, plus: • Network configuration settings • Manage all users • Update assays and software • Register assays and software

Access Control Permission Level Values (permission_level_cd)

Related topics

- Additional attributes of operators (58)
- Operator object (OPR) (103)
- Message structure: Operator messages (OPL) (148)
- Examples: Operators topic (182)

Acknowledgment object (ACK)

The acknowledgment object is a component of the acknowledgment message (ACK.R01).

Negative Acknowledgment

If an Acknowledgment reports an error condition ("error_detail_cd" attribute value = AE), it might include an element (attribute "note_txt") containing a specific error description (whenever available).

Examples

```
<ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="549" />
</ACK>
```

Positive ACK (type_cd = AA)

```
<ACK>
    <ACK.type_cd V="AE" />
    <ACK.ack_control_id V="549" />
    <ACK.note_txt V="Update messages are only supported on Standby state."/>
</ACK>
```

Negative ACK (type_cd = AE)

Definition

Element	Data type	Attribute	Comment
type_cd	CS	V	Type of the acknowledgment: • "AA" – message received. • "AE" – an error occurred when processing the message. Values acc. POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, Table 13.
ack_control_id	ST	V	The control ID of the message sent that this message is in Acknowledgment of
note_txt	ST	V	Text describing the error condition Optional Element

Acknowledgment Object (ACK)

Related topics

- Error handling (39)
- Conversations and topics (45)
- Message structure: Acknowledgment message (ACK.R01) (142)
- Examples: Communication start up topics (161)

Control / Calibration object (CTC)

The Control / Calibration object is a component of the Observations message. It is a subelement of the SVC element and a parent element of the OBS element.

Example

```
<CTC>
    <CTC.name V="SASA control" />
    <CTC.lot_number V="67PZ" />
    <CTC.expiration_date V="2017-04-30T00:00:00+00:00" />
    <CTC.level_cd V="N" SN="ROCHE" SV="1.0" />
    <OBS>
        <OBS.observation_id V="Strep A (SASA)" SN="ROCHE" SV="1.0" />
        <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0" />
        <OBS.method_cd V="M" />
        <NTE>
            <NTE.text V="LIAT.CT=N/A" />
        </NTE>
    </OBS>
</CTC>
```

Definition

Element	Data type	Attribute	Comment
name	ST	V	Name of assay + “control” (“SF2A control”).
lot_number	CS	V	Unique identifier of the QC lot. About lot number (136)
expiration_date	TS	V	Date and time that the lot expires. This is the date of expiry of the QC lot.
level_cd	CV	V	For possible values of the attribute V, see the table below. Attribute "V" values for Calibration control object level_cd (90) The SN attribute is always "ROCHE". The SV attribute defines the version of the element definition.

Control / Calibration Object

Code (attribute V)	Value	Comment
H	High	High Titer Positive Control
M	Medium	Medium Titer Positive Control
L	Low	Low Titer Positive Control
N	Negative	Negative Titer Negative Control

Attribute "V" values for Calibration control object level_cd

Related topics

- Observations (results) (48)
- About lot number (136)
- Observation object (OBS) (99)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Device capabilities object (DCP)

The device capabilities object is a component of the hello message (HEL.R01). It is a subelement of the DEV object.

Example

```
<DCP>
    <DCP.application_timeout V="120" />
    <DCP.vendor_specific>ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02</DCP.vendor_specific>
</DCP>
```

Definition

Element	Data type	Attribute	Comment
application_timeout	REAL	V	Application-level timeout the analyzer uses (specified in seconds).
vendor_specific	ED	ENC	Specifies the encoding of the data value. This field can be either “B64” or “TXT”. The analyzer always reports its capabilities as text “TXT” Proprietary device Topic capabilities. See table below.

Device capabilities object (DCP)

Code	Description
ROCHE.LIAT.LOTS.R01	Full lot list
ROCHE.LIAT.LOTS.R02	Incremental lot list
DTV.ROCHE.LIAT.CFG	Device configuration message
ROCHE.LIAT.PVI ROCHE.LIAT.PVR	Patient verification workflow

Supported values of vendor_specific element

Related topics

- Initialization flow (36)
- Message structure: Hello message (HEL.R01) (145)
- Example: Communication start up topics (161)

Device object (DEV)

The device object is a component of the hello message (HEL.R01). It is the parent of the DCP and DSC objects.

Example

```
<DEV>
    <DEV.device_id V="f8:dc:7a:06:27:0c"/>
    <DEV.vendor_id V="ROCHE"/>
    <DEV.serial_id V="M1-E-10063"/>
    <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
    <DEV.sw_version V="3.4.0.xxxx"/>
    <DEV.device_name V="cobasLiat"/>
    <DCP>
        <DCP.application_timeout V="70"/>
        <DCP.vendor_specific>ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
        </DCP.vendor_specific>
    </DCP>
    <DSC>
        <DSC.connection_profile_cd V="SA"/>
        <DSC.topics_supported_cd V="D_EV"/>
        <DSC.max_message_sz V="614400"/>
    </DSC>
</DEV>
```

Definition

Element	Data type	Attribute	Comment
device_id	ST	V	IEEE EUI-64 string-encoded Device identifier.
vendor_id	ST	V	Vendor-specific unique identifier.
serial_id	ST	V	Vendor-specific unique serial identifier.
manufacturer_name	ON	V	The manufacturer's corporate name.
sw_version	ST	V	The software version number(s) for the analyzer.
device_name	ST	V	A convenient name for the analyzer (cobasLiat)

Device object (DEV)

Related topics

- Initialization flow (36)
- Message structure: Hello message (HEL.R01) (145)
- Example: Communication start up topics (161)

Device static capabilities object (DSC)

The device static capabilities object is a component of the hello message (HEL.R01). It is a subelement of the DEV object.

Example

```
<DSC>
    <DSC.connection_profile_cd V="SA" />
    <DSC.topics_supported_cd V="D_EV" />
    <DSC.topics_supported_cd V="DTV" />
    <DSC.directives_supported_cd V="UNLOCK" />
    <DSC.max_message_sz V="614400" />
</DSC>
```

Definition

Element	Data type	Attribute	Comment
connection_profile_cd	CS	V	CIC messaging profile the analyzer supports.
directives_supported_cd	SET(CV)	V	The directive command that the analyzer supports.
max_message_sz	INT	V	The maximum size message (in bytes) that the analyzer can handle.
topics_supported_cd	SET(CV)	V	The message topics supported. See table below for the topics supported. Operator List topics (OP_LST and OP_LST_I) are only reported in the hello message (HEL.R01) if the encrypted database is unlocked and the Operator List topics are enabled on the Data synchronization screen.

Device static capabilities object (DSC)

Code	Name	Description
LOCK	Lockout	Lockout all testing functions on the analyzer.
UNLOCK	Release lockout	Enable all testing functions on the analyzer.

Supported values of directives_supported_cd element

Code	Topic	Description
OP_LST	Operator List	Analyzer supports Operator List topic.
OP_LST_I	Incremental Operator List	Analyzer supports Incremental Operator List topic.
D_EV	Device Events	Analyzer supports Device Events topic.
DTV	Directives	Analyzer supports Directives. Note that “DTV” is always reported in the hello message even if no directive is currently accepted (e.g. if the analyzer is in the device status Ready).
ROCHE.LIAT.PVI	Patient verification request	Analyzer supports patient verification request
ROCHE.LIAT.PVR	Patient verification response	Analyzer supports patient verification response

Supported values of topics_supported_cd element

Related topics

- Initialization flow (36)
- Device lock / unlock (65)
- Message structure: Hello message (HEL.R01) (145)
- Examples: Communication start up topics (161)

Device status object (DST)

The device status object is a component of the device status message (DST.R01).

Example

```
<DST>
    <DST.status_dttm V="2017-04-13T12:39:25-04:00" />
    <DST.new_observations_qty V="1" />
    <DST.new_events_qty V="86" />
    <DST.condition_cd V="R" />
</DST>
```

Definition

Element	Data type	Attribute	Comment
status_dttm	TS	V	Date and time when this status information was created.
new_observations_qty	INT	V	Number of unreported observations (all test results).
new_events_qty	INT	V	Number of unreported events.
condition_cd	CV	V SN SV	For supported values of the attribute V, see the table below. Device Status condition_cd (DST.condition_cd.V) (94). The SN attribute is always "ROCHE". The SV attribute defines the version of the element definition.

Device Status Object (DST)

Code (attribute V)	Value	Comment
R	Ready	Analyzer is ready to perform tests.
B	Busy	The analyzer is in the process of running a test.
P	Partial lock	The system reports Partial lock when one or more assay or the SW registration periods have expired, when an error was encountered during initialization or when the maximum Audit Trail threshold is reached.
L	Locked	The analyzer is in lockout so that it cannot run tests.
S	Standby	The analyzer is capable of running a new test once it has been awakened from this 'idle' mode. 'Idle' mode: no user logged on or walk-by screen is active.

Device Status condition_cd (DST.condition_cd.V)

Related topics

- Initialization flow (36)
- Conversations and topics (45)
- Device lock / unlock (65)
- Message structure: Device status message (DST.R01) (143)
- Example: Communication start up topics (161)

Directive object (DTV)

The directive object is a component of the directive message (DTV.R01).

Example

```
<DTV>
    <DTV.command_cd V="LOCK" />
</DTV>
```

Definition

Element	Data type	Attribute	Comment
command_cd	CV	V	A coded value representing a command for the analyzer to perform. Supported values: • `LOCK` = Lockout all testing functions of the analyzer. • `UNLOCK` = Enable all testing functions on the analyzer.

Device capabilities object (DCP)

Related topics

- Device lock / unlock (65)
- Message structure: Basic directive message (DTV.R01) (142)
- Examples: Device lock/unlock messages (190)

End of topic object (EOT)

The end of topic object is a component of the end of topic message (EOT.R01).

Example

```
<EOT>
    <EOT.topic_cd V="OBS" />
</EOT>
```

Element	Data type	Attribute	Comment
topic_cd	CV	V	Code denoting the identity of the topic. For topics used by the analyzer, see the table below.

End of Topic Object (EOT)

Topic[1]	Topic Name	Description	Required for POCT1-A Compliance	Roche-specific
OBS	Observations	Analyzer supports Observation Topic's	Yes	No
EVS	Events	Analyzer supports Event Topic's	No	No
OPL	Operators	Analyzer supports Operator Topic's	No	No
ROCHE.LIAT.LOTS	Lots	Analyzer supports Lot Topic's	No	Yes
ROCHE.LIAT.PVI	Patient Verification (Req)	Analyzer supports (sending) PV requests	No	Yes
ROCHE.LIAT.PVR	Patient Verification (Res)	Analyzer supports (receiving) PV responses	No	Yes

Topics supported by the analyzer

(1) This is the code to be set in the EOT.topic_cd field of the end of topic message

Related topics

- Conversations and topics (45)
- Additional attributes of operators (58)
- Example: Communication ending (188)

Escape object (ESC)

The escape object is a component of the escape message (ESC.R01).

Element	Data type	Attribute	Comment
esc_control_id	ST	V	Message control ID from header of the message to which this escape is a response
detail_cd	CS	V	See POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, Table 30 for possible values.
note_txt	ST	V	Additional information about escape reason. Optional Element.

Escape Object (ESC)

Related topics

- Message structure: Escape message (ESC.R01) (144)

Event object (EVT)

The Device event object is a component of the Device events message (EVS.R01).

Element	Data type	Attribute	Comment
description	ST	V	Free text description of the event.
event_dttm	TS	V	Time at which the event occurred.
severity_cd	CS		Indication of operator intervention. See table below for supported values. Supported values of severity_cd (97)

Event Object (EVT)

Code	Value	Descripttion
C	Critical	A critical event requires operator intervention to restore normal operation of this analyzer.
N	Note	Indicates information about the normal operation of the analyzer.
W	Warning	Indicates that the analyzer has encountered a situation that may affect the normal operation of the analyzer in the future.

Supported values of severity_cd

Related topics

- Message structure: Event message (EVS.R01) (144)

Header object (HDR)

The header object is a mandatory component of every message.

Example

```
<HDR>
    <HDR.control_id V="927"/>
    <HDR.version_id V="POCT1"/>
    <HDR.creation_dttm V="2019-08-12T08:37:04-04:00"/>
</HDR>
```

Definition

Element	Data type	Attribute	Format	Comment
message_type	CV	V		A code made up of the message name and trigger value. Values for this field may be found in the descriptions of each message.
control_id	ST	V	Range: 1 - 65535	Identifies uniquely the message incrementing the counter by one on every new message. Reset on every new communication.
version_id	ST	V	-	Always "POCT1"
creation_dttm	TS	V	-	Date and time the message was created.

Header Object (HDR)

Related topics

- Conversations and topics (45)

Note object (NTE)

The note object is a component of the Observation and Operator messages (OBS.R01, OBS.R02, OPL.R01, OPL.R02).

Examples

```
<NTE>
    <NTE.text V="LIAT.Use=For In vitro Diagnostic Use" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Run=00016" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Tube=00001" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Tube_id=TFRTA170769RC023W" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Approver=ADMIN" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Universal_service_id=Liat Flu/RSV Assay" />
</NTE>
<NTE>
    <NTE.text V="LIAT.Patient_verification_failure_ignored=Run has been performed without patient ve
    rification" />
</NTE>
<NTE>
    <NTE.text V="LIAT.CT=29.7783202283394" />
</NTE>
```

Definition

Element	Data type	Attribute	Comment
text	ST	V	A text string. The string's contents are dependent on the context in which the Note object is used.

Note object (NTE)

Related topics

- Operator and lot lists (52)
- About operators (56)
- Escape object (ESC) (96)
- Operator object (OPR) (103)
- Termination object (TRM) (108)
- Message structure: Operator messages (OPL) (148)
- Message structure: Escape message (ESC.R01) (144)

Observation object (OBS)

The observation object is a component of the observation messages (OBS.R01 and OBS.R02).

It is a subelement of the PT or CTC element and a parent element of the NTE element.

Examples

```
<OBS>
    <OBS.observation_id V="SARS-CoV-2(SF2A)" SN="ROCHE" SV="1.0" />
    <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0" />
    <OBS.method_cd V="M" />
    <NTE>
        <NTE.text V="LIAT.CT=29.7783202283394" />
    </NTE>
</OBS>
<OBS>
    <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0" />
    <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0" />
    <OBS.method_cd V="M" />
    <NTE>
        <NTE.text V="LIAT.CT=29.7783202283394" />
    </NTE>
</OBS>
<OBS>
    <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0" />
    <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0" />
    <OBS.method_cd V="M" />
    <NTE>
        <NTE.text V="LIAT.CT=29.7783202283394" />
    </NTE>
</OBS>
```

Definition

Element	Data type	Attribute	Comment
observation_id	CE	V SN SV	The unique identifier of the result type. It consists of the result type itself, and the script name used for processing and detection (in parenthesis), e.g.: `Influenza A (SF2A)` See the tables below for possible values. • The SN attribute is always "ROCHE". • The SV attribute defines the version of the element definition.
qualitative_value	CV	V SN SV	The qualitative result value. See table Values for qualitative_value (SV=1.0) (101) below for possible values. • The SN attribute is always "ROCHE". • The SV attribute defines the version of the element definition.
method_cd	CS	V	See POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28; refer to www.clsi.org, appendix B, Table 36.
status_cd		V	For aborted messages only, with the fixed value `D`. This element is not used for valid results.

Observation Object (OBS)

The **cobas® liat** system and associated assays are not commercially available in all markets. Please check with local Regulatory affiliate for regulatory status.

The observation ID consists of two parts, the assay, and then in brackets, the name of the script used for processing and detecting the result type.

Script name	OBS.observation_id: result type (script name)	Description
CDFA	Cdiff (CDFA)	*Clostridium difficile* (*C. difficile*)
CFRA	Influenza A (CFRA)	Influenza assay run, type A
CFRA	Influenza B (CFRA)	Influenza assay run, type B
CFRA	RSV (CFRA)	Respiratory syncytial virus
CFRA	SARS-CoV-2 (CFRA)	Severe acute respiratory syndrome coronavirus 2
CNDA	CT (CNDA)	*Chlamydia trachomatis (C. trachomatis)*
CNDA	NG (CNDA)	*Neisseria gonorrhoeae (N. gonorrhoeae)*
CNMA	CT (CNMA)	*Chlamydia trachomatis (C. trachomatis)*
CNMA	MG (CNMA)	*Mycoplasma genitalium (M. genitalium)*
CNMA	NG (CNMA)	*Neisseria gonorrhoeae (N. gonorrhoeae)*
COVA	SARS-CoV-2 (COVA)	Severe acute respiratory syndrome coronavirus 2
CV2A	SARS-CoV-2 (CV2A)	Severe acute respiratory syndrome coronavirus 2
FABA	Influenza A (FABA)(1)	Influenza assay run, type A
FABA	Influenza B (FABA)(1)	Influenza assay run, type B
FRTA	Influenza A (FRTA)	Influenza assay run, type A
FRTA	Influenza B (FRTA)	Influenza assay run, type B

Observation ID's and script names used by the analyzer (SV=1.0)

Script name	OBS.observation_id: result type (script name)	Description
FRTA	RSV (FRTA)	Respiratory syncytial virus
SASA	Strep A (SASA)	Strep assay run, type A (Group A *Streptococcus*)
SCFA	Influenza A (SCFA)	Influenza assay run, type A
SCFA	Influenza B (SCFA)	Influenza assay run, type B
SCFA	SARS-CoV-2 (SCFA)	Severe acute respiratory syndrome coronavirus 2
SF2A	Influenza A (SF2A)	Influenza assay run, type A
SF2A	Influenza B (SF2A)	Influenza assay run, type B
SF2A	SARS-CoV-2 (SF2A)	Severe acute respiratory syndrome coronavirus 2

Observation ID's and script names used by the analyzer (SV=1.0)

(1) Influenza assay is no longer supported from software version 3.4 onwards, but migrated results may be available from software version 3.3

OBS.qualitative_value	Description
Detected	Test result was Positive for this observation
Not Detected	Test result was Negative for this observation
Invalid	Test result was Invalid for this observation.
Indeterminate	If the overall result is "+", certain assays (e.g. FRTA) send indeterminate target results to the DMS.
Aborted	Assay run was aborted

Values for qualitative_value (SV=1.0)

Ct values

Ct values are reported for every valid, positive target for controls or samples. For example, the SF2A assay has 3 NTE tags for "Influenza A", for "Influenza B" and for "SARS-CoV-2".

Ct values are sent within a note object. For valid, positive results, the tag value is a decimal number with any number of decimal places. For negative or invalid results, or aborted runs, a string with a fixed value of "N/A" is reported.

An example of a target with no Ct value:

```
<OBS>
    <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0" />
    <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0" />
    <OBS.method_cd V="M" />
    <NTE>
        <NTE.text V="LIAT.CT=N/A" />
    </NTE>
</OBS>
```

Information about aborted runs

If an assay run was aborted, a single observation with the identifier "Unknown Target" is reported.

A note object (NTE) indicates that the run was aborted, i.e. "LIAT.Aborted=true".

Another note object indicates who the run was aborted by, e.g. "LIAT.AbortedBy=User". Possible values:

- User
- System
- Script

Related topics

- Observations (results) (48)
- Message structure: Observation messages (OBS) (146)
- Message structure: Note object (NTE) (98)
- Examples: Observation topic (169)

Order object (ORD)

The Order object is a component of the Observation message. It is a subelement of the PT element.

Example

```
<ORD>
    <ORD.universal_service_id V="Flu/RSV Assay" SN="ROCHE" SV="1.0" />
</ORD>
```

Definition

Element	Data type	Attribute	Comment
universal_service_id	CE	V SN SV	Local identifier for the service provided by these observations. See the table below for possible values. Values for universal_service_id (SV=1.0) (103) . • The SN attribute is always "ROCHE". • The SV attribute defines the version of the element definition.

Order Object (ORD)

The **cobas® liat** system and associated assays are not commercially available in all markets. Please check with local Regulatory affiliate for regulatory status.

ORD.universal_service_id
Cdiff
CT/NG
CT/NG/MG
Flu/RSV Assay
Influenza Assay(1)
SARS-CoV-2
SARS-CoV-2 v2
SARS-CoV-2/Flu
SARS-CoV-2/Flu v2
SARS-CoV-2/Flu/RSV
Strep A Assay

Values for universal_service_id (SV=1.0)

(1) Influenza assay is no longer supported from software version 3.4 onwards, but migrated results may be available from software version 3.3

Related topics

- Observations (results) (48)
- Observation object (OBS) (99)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Operator object (OPR)

The operator object is part of the following messages:

- OPL.R01/R02
- EVS.R01
- OBS.R01/R02 (sub-element of the SVC object)

Example

```
<OPR>
    <OPR.operator_id V="ADMIN" />
</OPR>
```

Definition

Element	Data type	Attribute	Comment
operator_id	ST	V	The following validations for the operator_id are done by the analyzer before applying the changes: • The operator_id has to be unique across all defined operators. • The operator_id needs to consist of ASCII alphanumeric characters or symbols. Spaces are not allowed. • The minimum length of an operator_id is 1 character. • The maximum length of an operator_id is 20 characters. • The operator_id has to be unique in the system. The uniqueness is defined case insensitive.
name	PN	V	The name of the operator. The following validations for the name are done by the analyzer before applying the changes: • The name can only consist of alphanumeric characters, symbols and spaces. • The maximum length of the user name is 25 characters. • The user name is not mandatory and can also be empty.

The operator object (OPR)

Related topics

- Initialization flow (36)
- Operator and lot lists (52)
- About operators (56)
- Additional attributes of operators (58)
- Message structure: Operator messages (OPL) (148)
- Examples: Operators topic (182)

Reagent object (RGT)

The Reagent object is a component of the Observation message (OBS.R01 and OBS.R02). It is a subelement of the SVC object.

Example

```
<RGT>
    <RGT.name V="FRTA"/>
    <RGT.lot_number V="FRTA^20926Y^1.28"/>
    <RGT.expiration_date V="2042-09-30T00:00:00+00:00"/>
</RGT>
```

Definition

Element	Data type	Attribute	Comment
name	ST	V	The manufacturer's name for the reagent (e.g."SASA").
lot_number	CS	V	The lot number of the reagent used comprising three components: • Vendor's name of the reagent • Lot code • Internal version number
expiration_date	TS	V	The date after which the reagent should not be used.

Reagent Object (RGT)

Related topics

- Observations (results) (48)
- Observation object (OBS) (99)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Request object (REQ)

The request object is a component of every request messages (REQ.R01).

Element	Data type	Attribute	Comment
request_cd	CV	V	Code denoting the request. See POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, Table 14

Request Object (REQ)

Request(1)	Description	Required for POCT1-A Compliance	Roche-specific	Response Message(s)
ROBS	Request all unsent observations.	Yes	-	OBS.R02, OBS.R01
RDEV	Request all unsent events	No	-	EVS.R01
RRDL	Request complete lot list	No	Yes	ROCHE.LIAT.LOTS.R01
RRDL_D	Request incremental lot list	No	Yes	ROCHE.LIAT.LOTS.R02
ROPL	Request complete operator list	No	No	OPL.R01, OPL.R02
ROPL_D	Request incremental operator list	No	No	OPL.R02
RPVI	Request patient verification object	No	Yes	ROCHE.LIAT.PVI.R01

Analyzer Requests

(1) This is the code for the request to be set in the request_cd field of the request object of the REQ.R01 message

Related topics

- Workflows (45)
- Message structure: Request message (REQ.R01) (149)

Service Object (SVC)

The service object is a component of the observation messages (OBS.R01, OBS.R02). It is a parent of the PT, RGT, OBS, ORD, CTC and NTE objects.

Definition

Element	Data type	Attribute	Comment
role_cd	CS	V	Type of test. See the table below for possible values
observation_dttm	TS	V	The time the observation (test) was performed.

Service Object (SVC)

role_cd	value	Description
LQC	Liquid QC	Observation(s) from a liquid quality control test
OBS	Observations	Patient test observation(s).

Supported values of the role_cd element

Additional attributes for patient verification

For patient verification, the following additional information can be attached as a Note object (NTE).

Attribute	Name	Description
LIAT.PPID	Patient verification	Indicates whether the result has been created with patient verification, and the outcome. See table below for supported values. Example (Indicates that patient verification was enabled, but the verification failed because no patient data was found. Therefore the operator has chosen to process the sample and generate the result without patient verification): `<NTE.text V="Liat.PPID:2"/>`
LIAT.SPT	Source of patient ID	Indicates from where the content of the reported patient ID is taken. Supported values: • `1` = Provided by operator • `2` = Received upon PPID Example: `<NTE.text V="LIAT.SPT:2"/>`
LIAT.SRI	System result identifier	Identifies the type of the result identifier configured for the analyzer, and the content provided by the operator. Supported values: • `P` = Patient ID • `V` = Visit ID • `O` = Order ID • `S` = Sample ID • `Content` = Provided identifier content (e.g. from scanned barcode) • `U` = Unknown. Only used for compatible reporting of migrated results. When updating the analyzer to software version 3.4, the existing results might have this code. Example: `<NTE.text V="Liat.SRI:S_12345678"/>`

Additional attributes of operators

PPID value	Patient verification enabled?	Outcome
0	Patient verification was not enabled/ configured	• Result created without patient verification
1	Patient verification enabled	• Verification successful • Patient ID received
2	Patient verification enabled	• Verification failed with "no patient data found" • Run performed without patient verification (Operator ignored)
3	Patient verification enabled	• Verification failed due to technical problem • Run performed without patient verification (Operator ignored)
4	Patient verification enabled	• Operator canceled the verification • Run performed without patient verification (Operator ignored)
99	-	Only used for compatible reporting of migrated results. When updating the analyzer to software version 3.4, the existing results will have this code.

Supported values of PPID

Example

```
...
<SVC>
    <PT>
        <PT.patient_id V="12345678"/>
    </PT>
    ...
    <NTE>
        <NTE.text V="Liat.PPID:2"/>
    </NTE>
    <NTE>
        <NTE.text V="Liat.SPT:1"/>
    </NTE>
    <NTE>
        <NTE.text V="Liat.SRI:S_12345678"/>
    </NTE>
</SVC>
...
```

Example Patient result observation with additional patient verification notes

Related topics

- Observations (results) (48)
- Patient verification (80)
- Observation object (OBS) (99)
- Note object (NTE) (98)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Termination object (TRM)

The terminate object is a component of the terminate messages (END.R01).

Example

```
<TRM>
    <TRM.reason_cd V="ABN" />
    <TRM.note_txt V="Timeout occurred." />
</TRM>
```

Element	Data type	Attribute	Comment
reason_cd	CV	V	Values acc. POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, Table 54
note_txt	ST	V	Additional information about termination reason Optional Element.

Terminate Object (END)

Related topics

- Communication termination (37)
- Message structure: Termination message (END.R01) (149)
- Example: Communication ending (188)

Update Action object (UPD)

The update action method is a component of the operator and lot messages (OPL.R02, ROCHE.LIAT.LOTS.R02).

Element	Data type	Attribute	Comment
action_cd	CS	V	Operation to be performed on the item in scope. See the table below for possible values.

Update Action object (UPD)

Code	Value	Description
I	Insert	Insert the specified entries into the associated list.
D	Delete	Delete the specified entries from the associated list.

Supported values of the action_cd element

Related topics

- About operators (56)
- Lots (60)
- Operator object (OPR) (103)
- Lot object (LOT) (135)
- Message structure: Operator messages (OPL) (148)
- Message structure: Lot full list messages (ROCHE.LIAT.LOTS.R01) (153)
- Message structure: Lot partial list messages (ROCHE.LIAT.LOTS.R02) (153)
- Examples: Lot topic (165)
- Examples: Operators topic (182)

Custom objects

In this section

Patient object (PT)

Definition

Element	Data type	Attribute	Comment
patient_id	ST	V	The unique identifier for the patient • If the patient verification workflow is enabled, the received patient ID is sent in the result message (OBS.R01). The scanned patient identifier (sample ID, order ID, or visit ID) is thereby replaced by the ID (PT.patient_id) sent from the DMS to the Liat analyzer. • If the patient verification workflow is disabled, the scanned or manually entered sample ID is sent in the result message (OBS.R01).
name	PN	V	Patient name
birth_date	TS	V	Format = YYYY-MM-DD
gender_cd	CS	V	The analyzer supports the following values: • `F` = female • `M` = male • `U` = unknown, Any other value is interpreted as `U`.

Patient object (PT)

Related topics

- Observations (results) (48)
- Observation object (OBS) (99)
- Message structure: Observation messages (OBS) (146)
- Examples: Observation topic (169)

Patient verification objects

Patient verification identifier object (PVI)

The PVI object is part of the patient verification request message. It contains type and value of the requested patient identifier (patient ID, sample ID, order ID, or visit ID).

Example

```
<PVI>
    <PVI.verification_type_cd V="P" />
    <PVI.identifier V="1234"/>
</PVI>
```

Definition

Element	Data type	Attribute	Required	Comment
verification_type_cd	CS	V	Y	Type of patient identifier to be sent. Supported values: • P = patient ID: requested identifier is patient ID • S = sample ID: requested identifier is sample ID • O = order ID: requested identifier is order ID • V = visit ID: requested identifier is visit ID
identifier_id	CS	V	Y	Value of the patient identifier to be matched with the patient details in the encrypted database

Patient verification identifier object (PVI)

Related topics

- Patient verification (80)
- Patient verification found object (PVF) (111)
- Patient verification request message (ROCHE.LIAT.PVI.R01) (154)
- Patient verification response message (ROCHE.LIAT.PVR.R01) (155)

Patient verification found object (PVF)

The patient verification found object is part of the response from the DMS to the patient verification request from the analyzer. It informs the analyzer whether the DMS was able to match the requested patient identifier with a patient record in its database.

The response will therefore contain the patient's full name, gender and date of birth. The "status_cd" element indicates whether the DMS was able to match the record or not.

Example

```
<PVF status_cd V="T" />
```

Definition

Element	Data type	Attribute	Comment
status_cd	CS	V	Supported values: • `T` = True: the requested patient identifier matches to a patient in the encrypted database • `F` =False: the requested patient identifier does not match to a patient in the encrypted database

Patient verification found object (PVF)

Related topics

- Patient verification (80)
- Patient verification identifier object (PVI) (111)
- Patient verification request message (ROCHE.LIAT.PVI.R01) (154)
- Patient verification response message (ROCHE.LIAT.PVR.R01) (155)

Generic configuration object (GEN_CFG)

The Device configuration object is a component of the Device configuration custom directive.

For information about the characters supported within data values, refer to Message encoding (30)

Definition

Element	Data type	Attribute	Comment
Authentication.authenticationType	CS	V	The type used to authenticate the user. Supported values: • User ID & Password • Barcode • Barcode & Password
Autolock.autolocktime	CS	V	The time at which the screen gets automatically locked. Values from 1 to 1440 minutes. When the value given is out of range the system sets the value to the maximum or minimum that can be established. Decimal values are not accepted.
AutoReboot.Time	ST	V	Indicates at what time the Liat will perform its daily reboot. • Format: HH:mm • Hour (HH) range: 00-23 • Minutes (mm) range: 00-55: Only multiples of 5 are allowed {00, 05, 10, ..., 50, 55}. Default value: `3:00 (3 AM)`
BarcodeITF.Enabled	CS	V	A boolean that determines if the analyzer can read ITF (interleaved 2 of 5) barcodes.

Generic configuration object

Element	Data type	Attribute	Comment
BarcodeITF.Checksum	CS	V	A boolean that determines if analyzer expects the ITF barcodes to have a checksum.
BarcodeITF.FixLength	ST	V	A string that determines if the ITF barcode is a fixed length. Supported values: • `"One discrete length"` (Default) • `"Disabled"` (i.e. ITF barcodes of any length can be read. Note that ITF barcode lengths should always be an even number.)
BarcodeITF.BarcodeLength	CS	V	Integer, that sets the length of the ITF barcode. (Including checksum digit.)
BarcodeCodabar.Enabled	CS	V	A boolean that determines if the analyzer can read Codabar encoded barcodes.
BarcodeCodabar. TransmitStartStopChar	CS	V	A boolean that determines if the Liat barcode scanner, upon reading a Codabar, sends the full barcode to the application, or just the barcode string without the Start/End chars.
BarcodeCode39.Enabled	CS	V	A boolean that determines if the analyzer can read Code 39 barcodes.
BarcodeCode39.Checksum	CS	V	A boolean that determines if analyzer expects the Code 39 barcodes to have a checksum.
BarcodeCode93.Enabled	CS	V	A boolean that determines if the analyzer can read Code 93 barcodes.
BarcodeEAN8.Enabled	CS	V	A boolean that determines if the analyzer can read EAN-8 barcodes.
BarcodeEAN13.Enabled	CS	V	A boolean that determines if the analyzer can read EAN-13 barcodes.
BarcodeGS1Databar14.Enabled	CS	V	A boolean that determines if the analyzer can read GS1 Databar 14-digit barcodes.
Connectivity.Timeout	CS	V	The time at which the system will disconnect from the DMS after the last message. Values from 5 to 20 in increments of 1, then from 20 to 120 seconds, in increments of 5. When the value given is out of range the system sets the value to the maximum or minimum that can be established. When the set value is not a multiple of 5, the system rounds it to the closest one. Decimal values are not accepted.
Connectivity.DataSynchronizationUsers	CS	V	A boolean that determines if users are synchronized with DMS. Supported values: • false (default) • true
Connectivity. DataSynchronizationAssayLots	CS	V	A boolean that determines if lots are synchronized with DMS. Supported values: • false (default) • true
Connectivity. DataSynchronizationLogEvents	CS	V	A boolean that determines if events are synchronized with DMS. Supported values: • false (default) • true

Generic configuration object

Element	Data type	Attribute	Comment
Connectivity. DataSynchronizationInformation	CS	V	A boolean that determines if information events are synchronized with DMS. Supported values: • false (default) • true
Connectivity. DataSynchronizationWarningErrors	CS	V	A boolean that determines if errors and warning events are synchronized with DMS. Supported values: • false (default) • true
Connectivity.ConnectionInterval	CS	V	Time interval (in minutes) before the analyzer connects to the DMS after the last message. Values range from 5 to 1440 with increments of 5.
DataCollection. ActiveDataCollectionState	CS	V	A boolean that determines the data collection state. Supported values: • false (default) • true (only supported if data collector plugins are installed on the analyzer(s)) Data collection provides information for Roche about analyzer use and issues. For detailed information, refer to the **cobas® liat** system User Guide.
DateTime.sntp	CS	V	A boolean that determines if the analyzer uses the SNTP protocol to adjust time.
DateTime.Server	ST	V	The IP address or host name of the SNTP server.
DateTime.TimeZone	CS	V	Time Zone. (Case-sensitive string) For possible values, see table below: Supported values of DateTime.TimeZone element (132)
DateTime.DateFormat	CS	V	Date format of the analyzer. Supported values: • dd.mm.yyyy • dd/mm/yyyy • dd-mm-yyyy • mm-dd-yyyy • yyyy-mm-dd
DateTime.TimeFormat	CS	V	Time format of the analyzer. Supported values: • 12 • 24
Display.brightness	CS	V	The brightness of the screen. Values from 0 to 7. When the value given is out of range the system sets the value to the maximum or minimum that can be established. Decimal values are not accepted.

Generic configuration object

Element	Data type	Attribute	Comment
Languages.Language	CS	V	Languages supported by the analyzer. Supported values: • en-US • de-DE • fr-FR • it-IT • es-ES • da-DK • nl-NL • hu-HU • nb-NO • pl-PL • pt-PT • sv-SE • cs-CZ
LoggingLevels.LoggingLevel	ST	V	Indicates the logging level used by all the analyzer software modules (IM, IC, etc). Supported values: • `Normal` (default value) • `Verbose` Verbose mode should only be enabled when instructed to do so to troubleshoot issues. It should be disabled after troubleshooting has been completed.
Machine.sMachineName	ST	V	Name of the machine. This name could be used as the host name to access the Liat via network (TCP/IP). Ensure that this attribute is unique for every analyzer in your network!
Printers.InkLaserName	ST	V	Printer name. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is mandatory for configuring a printer via DeviceConfiguration message. If set, the property “Printers.InkLaserConnection” must also be set. The maximum length of this property is 200 characters. Printer settings (130)
Printers.InkLaserDescription	ST	V	Printer description. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is optional for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters.
Printers.InkLaserLocation	ST	V	Printer location. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is optional for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters.

Generic configuration object

Element	Data type	Attribute	Comment
Printers.InkLaserColorMode	CS	V	The color mode defines if the print output is in color or grayscale. Supported values: • grayscale (default) • color The maximum length of this property is 200 characters.
Printers.InkLaserConnection	ST	V	Network connection string of the printer. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is mandatory for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters. If set, the property “Printers.InkLaserName” must also be set. Printer settings (130)
Printers.ThermalName	ST	V	Printer name. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is mandatory for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters. If set, the property “Printers.ThermalConnection” must also be set.
Printers.ThermalDescription	ST	V	Printer description. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is optional for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters.
Printers.ThermalLocation	ST	V	Printer location. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is optional for configuring a printer via DeviceConfiguration message. The maximum length of this property is 200 characters. Printer settings (130)
Printers.ThermalColorMode	CS	V	The color mode defines if the print output is in color or grayscale. Note: None of the analyzer’s supported thermal printers can do it in color. Supported value: • grayscale The maximum length of this property is 200 characters.

Generic configuration object

Element	Data type	Attribute	Comment
Printers.ThermalConnection	ST	V	Network connection string of the printer. It is set automatically when the printer is detected by the analyzer. It cannot be changed on the analyzer. This property is mandatory for configuring a printer via DeviceConfiguration message. If set, the property “Printers.ThermalName” must also be set. The maximum length of this property is 200 characters. Printer settings (130)
Printers.ReportPrinting.SelectedPrinter	CS	V	This attribute defines if report printing is enabled or not. To support report printing, an inkjet/laser printer must be configured (either already configured on the analyzer, or on the same DeviceConfiguration message). Otherwise the attribute value must be *not configured*. Supported values: • not configured (default setting) • inklaser
Printers.ResultPrinting.Autoprinting	CS	V	This attribute defines if a result is automatically printed after a run. Supported values: • true • false
Printers.ResultPrinting.SelectedPrinter	CS	V	This attribute defines the printer on which a result is printed. At least one printer must be configured (either already configured on the analyzer, or on the same DeviceConfiguration message). Otherwise the attribute value must be *not configured*. Supported values: • not configured (default setting) • inklaser • thermal
Printers.ResultPrinting.Manualprinting	CS	V	This attribute defines the printer to be used for manual result printing. At least one printer must be configured (either already configured on the analyzer, or on the same DeviceConfiguration message). By setting the value default, the current printer for results (Printers.ResultPrinting.SelectedPrinter) will be used. If multiple printers are configured, the value custom allows the user to manually choose the printer for each print job. Supported values: • use default printer • custom • inklaser • thermal Printer settings (130)
PV.Verification	CS	V	A string that determines if the patient verification is performed or not. Supported values: • prior run • no verification

Generic configuration object

Element	Data type	Attribute	Comment
PV.VerificationType(1)	CS	V	Identifies the type of identifier (patient ID, sample ID, order ID, visit ID) to be sent to the DMS. Supported values: • `P` = patient ID • `S` = sample ID • `O` = order ID • `V` = visit ID
PV.PatientMismatch(1)	CS	V	Determines whether a run can be performed when the requested patient identifier does not match with a patient in the database of the DMS. Supported values: • run allowed • run not allowed
PV.DisplayedData(1)	CS	V	String that determines the level of detail required for the patient verification record response. Supported values: • `none` = no data • `partial` = name • `verbose` = name, sex, data of birth
PV.ManualConfirmation(1)	CS	V	Determines if confirmation by the user is required when the response from the DMS is received. Supported values: • not required • required
RemoteService.InfinityEdgeGateway.CustomerCity	ST	V	**cobas® infinity** edge gateway customer details "city". Supported values: • Empty (default) • String containing the city name
RemoteService.InfinityEdgeGateway.CustomerCountry	ST	V	**cobas® infinity** edge gateway customer details "country". Supported values: • Empty (default) • String containing the country name
RemoteService.InfinityEdgeGateway.CustomerLocation	ST	V	**cobas® infinity** edge gateway customer details "location". Supported values: • Empty (default) • String containing a name/identifier for the location
RemoteService.InfinityEdgeGateway.CustomerSite	ST	V	**cobas® infinity** edge gateway customer details "site". Supported values: • Empty (default) • String containing a name/identifier for the site
RemoteService.InfinityEdgeGateway.Port	ST	V	**cobas® infinity** edge gateway port. Supported values: • Empty (default) • String containing a valid TCP/IP port e.g. `433`
RemoteService.InfinityEdgeGateway.Server	ST	V	**cobas® infinity** edge gateway server. Supported values: • Empty (default) • String containing either an IP address or a valid machine name e.g. `192.168.1.10`

Generic configuration object

Element	Data type	Attribute	Comment
RemoteService.InfinityEdgeGateway.Timeout	CS	V	**cobas**® **infinity** edge gateway timeout. Supported values: • 20 (default) • Integer that represents the timeout to consider for **cobas**® **infinity** edge connections. Range: 5-120 (in steps of 5)
RemoteService.HTTPproxy	CS	V	A boolean that determines if the analyzer can connect to a HTTP proxy. If you want to enter one remote service configuration element/setting, then you must enter them all. Otherwise the system will reject the entire message. For example, you may only want to change the InfinityEdge settings, but you also need to enter the HTTP proxy settings too. This is because they are all part of the remote service settings.
RemoteService.Server	ST	V	The IP address or host name of the RemoteService server. If RemoteService.HTTPproxy is false, then Server must not be informed. This refers to the HTTP proxy configuration items in the Liat remote service settings. For detailed information, refer to the **cobas**® **liat** system User Guide, section Configuration items for proxy server.
RemoteService.Port	CS	V	Port used If RemoteService.HTTPproxy is false, then Port must not be informed. This refers to the HTTP proxy configuration items in the Liat remote service settings. For detailed information, refer to the **cobas**® **liat** system User Guide, section Configuration items for proxy server.
RemoteService.Authentication	CS	V	A boolean that determines if the analyzer must authenticate when connecting to a HTTP proxy. This refers to the HTTP proxy configuration items in the Liat remote service settings. For detailed information, refer to the **cobas**® **liat** system User Guide, section Configuration items for proxy server.
RemoteService.UserName	ST	V	User name identifier. If RemoteService.Authentication is false, then UserName must not be informed. This refers to the HTTP proxy configuration items in the Liat remote service settings. For detailed information, refer to the **cobas**® **liat** system User Guide, section Configuration items for proxy server.

Generic configuration object

Element	Data type	Attribute	Comment
RemoteService.Password	ST	V	User password. If RemoteService.Authentication is false, then Password must not be informed. This refers to the HTTP proxy configuration items in the Liat remote service settings. For detailed information, refer to the **cobas® liat** system User Guide, section Configuration items for proxy server.
Result.AutoRelease	ST	V	Indicates if all results are automatically released, immediately after producing them. Supported values: • `true` • `false` (default value)
ScheduledTasks.ArchiveDeleteResults.Content.ArchiveResults	CS	V	Supported values: • olderthan7days • olderthan30days • olderthan60days • olderthan90days • olderthan180days • olderthan365days (default) • all
ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfMonth	CS	V	Supported values: • firstdayofmonth (default) • lastdayofmonth
ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfWeek	CS	V	Supported values: • sunday (default) • monday • tuesday • wednesday • thursday • friday • saturday
ScheduledTasks.ArchiveDeleteResults.Schedule.Destination	CS	V	Supported values: • networkshare1 (default) • networkshare2 • networkshare3 • ftpshare1 • ftpshare2 • ftpshare3
ScheduledTasks.ArchiveDeleteResults.Schedule.Trigger	CS	V	Supported values: • on demand (default) • automatic
ScheduledTasks.ArchiveDeleteResults.Schedule.Frequency	CS	V	Supported values: • daily • weekly • monthly (default)
ScheduledTasks.ArchiveDeleteResults.Schedule.Time	CS	V	Supported values: • `00:00` - `23:00` (HH:MM) only full hours • Default value: `20:00` (8 PM)
ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Execution	CS	V	Supported values: • on demand (default) • automatic
ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Frequency	CS	V	Supported values: • weekly • monthly (default)

Generic configuration object

Element	Data type	Attribute	Comment
ScheduledTasks. ArchiveReduceAuditTrails. Schedule.Time	CS	V	Supported values: • 00:00-23:00 (HH:MM) only full hours • Default value: `21:00` (9 PM)
ScheduledTasks. ArchiveReduceAuditTrails. Schedule.DayOfMonth	CS	V	Supported values: • firstdayofmonth (default) • lastdayofmonth
ScheduledTasks. ArchiveReduceAuditTrails. Schedule.DayOfWeek	CS	V	Supported values: • sunday (default) • monday • tuesday • wednesday • thursday • friday • saturday
ScheduledTasks. ArchiveReduceAuditTrails. Schedule.Destination	CS	V	Supported values: • networkshare1 (default) • networkshare2 • networkshare3 • ftpshare1 • ftpshare2 • ftpshare3
ScheduledTasks.ProblemReport. Content.Communicationlog	ST	V	Indicates whether the communication traces (logs) are included or not inside the problem report. Supported values: • `included` (default value) • `excluded`
ScheduledTasks.ProblemReport. Content.DataRange	ST	V	Indicates that the date range of result related data is included in the problem report. Supported values: • `last24hours` • `last7days` • `last30days` (default value) • `all`
ScheduledTasks.ProblemReport. Content.Runlog	ST	V	Indicates whether the run assay raw data (logs) are included or not inside the problem report. Supported values: • `included` (default value) • `excluded`
ScheduledTasks.ProblemReport. Content.Users	ST	V	Indicates whether the sample results are included or not inside the Problem Report. Supported values: • `included` • `excluded` (default value)
ScheduledTasks.ProblemReport. Content.Sampleresults	ST	V	Indicates whether the sample results are included or not inside the problem report. Supported values: • `included` (default value) • `excluded`
ScheduledTasks.ProblemReport. Content.SampleID	ST	V	Indicates whether the run assay sample IDs are included or not inside the problem report. Supported values: • `included` • `excluded` (default value) The value “included” can only be used if the ScheduledTasks.ProblemReport.Content. Sampleresults element is also set to “included”.

Generic configuration object

Element	Data type	Attribute	Comment
ScheduledTasks.ProblemReport.Schedule.Creation	ST	V	Indicates if Problem Reports can be scheduled (automatic) or not (on demand). Supported values: • `on demand` (default value) • `automatic` As part of the problem report schedule settings: when automatic creation is set, the associated values for frequency, day, time and destination can not be empty. By default, automatic problem reports are created monthly, on the first day of the month at 4:00 p.m.
ScheduledTasks.ProblemReport.Schedule.Frequency	ST	V	Indicates how often problem reports are automatically generated. Supported values: • `daily` • `weekly` • `monthly` (default value) Dependencies: • If set to “weekly”, the ScheduledTasks.ProblemReport.Schedule.DayOfWeek element must contain a value. • If set to “monthly”, ScheduledTasks.ProblemReport.Schedule.DayOfMonth must contain a value. • If this element is used (populated by any supported value), the ScheduledTasks.ProblemReport.Schedule.Time and ScheduledTasks.ProblemReport.Schedule.Destination elements must contain a value.
ScheduledTasks.ProblemReport.Schedule.DayOfWeek	ST	V	Indicates the day of the week that problem reports are automatically generated. Supported values: • `sunday` (default value) • `monday` • `tuesday` • `wednesday` • `thursday` • `friday` • `saturday`
ScheduledTasks.ProblemReport.Schedule.DayOfMonth	ST	V	Indicates when monthly problem reports are automatically generated. Supported values: • `firstdayofmonth` (default value) • `lastdayofmonth`
ScheduledTasks.ProblemReport.Schedule.Time	ST	V	Indicates at what time the problem reports are automatically generated. • 00:00-23:00 (HH:MM) only full hours • Default value: `16:00` (4 PM)

Generic configuration object

Element	Data type	Attribute	Comment
ScheduledTasks.ProblemReport.Schedule.Destination	ST	V	Indicates where the automatically generated problem reports are saved. Supported values: • `remoteservicesystem` (default value) • `networkshare1` • `networkshare2` • `networkshare3` • `ftpshare1` • `ftpshare2` • `ftpshare3` **Note:** all networkshare# and ftpshare# correspond to the SLNetworkShare# and SLFTPShare# defined before in this table
SLNetworkShare1.Name	ST	V	This attribute defines the name of the first network share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare1.ServerName	ST	V	This attribute defines the server of the first network share. This could be: IP, machine name or DNS name If SLNetworkShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare1.FolderPath	ST	V	This attribute defines the network path of the first network share. Combining the ServerName and the FolderPath one obtains the typical (Windows) network share: `\\MyServer3\Path\Three` If SLNetworkShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare1.UserName	ST	V	This attribute defines the user name that can access the first network share. If SLNetworkShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare1.Password	ST	V	This attribute defines the password for the indicated user name. If SLNetworkShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.

Generic configuration object

Element	Data type	Attribute	Comment
SLNetworkShare2.Name	ST	V	This attribute defines the name of the first network share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare2.ServerName	ST	V	This attribute defines the server of the second network share. This could be: IP, machine name or DNS name If SLNetworkShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare2.FolderPath	ST	V	This attribute defines the network path of the second network share. Combining the ServerName and the FolderPath one obtains the typical (Windows) network share: `\\MyServer3\Path\Three` If SLNetworkShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare2.UserName	ST	V	This attribute defines the user name that can access the second network share. If SLNetworkShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare2.Password	ST	V	This attribute defines the password for the indicated user name. If SLNetworkShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare3.Name	ST	V	This attribute defines the name of the first network share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare3.ServerName	ST	V	This attribute defines the server of the third network share. This could be: IP, machine name or DNS name If SLNetworkShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.

Generic configuration object

Element	Data type	Attribute	Comment
SLNetworkShare3.FolderPath	ST	V	This attribute defines the network path of the third network share. Combining the ServerName and the FolderPath one obtains the typical (Windows) network share: `\\MyServer3\Path\Three` If SLNetworkShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare3.UserName	ST	V	This attribute defines the user name that can access the third network share. If SLNetworkShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLNetworkShare3.Password	ST	V	This attribute defines the password for the indicated user name. If SLNetworkShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.Name	ST	V	This attribute defines the name of the first FTP share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.Type	ST	V	This attribute indicates whether to use regular or FTP secure. Supported value: • `FTP` If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.IP	ST	V	This attribute defines the server of the first FTP share. This should be an IP address. Note: Machine name or DNS name are not allowed. If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.Port	ST	V	This attribute defines the port of the first FTP share. Supported values: `0` to `65534`. If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.

Generic configuration object

Element	Data type	Attribute	Comment
SLFTPShare1.FolderPath	ST	V	This attribute defines the folder path of the first FTP share. Combining the IP and the FolderPath one obtains the typical FTP URL: `ftp://ftpserver1/path/one` If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.UserName	ST	V	This attribute defines the user name that can access the first FTP share. If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare1.Password	ST	V	This attribute defines the password for the indicated user name. If SLFTPShare1.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.Name	ST	V	This attribute defines the name of the first FTP share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.Type	ST	V	This attribute indicates whether to use regular or FTP secure. Supported value: • `FTP` If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.IP	ST	V	This attribute defines the server of the second FTP share. This should be an IP address. Note: Machine name or DNS name are not allowed. If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.Port	ST	V	This attribute defines the port of the second FTP share. Supported values: `0` to `65534`. If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.

Generic configuration object

Element	Data type	Attribute	Comment
SLFTPShare2.FolderPath	ST	V	This attribute defines the folder path of the second FTP share. Combining the IP and the FolderPath one obtains the typical FTP URL: `ftp://ftpserver2/path/two` If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.UserName	ST	V	This attribute defines the user name that can access the second FTP share. If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare2.Password	ST	V	This attribute defines the password for the indicated user name. If SLFTPShare2.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.Name	ST	V	This attribute defines the name of the first FTP share. This could be any unique name. If duplicate names are configured, the user may subsequently experience unexpected behavior. This attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.Type	ST	V	This attribute indicates whether to use regular or FTP secure. Supported value: • `FTP` If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.IP	ST	V	This attribute defines the server of the third FTP share. This should be an IP address. Note: Machine name or DNS name are not allowed. If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.Port	ST	V	This attribute defines the port of the third FTP share. Supported values: `0` to `65534`. If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.

Generic configuration object

Element	Data type	Attribute	Comment
SLFTPShare3.FolderPath	ST	V	This attribute defines the folder path of the third FTP share. Combining the IP and the FolderPath one obtains the typical FTP URL: `ftp://ftpserver2/path/two` If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.UserName	ST	V	This attribute defines the user name that can access the third FTP share. If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
SLFTPShare3.Password	ST	V	This attribute defines the password for the indicated user name. If SLFTPShare3.Name is defined, then this attribute must contain a value. The maximum length of this attribute is 29 characters.
Sound.sSoundInitialization	CS	V	The sound of the analyzer when it initializes. Supported values: • Off • Beep2 • Beep3 • Beep4 • BUSY • BUZZER • CRITICAL • DEFAULT • DTMF1 • EMPTY • EXCLAM • INFEND • LATCHED • ONLINE
Sound.sSoundBarcodeScan	CS	V	The sound of the analyzer when a barcode is scanned. Supported values: • Off • Beep2 • Beep3 • Beep4 • BUSY • BUZZER • CRITICAL • DEFAULT • DTMF1 • EMPTY • EXCLAM • INFEND • LATCHED • ONLINE

Generic configuration object

Element	Data type	Attribute	Comment
Sound.sSoundTubeInsert	CS	V	The sound of the analyzer when a tube is inserted. Supported values: • Off • Beep2 • Beep3 • Beep4 • BUSY • BUZZER • CRITICAL • DEFAULT • DTMF1 • EMPTY • EXCLAM • INFEND • LATCHED • ONLINE
Sound.sSoundAssayFinish	CS	V	The sound of the analyzer when an assay has finished or is aborted. Supported values: • Off • Beep2 • Beep3 • Beep4 • BUSY • BUZZER • CRITICAL • DEFAULT • DTMF1 • EMPTY • EXCLAM • INFEND • LATCHED • ONLINE
Sound.sSoundTouchScreen	CS	V	Determines the volume of the sound generated by the analyzer when the user touches the screen. Supported values: • Off • Soft • Loud

Generic configuration object

Element	Data type	Attribute	Comment
Sound.sSoundKeyClicks	CS	V	Determines the volume of the sound generated by the analyzer when the user presses the HW keys. Supported values: • Off • Soft • Loud
Sound.SoundVolume	CS	V	The overall volume of the analyzer. Values range from 0 to 5. When the value given is out of range the system sets the value to the maximum or minimum that can be established. Decimal values are not accepted.
TubeInsertTime.iTubeInsertTime	CS	V	The time allowed to insert the assay tube to start the assay run. Values from 1 to 20 seconds. When the value given is out of range the system sets the value to the maximum or minimum that can be established. Decimal values are not accepted.

Generic configuration object

(1) Note: If PV.Verification is set to "no verification", this element must not be informed.

Printer settings

Network printers connections configured via DMS (Printers.InkLaserConnection and/or Printers.ThermalConnection) must specify one of the supported printing network protocols:

- "http://"
- "https://"
- "ipp://"
- "lpd://"
- "ipps://"
- "ipp14://"
- "socket://"
- "smb://"
- "dnssd://"

Note: USB printers directly connected to the analyzer via USB port can only be configured locally on the analyzer. A DMS shall only be used to configure network printer settings.
Any printer setting (e.g. *GEN_CFG.Printers.[type]Name*, where "type" is "Thermal" or "InkLaser") sent to the analyzer (empty or non-empty) will overwrite the printer configuration on the analyzer.
To avoid losing the configuration of a locally connected USB printer, the DMS shall exclude the printer GEN_CFG objects from the DeviceConfiguration message sent to the analyzer.

All printer settings can be set individually. In other words, it is possible that a DeviceConfiguration message just contains a single Printer setting. The only exception for this rule are the *Printer.[type]Name* and *Printer.[type]Connection* (where “type” is “Thermal” or “InkLaser”) settings: if one of these two is part of the message, the other should be too, otherwise the configuration is rejected.

Cross-referenced printer settings should make reference either to an already configured (analyzer) printer, or to a printer that is configured on the same DeviceConfiguration message. For example, if an instrument does not have an “inklaser” printer configured, and it receives a DeviceConfiguration message with just the following setting:

- Printers.ResultPrinting.Manualprinting = “inklaser”

The message is rejected. Note that if on the same message there is an inklaser configured (*Printers.InkLaserName* and *Printers.InkLaserConnection* are set), the message is accepted.

NOTICE

Incorrect DateTime.TimeZone string causes serious problems

An unsupported string can prevent updates. It can require reinstallation of the software to fix it.

- Make sure the string passed to DateTime.TimeZone is exactly correct, including correct upper and lower case.

Time zone names are case-sensitive.

DateTime.TimeZone	Description (analyzer user interface value)
Line Islands Standard Time	(UTC+14:00) Kiritimati Island
Samoa Standard Time	(UTC+13:00) Samoa
Tonga Standard Time	(UTC+13:00) Nuku'alofa
Fiji Standard Time	(UTC+12:00) Fiji
New Zealand Standard Time	(UTC+12:00) Auckland, Wellington
Russia Time Zone 11 Standard Time	(UTC+12:00) Anadyr, Petropavlovsk-Kamchatsky
UTC+12	(UTC+12) Coordinated Universal Time +12
Central Pacific Standard Time	(UTC+11:00) Solomon Is., New Caledonia
Sakhalin Standard Time	(UTC+11:00) Sakhalin
Russia Time Zone 10 Standard Time	(UTC+11:00) Chokurdakh
Vladivostok Standard Time	(UTC+10:00) Vladivostok
Magadan Standard Time	(UTC+10:00) Magadan
Tasmania Standard Time	(UTC+10:00) Hobart
West Pacific Standard Time	(UTC+10:00) Guam, Port Moresby
AUS Eastern Standard Time	(UTC+10:00) Canberra, Melbourne, Sydney
E. Australia Standard Time	(UTC+10:00) Brisbane
AUS Central Standard Time	(UTC+09:30) Darwin
Cen. Australia Standard Time	(UTC+09:30) Adelaide
Transbaikal Standard Time	(UTC+09:00) Chita
Yakutsk Standard Time	(UTC+09:00) Yakutsk
Korea Standard Time	(UTC+09:00) Seoul
Tokyo Standard Time	(UTC+09:00) Osaka, Sapporo, Tokyo
North Korea Standard Time	(UTC+08:30) Pyongyang
Ulaanbaatar Standard Time	(UTC+08:00) Ulaanbaatar
Taipei Standard Time	(UTC+08:00) Taipei
W. Australia Standard Time	(UTC+08:00) Perth
Singapore Standard Time	(UTC+08:00) Kuala Lumpur, Singapore
North Asia East Standard Time	(UTC+08:00) Irkutsk
China Standard Time	(UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi
North Asia Standard Time	(UTC+07:00) Krasnoyarsk
Altai Standard Time	(UTC+07:00) Barnaul, Gorno-Altaysk
SE Asia Standard Time	(UTC+07:00) Bangkok, Hanoi, Jakarta
Myanmar Standard Time	(UTC+06:30) Yangon (Rangoon)
N. Central Asia Standard Time	(UTC+06:00) Novosibirsk
Bangladesh Standard Time	(UTC+06:00) Dhaka
Central Asia Standard Time	(UTC+06:00) Astana
Nepal Standard Time	(UTC+05:45) Kathmandu
Sri Lanka Standard Time	(UTC+05:30) Sri Jayawardenepura
India Standard Time	(UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Pakistan Standard Time	(UTC+05:00) Islamabad, Karachi

Supported values of DateTime.TimeZone element

DateTime.TimeZone	Description (analyzer user interface value)
Ekaterinburg Standard Time	(UTC+05:00) Ekaterinburg
West Asia Standard Time	(UTC+05:00) Ashgabat, Tashkent
Afghanistan Standard Time	(UTC+04:30) Kabul
Caucasus Standard Time	(UTC+04:00) Yerevan
Georgian Standard Time	(UTC+04:00) Tbilisi
Mauritius Standard Time	(UTC+04:00) Port Louis
Russia Time Zone 3 Standard Time	(UTC+04:00) Izhevsk, Samara
Azerbaijan Standard Time	(UTC+04:00) Baku
Astrakhan Standard Time	(UTC+04:00) Astrakhan, Ulyanovsk
Arabian Standard Time	(UTC+04:00) Abu Dhabi, Muscat
Iran Standard Time	(UTC+03:30) Tehran
E. Africa Standard Time	(UTC+03:00) Nairobi
Russian Standard Time	(UTC+03:00) Moscow, St. Petersburg, Volgograd
Belarus Standard Time	(UTC+03:00) Minsk
Arab Standard Time	(UTC+03:00) Kuwait, Riyadh
Arabic Standard Time	(UTC+03:00) Baghdad
Libya Standard Time	(UTC+02:00) Tripoli
Kaliningrad Standard Time	(UTC+02:00) Kaliningrad
Israel Standard Time	(UTC+02:00) Jerusalem
Turkey Standard Time	(UTC+02:00) Istanbul
FLE Standard Time	(UTC+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
South Africa Standard Time	(UTC+02:00) Harare, Pretoria
E. Europe Standard Time	(UTC+02:00) E. Europe
Syria Standard Time	(UTC+02:00) Damascus
Egypt Standard Time	(UTC+02:00) Cairo
Middle East Standard Time	(UTC+02:00) Beirut
GTB Standard Time	(UTC+02:00) Athens, Bucharest
Jordan Standard Time	(UTC+02:00) Amman
Namibia Standard Time	(UTC+01:00) Windhoek
W. Central Africa Standard Time	(UTC+01:00) West Central Africa
Central European Standard Time	(UTC+01:00) Sarajevo, Skopje, Warsaw, Zagreb
Romance Standard Time	(UTC+01:00) Brussels, Copenhagen, Madrid, Paris
Central Europe Standard Time	(UTC+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
W. Europe Standard Time	(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
Greenwich Standard Time	(UTC) Monrovia, Reykjavik
GMT Standard Time	(UTC) Dublin, Edinburgh, Lisbon, London
UTC	(UTC) Coordinated Universal Time
Morocco Standard Time	(UTC) Casablanca
Azores Standard Time	(UTC-01:00) Azores
Cape Verde Standard Time	(UTC-01:00) Cabo Verde Is.
UTC-2	(UTC-02:00) Coordinated Universal Time -02

Supported values of DateTime.TimeZone element

DateTime.TimeZone	Description (analyzer user interface value)
E. South America Standard Time	(UTC-03:00) Brasilia
Argentina Standard Time	(UTC-03:00) Buenos Aires
SA Eastern Standard Time	(UTC-03:00) Cayenne, Fortaleza
Greenland Standard Time	(UTC-03:00) Greenland
Montevideo Standard Time	(UTC-03:00) Montevideo
Bahia Standard Time	(UTC-03:00) Salvador
Newfoundland Standard Time	(UTC-03:30) Newfoundland
Paraguay Standard Time	(UTC-04:00) Asuncion
Atlantic Standard Time	(UTC-04:00) Atlantic Time (Canada)
Central Brazilian Standard Time	(UTC-04:00) Cuiaba
SA Western Standard Time	(UTC-04:00) Georgetown, La Paz, Manaus, San Juan
Pacific SA Standard Time	(UTC-04:00) Santiago
Venezuela Standard Time	(UTC-04:30) Caracas
SA Pacific Standard Time	(UTC-05:00) Bogota, Lima, Quito, Rio Branco
Eastern Standard Time (Mexico)	(UTC-05:00) Chetumal
Eastern Standard Time	(UTC-05:00) Eastern Time (US & Canada)
Haiti Standard Time	(UTC-05:00) Haiti
US Eastern Standard Time	(UTC-05:00) Indiana (East)
Central America Standard Time	(UTC-06:00) Central America
Central Standard Time	(UTC-06:00) Central Time (US & Canada
Easter Island Standard Time	(UTC-06:00) Easter Island
Central Standard Time (Mexico)	(UTC-06:00) Guadalajara, Mexico City, Monterrey
Canada Central Standard Time	(UTC-06:00) Saskatchewan
US Mountain Standard Time	(UTC-07:00) Arizona
Mountain Standard Time (Mexico)	(UTC-07:00) Chihuahua, La Paz, Mazatlan
Mountain Standard Time	(UTC-07:00) Mountain Time (US & Canada)
Pacific Standard Time (Mexico)	(UTC-08:00) Baja California
Pacific Standard Time	(UTC-08:00) Pacific Time (US & Canada)
Alaskan Standard Time	(UTC-09:00) Alaska
Hawaiian Standard Time	(UTC-10:00) Hawaii
UTC-11	(UTC-11:00) Coordinated Universal Time -11
Dateline Standard Time	(UTC-12:00) International Date Line West

Supported values of DateTime.TimeZone element

Related topics

- Device Configuration (62)
- Message structure: Device configuration message (DTV.ROCHE.LIAT.CFG) (150)
- Examples: Device configuration directive (185)

Lot object (LOT)

The Lot object is a component of the custom Lot topic (ROCHE.LIAT.LOTS.R01 and ROCHE.LIAT.LOTS.R02).

Element	Data type	Attribute	Comment
lot_id	ST	V	Identifies uniquely the validated assay tube lot. • Assay name • Barcode lot number (4 digit code) or manufacturer lot number (6 digit code) About lot number (136) • Minimum compatible assay version Example: `SF2A^90101R^1.0.0` Unknown lot ids are ignored.
lot_insert_id	ST	V	The barcode used to start the lot validation.
parameters	ST	V	Lot specific parameters. These are Roche-internal parameters used by the run assay script. The maximum length of a parameter is 11 characters.
assay	ST	V	Name of the assay to which the validated lot belongs.
expiration_date	TS		Expiration date of the assay tube lot. Time and time zone information of the datetime field are set tozero, and are ignored. Only the date is used. Ex: `V= "2018-10-30T00:00:00+00:00"` This field reflects the expiration date of the lot.
lot_number	ST	V	Barcode lot number (4 digit code) or manufacturer lot number (6 digit code) About lot number (136)
minimum_compatible_version	ST	V	The minimum compatible assay version of a lot received from a DMS is compared to the one specified for the installed assay in order to decide whether a received lot can be used with the locally installed assay version.
validation_dttm	TS	V	Date and time the lot was validated. This field reflects the precise date/time/timezone when the lot was validated on an analyzer.
data	ST	V	Contains the encoded digital signature of the validated lot.

Lot object (LOT)

Related topics

- Lots (60)
- Message structure: Lot full list messages (ROCHE.LIAT.LOTS.R01) (153)
- Message structure: Lot partial list messages (ROCHE.LIAT.LOTS.R02) (153)
- Example: Lot topic (165)

About lot number

The lot number consists of the encoded manufacture date of the lot and a 1-letter identifier (lot code).

Lot manufacture date encoding

The lot manufacturing date can be encoded by a 6-digit code (manufacturer lot number), or by 4-digit code (barcode lot number).

On the user interface, the 6-digit code is displayed. For internal storage in the database, and in POCT1-A messages for the exchange of lot information with a connected DMS, the 4-digit code is used for lots created with a software version lower than 3.3.0. For new lots created on the analyzer with software version 3.3.0 or higher, the 6-digit code is used.

With software version 3.3.0 or higher, lots with 4-digit code are usable and accepted by the analyzer.

If a customer uses analyzers with different software versions, you should validate lots on an analyzer using a software version lower than 3.3.0.

Manufacture lot number (6-digit code)	Barcode lot number (4-digit code)
Format: `YMMDDI` • `Y` = last digit of manufacture year • `MM` = month of manufacture date • `DD` = day of manufacture date • `I` = lot identifier: 1-letter identifier (A to Z)	Format: `YMDI` • `Y` = 1-digit abbreviation for manufacture year Abbreviations Y (137) • `M` = 1-digit abbreviation for month of manufacture date Abbreviations for M (138) • `D` = 1-digit abbreviation for day of manufacture date Abbreviations for D (138) • `I` = lot identifier: 1-letter identifier (A to Z)

Manufacture lot number and barcode lot number

Examples

The following tables provides 2 examples of the 6-digit and 4-digit encoding of the lot number.

Lot number (uncoded)	6-digit code	4-digit code
06-MAY-2017, lot A	70506A	756A
02-JAN-2018, lot Z	80102Z	A12Z

Encoding of lot manufacture date

Encoding tables

Y (1st digit)	Manufacture year
8	2008
9	2009
0	2010
1	2011
2	2012
3	2013
4	2014
5	2015
6	2016
7	2017
A	2018
B	2019
C	2020
D	2021
E	2022
F	2023
G	2024
H	2025
I	2026
J	2027
K	2028
L	2029
M	2030
N	2031
O	2032
P	2033
Q	2034
R	2035
S	2036
T	2037
U	2038
V	2039
W	2040
X	2041
Y	2042
Z	2043

Abbreviations Y

M (2nd digit)	Manufacture month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
0	October
A	November
B	December

Abbreviations for M

D (3nd digit)	Manufacture day
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	10
A	11
B	12
C	13
D	14
E	15
F	16
G	17
H	18
I	19
J	20
K	21
L	22
M	23
N	24
O	25
P	26
Q	27
R	28

Abbreviations for D

D (3nd digit)	Manufacture day
S	29
T	30
U	31

Abbreviations for D

Message structure

The **cobas® liat** system supports several standard POCT1-A message types, as well as some custom extensions to the POCT1-A protocol.

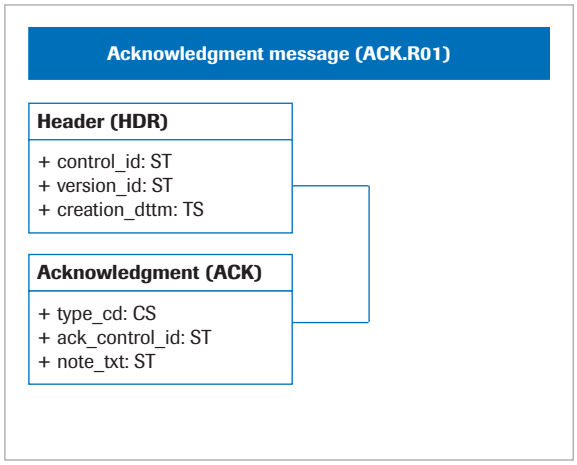
In this chapter 4

Supported POCT1-A message structure

See POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, chap. 6.1 for the notation conventions that apply to the message structure figures.

To get an overview of all POCT1-A standard messages and their elements, see POCT1-A2 "Point-of-Care Connectivity - Approved Standard Second Edition" standardized under CLSI Vol. 26 No. 28, appendix B, chap. 6.

Acknowledgment message (ACK.R01)

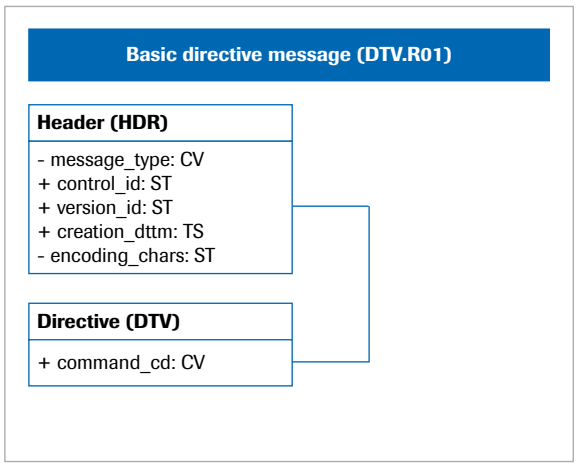


In the "ACK.ack_control_id" attributed, the device always sends the last known/valid "HDR.control_id".

Related topics

- Conversations and topics (45)
- Acknowledgment object (ACK) (89)
- Header object (HDR) (97)

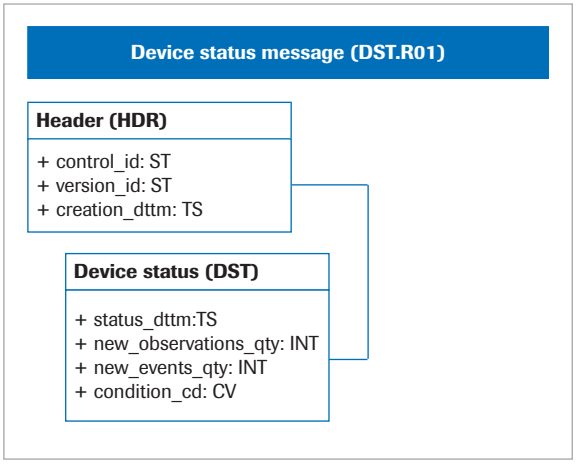
Basic directive message (DTV.R01)



Related topics

- Conversations and topics (45)
- Directive object (DTV) (95)
- Header object (HDR) (97)
- Examples: Device lock/unlock messages (190)

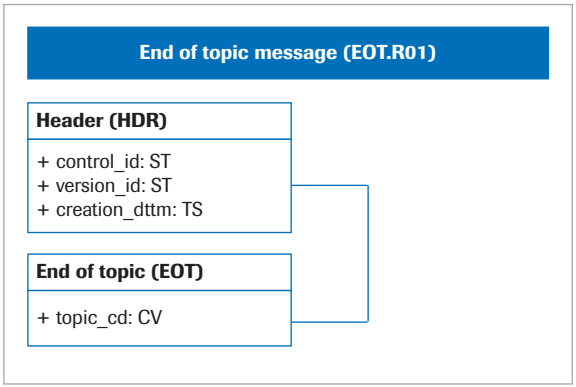
Device status message (DST.R01)



Related topics

- Conversations and topics (45)
- Acknowledgment object (ACK) (89)
- Device status object (DST) (94)
- Examples: Communication start up topics (161)

End of topic message (EOT.R01)

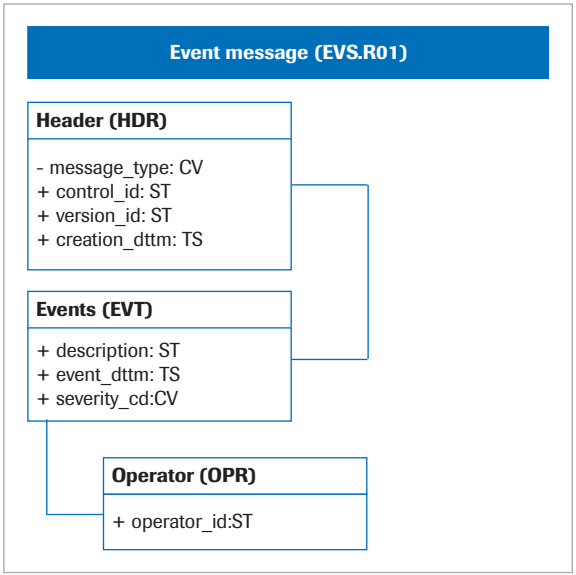


The End of topic message is used by the analyzer to indicate the end of a sequence of related messages to the DMS. This ability is needed to transfer large amounts of data on a topic such that the data is distributed into smaller, related messages when sending to the DMS.

Related topics

- Conversations and topics (45)
- End of topic object (EOT) (95)
- Header object (HDR) (97)

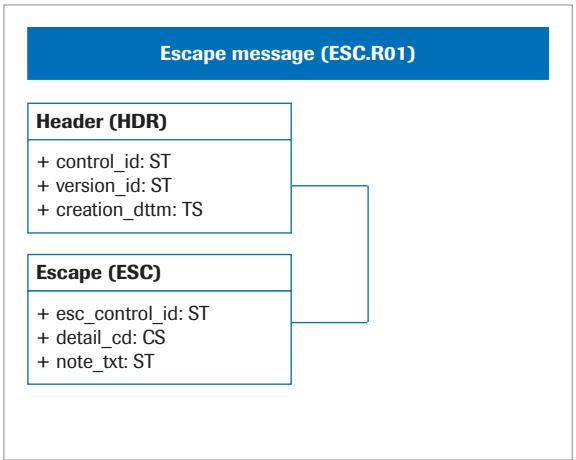
Event message (EVS.R01)



Related topics

- Events (68)
- Event object (EVT) (97)
- Header object (HDR) (97)
- Operator object (OPR) (103)

Escape message (ESC.R01)



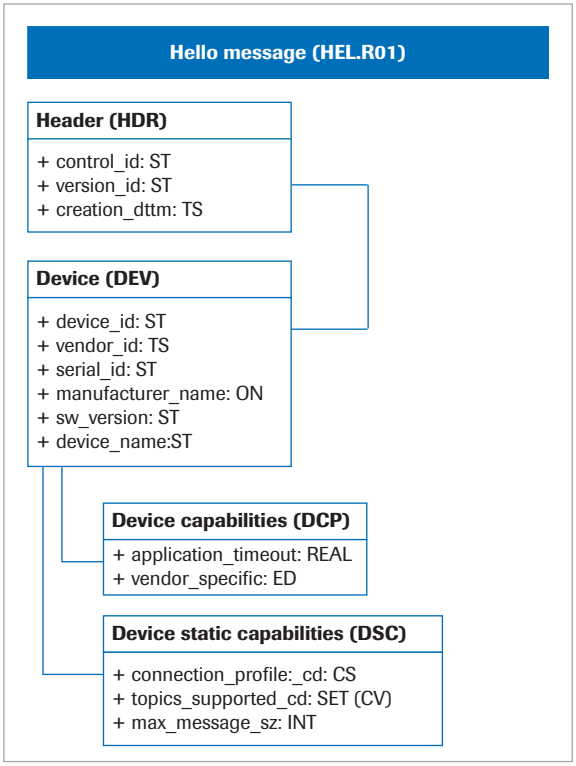
The analyzer or DMS uses the Escape message to interrupt the current conversation topic.

A topic of a conversation may be ended prematurely by the analyzer or the DMS by used of the Escape message. When the Escape message is sent, the receiver must terminate the topic activity, and move on to the next topic of the conversation.

Related topics

- Header object (HDR) (97)
- Escape object (ESC) (96)

Hello message (HEL.R01)

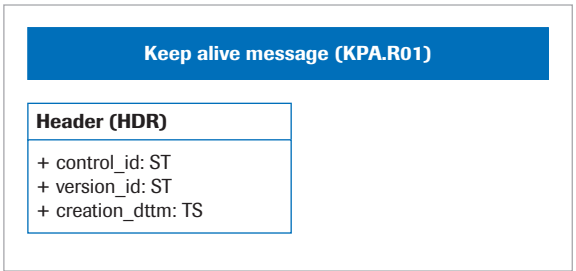


The Hello message is sent by the analyzer to indicate to the DMS that it wants to start a conversation.

Related topics

- Initialization flow (36)
- Communication initialization (33)
- Header object (HDR) (97)
- Device object (DEV) (92)
- Device capabilities object (DCP) (91)
- Device static capabilities object (DSC) (93)
- Examples: Communication start up topics (161)

Keep alive message (KPA.R01)



Related topics

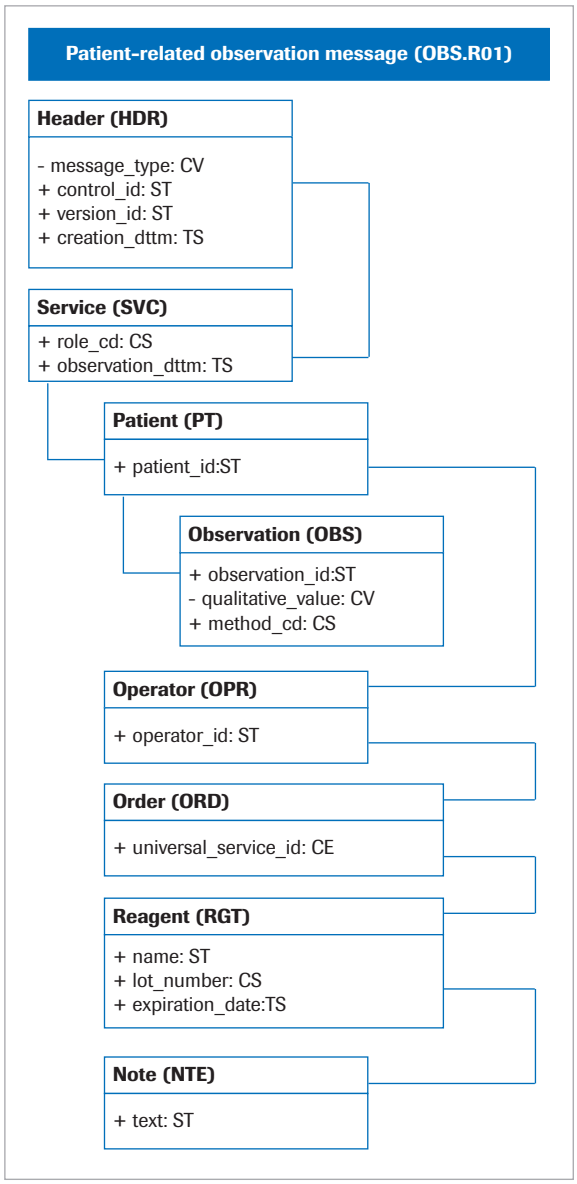
- Keep alive (42)
- Header object (HDR) (97)
- Example: Keep alive message (189)

Observation messages (OBS)

The need for uploading of unsent results is indicated by the Device status message at the beginning of every communication (DST.new_observations_qty).

Observation messages are sent one at a time.

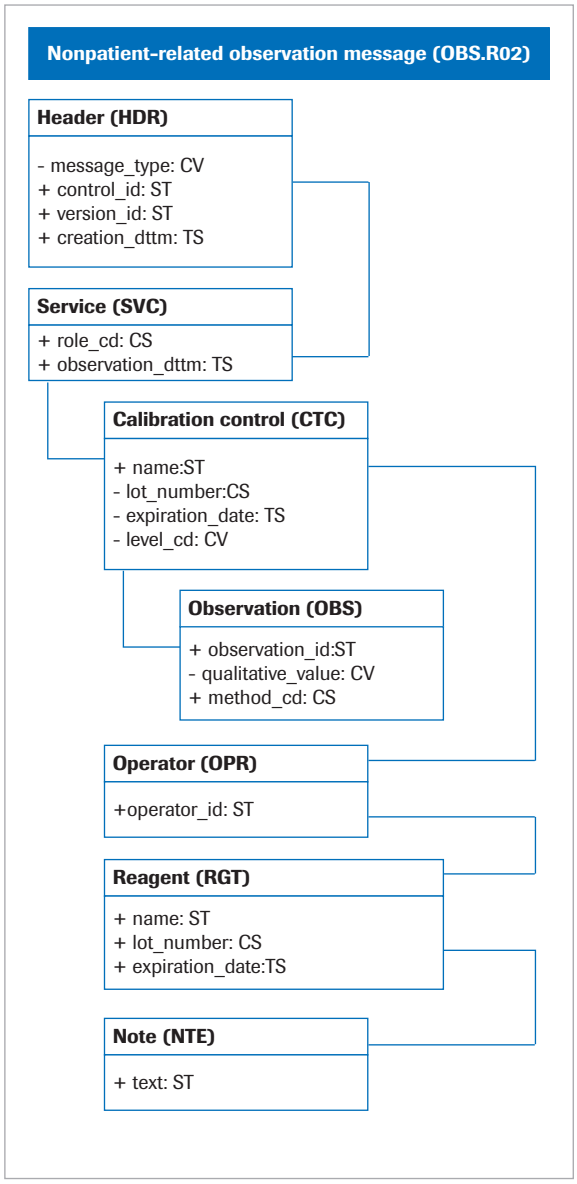
Patient-related Observation Message (OBS.R01)



The Observation message OBS.R01 is adapted to the analyzer's requirements for patient-related observations.

- Observations (results) (48)
- Observation object (OBS) (99)
- Header object (HDR) (97)
- Observation object (OBS) (99)
- Service Object (SVC) (106)
- Order object (ORD) (102)
- Patient object (PT) (110)
- Operator object (OPR) (103)
- Reagent object (RGT) (104)
- Note object (NTE) (98)
- Example: Observation topic (169)

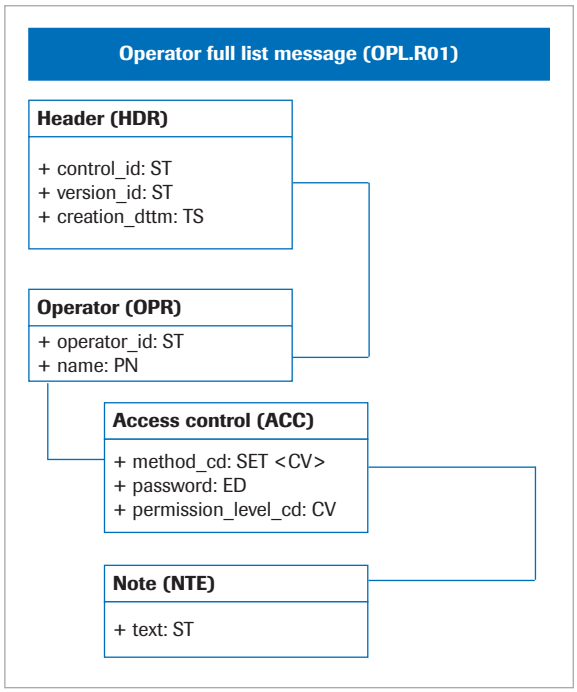
Non-patient-related observation message (OBS.R02)



The Observation message OBS.R02 is used to transmit the analyzer's results for liquid quality-control tests.

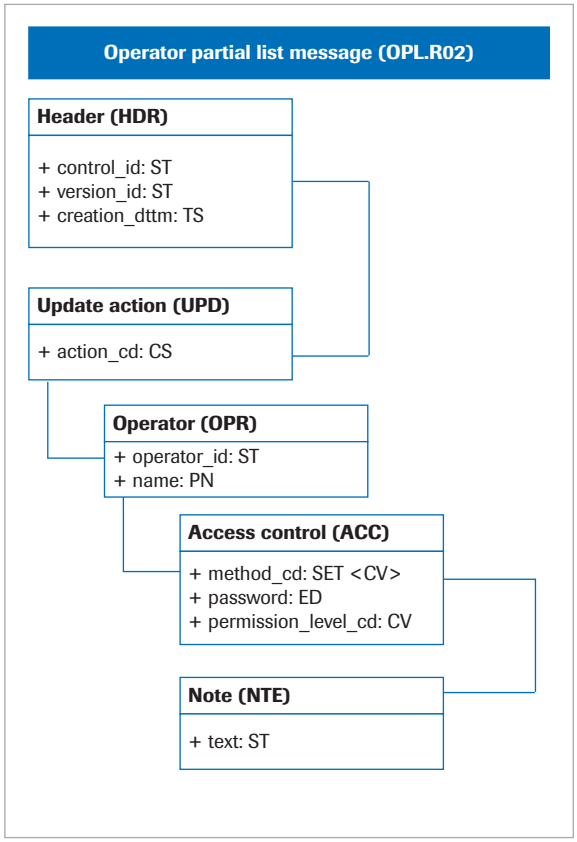
Operator messages (OPL)

Operator full list message (OPL.R01)



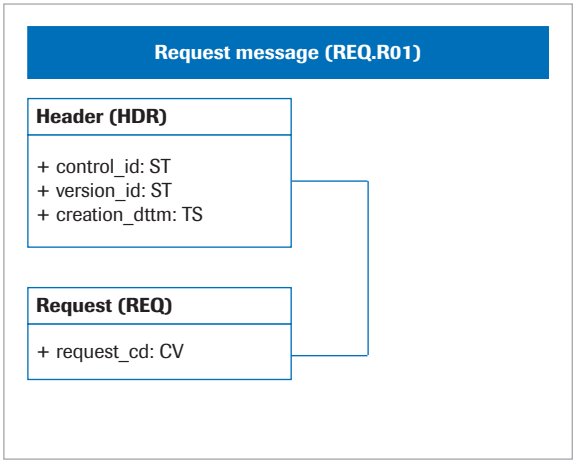
- Operator and lot lists (52)
- About operators (56)
- Access control object (ACC) (88)
- Header object (HDR) (97)
- Operator object (OPR) (103)
- Note object (NTE) (98)
- Example: Operators topic (182)

Operator partial list message



- Operator and lot lists (52)
- About operators (56)
- Access control object (ACC) (88)
- Update Action object (UPD) (109)
- Header object (HDR) (97)
- Operator object (OPR) (103)
- Note object (NTE) (98)
- Example: Operators topic (182)

Request message (REQ.R01)

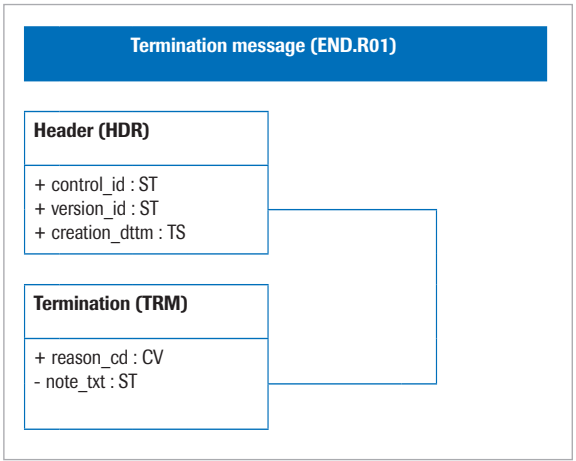


The Request message is used by the DMS to prompt the analyzer to begin transferring data. The type of data requested depends on the Request message.

Related topics

- Workflows (45)
- Header object (HDR) (97)
- Request object (REQ) (105)

Termination message (END.R01)



Each conversation is ended by a termination message. Normally the DMS will send the termination but on rare occasions it is acceptable for the analyzer to terminate the conversation.

Related topics

- Communication termination (37)
- Header object (HDR) (97)
- Termination object (TRM) (108)

Custom cobas® liat messages

The **cobas® liat** system supports several messages that provide custom extensions to the POCT1-A protocol.

Device configuration message (DTV.ROCHE.LIAT.CFG)

DTV.ROCHE.LIAT.CFG message

```
<DTV.ROCHE.LIAT.CFG>
    <HDR>
       <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
       <HDR.control_id V="3"/>
       <HDR.version_id V="POCT1"/>
       <HDR.creation_dttm V="2019-04-26T16:10:00+00:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DataCollection.ActiveDataCollectionState V="false"/>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Central European Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Content.ArchiveResults V="olderthan365days"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Destination V="networkshare1"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Trigger V="on demand"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Frequency V="monthly"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Time V="20:00"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Execution V="on demand"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Frequency V="monthly"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Time V="21:00"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Destination V="networkshare1"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Creation V="on demand"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Destination V="remoteservicesystem"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Time V="16:00"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Frequency V="monthly"/>
        <GEN_CFG.Sound.sSoundInitialization V="Beep2"/>
        <GEN_CFG.Sound.sSoundBarcodeScan V="Beep3"/>
        <GEN_CFG.Sound.sSoundTubeInsert V="Beep4"/>
        <GEN_CFG.Sound.sSoundAssayFinish V="BUZZER"/>
        <GEN_CFG.Sound.sSoundTouchScreen V="Soft"/>
        <GEN_CFG.Sound.sSoundKeyClicks V="Soft"/>
        <GEN_CFG.Sound.SoundVolume V="1"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
```

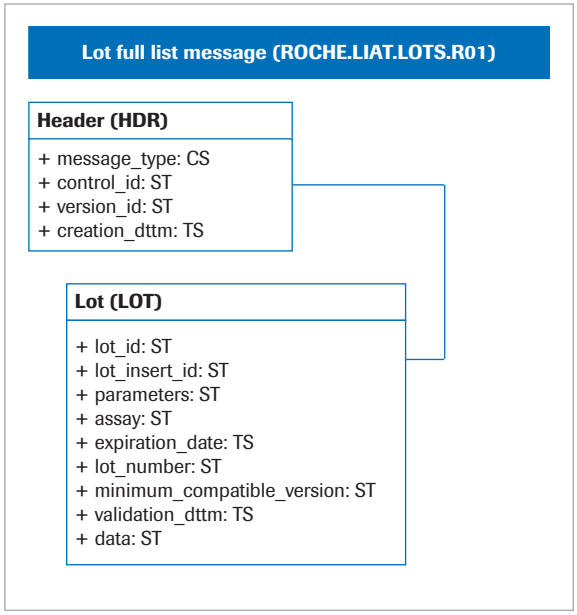
```
<GEN_CFG.AutoLock.autolocktime V="7"/>
<GEN_CFG.Authentication.authenticationType V="User ID &amp;amp; Password"/>
<GEN_CFG.Languages.Language V="en-US"/>
<GEN_CFG.AutoReboot.Time V="05:30"/>
<GEN_CFG.Connectivity.Timeout V="30"/>
<GEN_CFG.Connectivity.DataSynchronizationUsers V="true"/>
<GEN_CFG.Connectivity.DataSynchronizationAssayLots V="true"/>
<GEN_CFG.Connectivity.DataSynchronizationLogEvents V="true"/>
<GEN_CFG.Connectivity.DataSynchronizationInformation V="true"/>
<GEN_CFG.Connectivity.DataSynchronizationWarningErrors V="true"/>
<GEN_CFG.Connectivity.ConnectionInterval V="5"/>
<GEN_CFG.Result.AutoRelease V="false"/>
<GEN_CFG.BarcodeITF.Enabled V="false"/>
<GEN_CFG.BarcodeITF.Checksum V="true"/>
<GEN_CFG.BarcodeITF.FixLength V="One discrete length"/>
<GEN_CFG.BarcodeITF.BarcodeLength V="10"/>
<GEN_CFG.BarcodeCodabar.Enabled V="true"/>
<GEN_CFG.BarcodeCodabar.TransmitStartStopChar V="false"/>
<GEN_CFG.BarcodeCode39.Enabled V="true"/>
<GEN_CFG.BarcodeCode39.Checksum V="true"/>
<GEN_CFG.BarcodeCode93.Enabled V="true"/>
<GEN_CFG.BarcodeEAN8.Enabled V="true"/>
<GEN_CFG.BarcodeEAN13.Enabled V="true"/>
<GEN_CFG.BarcodeGS1Databar14.Enabled V="true"/>
<GEN_CFG.LoggingLevels.LoggingLevel V="Normal"/>
<GEN_CFG.MachineName.sMachineName V="NewMachine"/>
<GEN_CFG.PV.Verification V="prior run"/>
<GEN_CFG.PV.VerificationType V="o"/>
<GEN_CFG.PV.PatientMismatch V="run allowed"/>
<GEN_CFG.PV.DisplayedData V="verbose"/>
<GEN_CFG.PV.ManualConfirmation V="not required"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.CommunicationLog V="included"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.Runlog V="included"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.DataRange V="last30days"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.Sampleresults V="included"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.SampleID V="excluded"/>
<GEN_CFG.ScheduledTasks.ProblemReport.Content.Users V="excluded"/>
<GEN_CFG.Printers.InkLaserName V="HP Officejet Pro 8100"/>
<GEN_CFG.Printers.InkLaserDescription V="Officejet Pro 8100 [126E24]"/>
<GEN_CFG.Printers.InkLaserLocation V=""/>
<GEN_CFG.Printers.InkLaserColorMode V="greyscale"/>
<GEN_CFG.Printers.InkLaserConnection V="dnssd://Officejet%20Pro%208100%20%5B126E24%5D._pdlda
 tastream._tcp.local/?uuid=1c852a4d-b800-1f08-abcd-a02bb8126e24"/>
<GEN_CFG.Printers.ThermalName V="Brother QL-820NWB"/>
<GEN_CFG.Printers.ThermalDescription V="Brother QL-820NWB"/>
<GEN_CFG.Printers.ThermalLocation V=""/>
<GEN_CFG.Printers.ThermalColorMode V="greyscale"/>
<GEN_CFG.Printers.ThermalConnection V="dnssd://Brother%20QL 820NWB._ipp._tcp.local/?uuid=e32
 48000-80ce-11db-8000-0080775abcab"/>
<GEN_CFG.Printers.ReportPrinting.SelectedPrinter V="inklaser"/>
<GEN_CFG.Printers.ResultPrinting.Autoprinting V="false"/>
<GEN_CFG.Printers.ResultPrinting.SelectedPrinter V="thermal"/>
<GEN_CFG.Printers.ResultPrinting.Manualprinting V="use default printer"/>
<GEN_CFG.SLNetworkShare1.Name V="Network Share 1"/>
<GEN_CFG.SLNetworkShare1.ServerName V="10.138.206.208"/>
<GEN_CFG.SLNetworkShare1.FolderPath V="SharedFolder_1"/>
<GEN_CFG.SLNetworkShare1.UserName V="UserRW"/>
<GEN_CFG.SLNetworkShare1.Password V="617617"/>
<GEN_CFG.SLNetworkShare2.Name V="Network Share 2"/>
```

```
        <GEN_CFG.SLNetworkShare2.ServerName V="10.138.206.208"/>
        <GEN_CFG.SLNetworkShare2.FolderPath V="SharedFolder_2"/>
        <GEN_CFG.SLNetworkShare2.UserName V="UserRW"/>
        <GEN_CFG.SLNetworkShare2.Password V="617617"/>
        <GEN_CFG.SLNetworkShare3.Name V="Network Share 3"/>
        <GEN_CFG.SLNetworkShare3.ServerName V="10.138.206.208"/>
        <GEN_CFG.SLNetworkShare3.FolderPath V="SharedFolder_3"/>
        <GEN_CFG.SLNetworkShare3.UserName V="UserRW"/>
        <GEN_CFG.SLNetworkShare3.Password V="617617"/>
        <GEN_CFG.SLFTPShare1.Name V="FTP share 1"/>
        <GEN_CFG.SLFTPShare1.Type V="FTP"/>
        <GEN_CFG.SLFTPShare1.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare1.Port V="2554"/>
        <GEN_CFG.SLFTPShare1.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare1.UserName V="SI"/>
        <GEN_CFG.SLFTPShare1.Password V="617617"/>
        <GEN_CFG.SLFTPShare2.Name V="FTP share 2"/>
        <GEN_CFG.SLFTPShare2.Type V="FTP"/>
        <GEN_CFG.SLFTPShare2.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare2.Port V="2554"/>
        <GEN_CFG.SLFTPShare2.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare2.UserName V="SI"/>
        <GEN_CFG.SLFTPShare2.Password V="617617"/>
        <GEN_CFG.SLFTPShare3.Name V="FTP share 3"/>
        <GEN_CFG.SLFTPShare3.Type V="FTP"/>
        <GEN_CFG.SLFTPShare3.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare3.Port V="2554"/>
        <GEN_CFG.SLFTPShare3.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare3.UserName V="SI"/>
        <GEN_CFG.SLFTPShare3.Password V="617617"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.CustomerCity V="London"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.CustomerCountry V="UK"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.CustomerLocation V="Lab1"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.CustomerSite V="Green"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.Port V="433"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.Server V="192.168.1.10"/>
        <GEN_CFG.RemoteService.InfinityEdgeGateway.Timeout V="20"/>
        <GEN_CFG.RemoteService.HTTPproxy V="false"/>
        <GEN_CFG.RemoteService.Server V=""/>
        <GEN_CFG.RemoteService.Port V=""/>
        <GEN_CFG.RemoteService.Authentication V="false"/>
        <GEN_CFG.RemoteService.UserName V=""/>
        <GEN_CFG.RemoteService.Password V=""/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
```

Related topics

- Device Configuration (62)
- Header object (HDR) (97)
- Generic configuration object (GEN_CFG) (112)
- Examples: Device configuration directive (185)

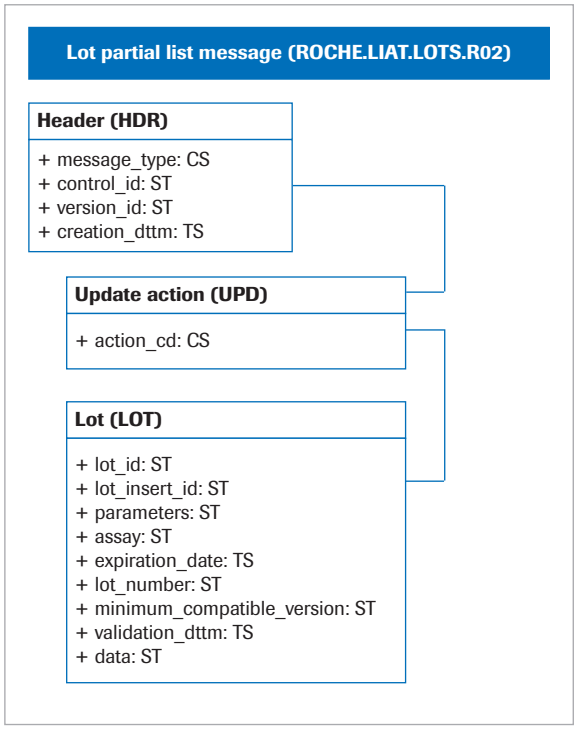
Lot full list messages (ROCHE.LIAT.LOTS.R01)



Related topics

- Operator and lot lists (52)
- Header object (HDR) (97)
- Lot object (LOT) (135)
- Examples: Lot topic (165)

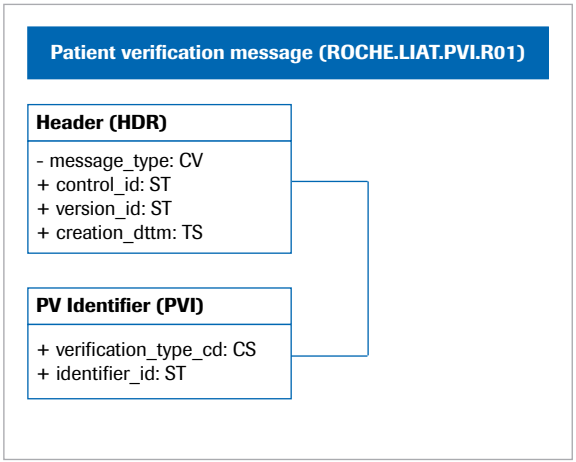
Lot partial list messages (ROCHE.LIAT.LOTS.R02)



Related topics

- Operator and lot lists (52)
- Header object (HDR) (97)
- Update Action object (UPD) (109)
- Lot object (LOT) (135)
- Examples: Lot topic (165)

Patient verification request message (ROCHE.LIAT.PVI.R01)

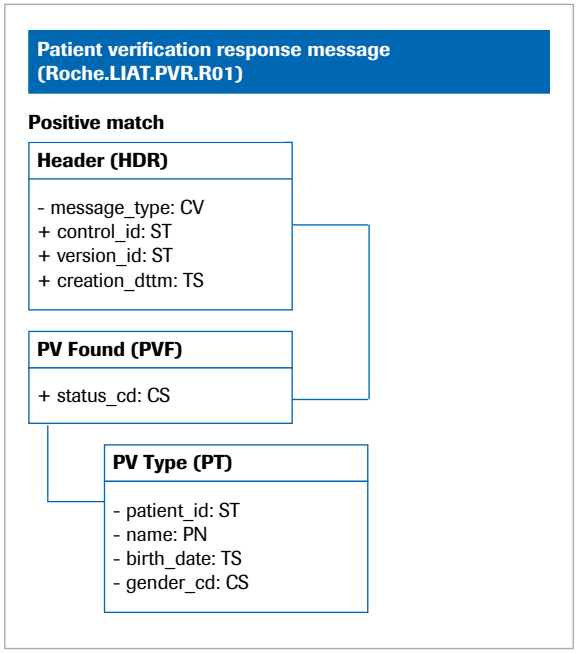



```
                    <ROCHE.LIAT.PVI.R01>
    <HDR>
        <HDR.control_id V="875"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-13T15:15:08+02:00"/>
    </HDR>
    <PVI>
        <PVI.verification_type_cd V="O"/>
        <PVI.identifier_id V="1234"/>
    </PVI>
</ROCHE.LIAT.PVI.R01>
```

Related topics

- Patient verification (80)
- Header object (HDR) (97)
- Patient verification identifier object (PVI) (111)
- Example: Communication scenario 9 - Patient verification passed - run performed (237)
- Example: Communication scenario 10 - Patient verification failed - run prevented (246)

Patient verification response message (ROCHE.LIAT.PVR.R01)



DMS to analyzer (positive answer - matching record found by DMS)

```
<ROCHE.LIAT.PVR.R01>
    <HDR>
        <HDR.control_id V="877"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-13T15:14:54+02:00"/>
    </HDR>
    <PVF.status_cd V="T"/>
    <PT>
        <PT.patient_id V="A-12345678"/>
        <PT.name V="Diego"/>
        <PT.birth_date V="1990-01-01"/>
        <PT.gender_cd V="M"/>
    </PT>
</ROCHE.LIAT.PVR.R01>
```

DMS to analyzer (negative answer - no matching record found by DMS)

```
<ROCHE.LIAT.PVR.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-13T15:25:38+02:00"/>
    </HDR>
    <PVF.status_cd V="F"/>
    <PT/>
</ROCHE.LIAT.PVR.R01>
```

Related topics

- Patient verification (80)
- Header object (HDR) (97)
- Patient verification found object (PVF) (111)
- Patient object (PT) (110)
- Example: Communication scenario 9 - Patient verification passed - run performed (237)
- Example: Communication scenario 10 - Patient verification failed - run prevented (246)

Communication examples

Communication examples

This section has example messages and scenarios, which show communication between the analyzer and the DMS. All values and data are examples only.
Messages are highlighted on each communication example:
Green for messages sent by the analyzer.
Blue for messages sent by the DMS.

In this chapter 5

Communication start up topics

The protocol strictly defines the sequence of topics and messages required to start a conversation. The analyzer initiates this start up sequence by sending a Hello message to a DMS.

Hello topic

- Hello message sent from analyzer to the DMS.
- Response message is an acknowledgment sent from DMS to the analyzer.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="987"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T08:30:38+02:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:06:27:0c"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-10063"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="120"/>
            <DCP.vendor_specific>ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02;DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="OP_LST"/>
            <DSC.topics_supported_cd V="OP_LST_I"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
       </DSC>
    </DEV>
</HEL.R01>
```

Hello Message

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T08:30:21+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="987"/>
    </ACK>
</ACK.R01>
```

Positive ACK message

- Communication initialization (33)
- Initialization flow (36)
- Conversations and topics (45)
- Acknowledgment object (ACK) (89)
- Header object (HDR) (97)
- Device object (DEV) (92)
- Device capabilities object (DCP) (91)
- Device static capabilities object (DSC) (93)
- Acknowledgment message (ACK.R01) (142)
- Hello message (HEL.R01) (145)
- Examples: Operators topic (182)

Hello topic - reporting reduced capacities

- Hello message sent from analyzer to the DMS.
- The Device capabilities object does not show the Operator List topics as the encrypted database is locked.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="987"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T08:30:38+02:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:06:27:0c"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-10063"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="120"/>
            <DCP.vendor_specific>ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02;DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
       </DSC>
    </DEV>
</HEL.R01>
```

Hello Message - reporting reduced capacities

- Communication initialization (33)
- Initialization flow (36)
- Header object (HDR) (97)
- Device object (DEV) (92)
- Device capabilities object (DCP) (91)
- Device static capabilities object (DSC) (93)
- Hello message (HEL.R01) (145)

Device status topic

- Device Status message indicates that new observations and new events are available on the analyzer.
- Device status is Partial lock which means one or more tests are locked on the analyzer.

```
<DST.R01>
    <HDR>
        <HDR.control_id V="988"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T08:30:38+02:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2019-08-14T08:30:38+02:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="25"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
```

Device Status Message

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T08:30:22+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="988"/>
    </ACK>
</ACK.R01>
```

Positive ACK message

- Communication initialization (33)
- Initialization flow (36)
- Conversations and topics (45)
- Acknowledgment object (ACK) (89)
- Device status object (DST) (94)
- Header object (HDR) (97)
- Acknowledgment message (ACK.R01) (142)
- Device status message (DST.R01) (143)

Lot topic

New 4-digit lot with partial list

```
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="26"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:46:55+02:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="I"/>
        <LOT>
            <LOT.lot_id V="SASA^A56B^1.26"/>
            <LOT.lot_insert_id V="ISASA3412A56BAAAAAAAAAAAT"/>
            <LOT.parameters V="AAAAAAAAAAA"/>
            <LOT.assay V="SASA"/>
            <LOT.expiration_date V="2034-12-31"/>
            <LOT.lot_number V="A56B"/>
            <LOT.minimum_compatible_version V="1.26"/>
            <LOT.validation_dttm V="2018-07-01T00:00:00+00:00"/>
            <LOT.data V="ORO2TpIanrlO4iOB3SYH/jIrzI7XXaqNcB0xQjalVBZ3GGp2GoxFPNfEYS2g37keDruTNymT6v3
HuJo2VnZhDf5hSxNj8/VSoGLhvBOaxmLqbrVpPC7EGAZO4NGLLrTLBYIX2OjQg/dC4wiRqnUVIIxDQoVbIdJKCorngVxrkl+IMEI
Z+8gxSeLzNpbM7wlX8HTJWniqFxMcEkwp6hJxAt29jTNxlItyt97i6FpEgl495ECV4m+zxR5o/sPXd2lSMzZUYHEPLLmMkyoGfRu
xohgcEjBDPSWSni45Da3oDMZ5cTW82etpyK4M7BqR9/4K9Kzpeo4vkOoK4HtCVLZ44A==" />
        </LOT>
    </UPD>
</ROCHE.LIAT.LOTS.R02>
```

New 4-digit lot with partial list

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="470"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:47:15+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="26"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
```

ACK message from partial lot list

New 6-digit lot with partial list

```
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="32"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:52:13+02:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="I"/>
        <LOT>
            <LOT.lot_id V="SF2A^80101Z^1.0.0"/>
            <LOT.lot_insert_id V="ISF2A3408A11ZEI84B000000S"/>
            <LOT.parameters V="EI84B000000"/>
            <LOT.assay V="SF2A"/>
            <LOT.expiration_date V="2034-08-31"/>
            <LOT.lot_number V="80101Z"/>
            <LOT.minimum_compatible_version V="1.0.0"/>
            <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
            <LOT.data V="ejhfNH9QDUKEixRu2On5PpctdO0CV2NHvlNEOwqv2JaJ9ZIdjUUISkifoMG/RjFqrz3zEpFPcRd
o2dq3F0yIpATWhAHqRcU782wmKdp0uGmE/c3Qmq2ptXLRRFzuptCYLTpeFqyq/Kc7KvgLFZ8UkEunqkcPRRQvstygEO8yUW7nGRR
P0EK3Q06HXpa0CVnbEmQ93y2zASiqGvG7OBoPJoyyGSh8YH+wPBlqHR/D1F7ghfiRrCQ073CHllP17SKmSV0DDP4tArPO5qQjoVY
3av8qsYTp5kSGpRPUCmvvN/JT/npDgZLl8xFVVyz10jMkJXzDlB28j+2DMGPCoMCj6w==" />
        </LOT>
    </UPD>
</ROCHE.LIAT.LOTS.R02>
```

New 6-digit lot with partial list

4-digit lot deletion with partial list

```
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="39"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:54:01+02:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="D"/>
        <LOT>
            <LOT.lot_id V="SASA^A56B^1.26"/>
            <LOT.lot_insert_id V="ISASA3412A56BAAAAAAAAAAAT"/>
            <LOT.parameters V="AAAAAAAAAAA"/>
            <LOT.assay V="SASA"/>
            <LOT.expiration_date V="2034-12-31"/>
            <LOT.lot_number V="A56B"/>
            <LOT.minimum_compatible_version V="1.26"/>
            <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
            <LOT.data V="ORO2TpIanrlO4iOB3SYH/jIrzI7XXaqNcB0xQjalVBZ3GGp2GoxFPNfEYS2g37keDruTNymT6v3
HuJo2VnZhDf5hSxNj8/VSoGLhvBOaxmLqbrVpPC7EGAZO4NGLLrTLBYIX2OjQg/dC4wiRqnUVIIxDQoVbIdJKCorngVxrkl+IMEI
Z+8gxSeLzNpbM7wlX8HTJWniqFxMcEkwp6hJxAt29jTNxlItyt97i6FpEgl495ECV4m+zxR5o/sPXd2lSMzZUYHEPLLmMkyoGfRu
xohgcEjBDPSWSni45Da3oDMZ5cTW82etpyK4M7BqR9/4K9Kzpeo4vkOoK4HtCVLZ44A==" />
        </LOT>
    </UPD>
</ROCHE.LIAT.LOTS.R02>
```

4-digit lot deletion with partial list

6-digit lot deletion with partial list

```
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="42"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:55:21+02:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="D"/>
        <LOT>
            <LOT.lot_id V="SF2A^80101Z^1.0.0"/>
            <LOT.lot_insert_id V="ISF2A3408A11ZEI84B000000S"/>
            <LOT.parameters V="EI84B000000"/>
            <LOT.assay V="SF2A"/>
            <LOT.expiration_date V="2034-08-31"/>
            <LOT.lot_number V="80101Z"/>
            <LOT.minimum_compatible_version V="1.0.0"/>
            <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
            <LOT.data V="ejhfNH9QDUKEixRu2On5PpctdO0CV2NHvlNEOwqv2JaJ9ZIdjUUISkifoMG/RjFqrz3zEpFPcRd
o2dq3F0yIpATWhAHqRcU782wmKdp0uGmE/c3Qmq2ptXLRRFzuptCYLTpeFqyq/Kc7KvgLFZ8UkEunqkcPRRQvstygEO8yUW7nGRR
P0EK3Q06HXpa0CVnbEmQ93y2zASiqGvG7OBoPJoyyGSh8YH+wPBlqHR/D1F7ghfiRrCQ073CHllP17SKmSV0DDP4tArPO5qQjoVY
3av8qsYTp5kSGpRPUCmvvN/JT/npDgZLl8xFVVyz10jMkJXzDlB28j+2DMGPCoMCj6w==" />
        </LOT>
    </UPD>
</ROCHE.LIAT.LOTS.R02>
```

6-digit lot deletion with partial list

Full lot list message

```
<ROCHE.LIAT.LOTS.R01>
    <HDR>
        <HDR.control_id V="47"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T12:59:08+02:00"/>
    </HDR>
    <LOT>
        <LOT.lot_id V="SASA^A56B^1.26"/>
        <LOT.lot_insert_id V="ISASA3412A56BAAAAAAAAAAAT"/>
        <LOT.parameters V="AAAAAAAAAAA"/>
        <LOT.assay V="SASA"/>
        <LOT.expiration_date V="2034-12-31"/>
        <LOT.lot_number V="A56B"/>
        <LOT.minimum_compatible_version V="1.26"/>
        <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
        <LOT.data ENC="B64"V="ORO2TpIanrlO4iOB3SYH/jIrzI7XXaqNcB0xQjalVBZ3GGp2GoxFPNfEYS2g37keDruTNy
mT6v3HuJo2VnZhDf5hSxNj8/VSoGLhvBOaxmLqbrVpPC7EGAZO4NGLLrTLBYIX2OjQg/dC4wiRqnUVIIxDQoVbIdJKCorngVxrkl
+IMEIZ+8gxSeLzNpbM7wlX8HTJWniqFxMcEkwp6hJxAt29jTNxlItyt97i6FpEgl495ECV4m+zxR5o/sPXd2lSMzZUYHEPLLmMky
oGfRuxohgcEjBDPSWSni45Da3oDMZ5cTW82etpyK4M7BqR9/4K9Kzpeo4vkOoK4HtCVLZ44A==" />
    </LOT>
    <LOT>
        <LOT.lot_id V="SF2A^80101Z^1.0.0"/>
        <LOT.lot_insert_id V="ISF2A3408A11ZEI84B000000S"/>
        <LOT.parameters V="EI84B000000"/>
        <LOT.assay V="SF2A"/>
        <LOT.expiration_date V="2034-08-31"/>
        <LOT.lot_number V="80101Z"/>
        <LOT.minimum_compatible_version V="1.0.0"/>
        <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
```

```
        <LOT.data ENC="B64" V="ejhfNH9QDUKEixRu2On5PpctdO0CV2NHvlNEOwqv2JaJ9ZIdjUUISkifoMG/RjFqrz3zE
pFPcRdo2dq3F0yIpATWhAHqRcU782wmKdp0uGmE/c3Qmq2ptXLRRFzuptCYLTpeFqyq/Kc7KvgLFZ8UkEunqkcPRRQvstygEO8yU
W7nGRRP0EK3Q06HXpa0CVnbEmQ93y2zASiqGvG7OBoPJoyyGSh8YH+wPBlqHR/D1F7ghfiRrCQ073CHllP17SKmSV0DDP4tArPO5
qQjoVY3av8qsYTp5kSGpRPUCmvvN/JT/npDgZLl8xFVVyz10jMkJXzDlB28j+2DMGPCoMCj6w==" />
    </LOT>
</ROCHE.LIAT.LOTS.R01>
```

Full lot list message

Observation topic

Patient-related observations

```
<REQ.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T14:02:33+02:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="ROBS"/>
    </REQ>
</REQ.R01>
```

Request message for observations

```
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01"/>
        <HDR.control_id V="567"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T14:09:38+02:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS"/>
        <SVC.observation_dttm V="2019-08-14T14:07:40+02:00"/>
        <PT>
            <PT.patient_id V="A-12398345"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <ORD>
            <ORD.universal_service_id V="Influenza Assay" SN="ROCHE" SV="1.0"/>
```

```
        </ORD>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^80101Z^1.0.0"/>
            <RGT.expiration_date V="2034-08-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00023"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00002"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSF2A3408A11Z00002R"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=ADMIN"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.PPID:1”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SPT:2”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SRI:S_12345”/>
        </NTE>
    </SVC>
</OBS.R01>
```

Patient result observation with patient verification

```
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01"/>
        <HDR.control_id V="542"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T14:02:51+02:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS"/>
        <SVC.observation_dttm V="2019-08-14T14:00:51+02:00"/>
        <PT>
            <PT.patient_id V="JAN"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2(SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <ORD>
            <ORD.universal_service_id V="Influenza Assay" SN="ROCHE" SV="1.0"/>
        </ORD>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^80101Z^1.0.0"/>
            <RGT.expiration_date V="2034-08-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00022"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00001"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSF2A3408A11Z00001S"/>
```

```
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=ADMIN"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.PPID:0”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SPT:1”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SRI:S_JAN”/>
        </NTE>
    </SVC>
</OBS.R01>
```

Patient result observation without patient verification

```
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01"/>
        <HDR.control_id V="581"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T14:21:39+02:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS"/>
        <SVC.observation_dttm V="2019-08-14T14:21:03+02:00"/>
        <PT>
            <PT.patient_id V="JAN"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
```

```
        </OPR>
        <ORD>
            <ORD.universal_service_id V="Influenza Assay" SN="ROCHE" SV="1.0"/>
        </ORD>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^80101Z^1.0.0"/>
            <RGT.expiration_date V="2034-08-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00024"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00003"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSF2A3408A11Z00003Q"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=ADMIN"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
           <NTE.text V=”Liat.PPID:2”/>
        </NTE>
        <NTE>
           <NTE.text V=”Liat.SPT:1”/>
        </NTE>
        <NTE>
           <NTE.text V=”Liat.SRI:S_JAN”/>
        </NTE>
    </SVC>
</OBS.R01>
```

Patient result observation when patient verification is enabled, but failed due to a technical problem

```
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01" />
        <HDR.control_id V="1017" />
        <HDR.version_id V="POCT1" />
        <HDR.creation_dttm V="2020-11-10T17:18:01+01:00" />
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS" />
        <SVC.observation_dttm V="2020-11-10T17:17:31+01:00" />
        <PT>
            <PT.patient_id V="TEST4" />
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN" />
        </OPR>
        <ORD>
            <ORD.universal_service_id V="SARS-CoV-2/Flu" SN="ROCHE" SV="1.0" />
        </ORD>
        <RGT>
            <RGT.name V="SCFA" />
            <RGT.lot_number V="SCFA^20126A^1.0" />
            <RGT.expiration_date V="2024-07-31T00:00:00+00:00" />
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=EUA/IVD" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00011" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00011" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSCFA240721PA011N" />
```

```
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=System" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat SARS-CoV-2/Flu" />
        </NTE>
        <NTE>
            <NTE.text V=”Liat.PPID:0”/>
        </NTE>
       <NTE>
            <NTE.text V=”Liat.SPT:1”/>
       </NTE>
       <NTE>
            <NTE.text V=”Liat.SRI:S_TEST4”/>
       </NTE>
    </SVC>
</OBS.R01>
```

Patient result observation with invalid assay run

```
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01" />
        <HDR.control_id V="198" />
        <HDR.version_id V="POCT1" />
        <HDR.creation_dttm V="2020-11-10T16:09:38+01:00" />
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS" />
        <SVC.observation_dttm V="2020-11-10T16:09:17+01:00" />
        <PT>
            <PT.patient_id V="TEST1" />
            <OBS>
                <OBS.observation_id V="Unknown Target (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Aborted" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <OBS.status_cd V="D" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN" />
        </OPR>
        <ORD>
            <ORD.universal_service_id V="SARS-CoV-2/Flu" SN="ROCHE" SV="1.0" />
        </ORD>
        <RGT>
            <RGT.name V="SCFA" />
            <RGT.lot_number V="SCFA^20126A^1.0" />
            <RGT.expiration_date V="2024-07-31T00:00:00+00:00" />
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=EUA/IVD" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00006" />
        </NTE>
```

```
        <NTE>
            <NTE.text V="LIAT.Tube=00006" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSCFA240721PA006L" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=System" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat SARS-CoV-2/Flu" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Aborted=true" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.AbortedBy=User" />
        </NTE>
        <NTE>
            <NTE.text V=”Liat.PPID:0”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SPT:1”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SRI:S_TEST1”/>
        </NTE>
    </SVC>
</OBS.R01>
```

Patient result observation with aborted assay run

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T14:21:23+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="581"/>
    </ACK>
</ACK.R01>
```

Positive ACK message

Quality control observation

```
<OBS.R02>
    <HDR>
        <HDR.message_type V="OBS.R02"/>
        <HDR.control_id V="861"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-16T11:20:04+02:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="LQC"/>
        <SVC.observation_dttm V="2019-08-15T11:17:37+02:00"/>
        <CTC>
            <CTC.name V="SF2A control"/>
            <CTC.lot_number V="80101Z"/>
            <CTC.expiration_date V="2034-08-31T00:00:00+00:00"/>
            <CTC.level_cd V="M" SN="ROCHE" SV="1.0"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
        </CTC>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^80101Z^1.0.0"/>
            <RGT.expiration_date V="2034-08-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00040"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00002"/>
        </NTE>
        <NTE>
```

```
            <NTE.text V="LIAT.Tube_id=TSF2A3408A11Z00002R"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=ADMIN"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Lot_validation_status=Validated"/>
        </NTE>
    </SVC>
</OBS.R02>
```

QC observations

```
<OBS.R02>
    <HDR>
        <HDR.message_type V="OBS.R02" />
        <HDR.control_id V="81" />
        <HDR.version_id V="POCT1" />
        <HDR.creation_dttm V="2020-11-10T18:43:59+01:00" />
    </HDR>
    <SVC>
        <SVC.role_cd V="LQC" />
        <SVC.observation_dttm V="2020-11-10T18:43:31+01:00" />
        <CTC>
            <CTC.name V="SCFA control" />
            <CTC.lot_number V="20126A" />
            <CTC.expiration_date V="2024-07-31T00:00:00+00:00" />
            <CTC.level_cd V="N" SN="ROCHE" SV="1.0" />
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Invalid" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
        </CTC>
        <OPR>
            <OPR.operator_id V="ADMIN" />
        </OPR>
        <RGT>
```

```
            <RGT.name V="SCFA" />
            <RGT.lot_number V="SCFA^20126A^1.0" />
            <RGT.expiration_date V="2024-07-31T00:00:00+00:00" />
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=EUA/IVD" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00018" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00018" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSCFA240721PA018G" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=N/A" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat SARS-CoV-2/Flu" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Lot_validation_status=NotValidated" />
        </NTE>
    </SVC>
</OBS.R02>
```

QC observations with invalid assay run

```
<OBS.R02>
    <HDR>
        <HDR.message_type V="OBS.R02" />
        <HDR.control_id V="990" />
        <HDR.version_id V="POCT1" />
        <HDR.creation_dttm V="2020-11-10T16:58:37+01:00" />
    </HDR>
    <SVC>
        <SVC.role_cd V="LQC" />
        <SVC.observation_dttm V="2020-11-10T16:58:13+01:00" />
        <CTC>
            <CTC.name V="SCFA control" />
            <CTC.lot_number V="20126A" />
            <CTC.expiration_date V="2024-07-31T00:00:00+00:00" />
            <CTC.level_cd V="N" SN="ROCHE" SV="1.0" />
            <OBS>
                <OBS.observation_id V="Unknown Target (SCFA)" SN="ROCHE" SV="1.0" />
                <OBS.qualitative_value V="Aborted" SN="ROCHE" SV="1.0" />
                <OBS.method_cd V="M" />
                <OBS.status_cd V="D" />
                <NTE>
                    <NTE.text V="LIAT.CT=N/A" />
                </NTE>
            </OBS>
        </CTC>
        <OPR>
            <OPR.operator_id V="ADMIN" />
        </OPR>
        <RGT>
            <RGT.name V="SCFA" />
```

```
            <RGT.lot_number V="SCFA^20126A^1.0" />
            <RGT.expiration_date V="2024-07-31T00:00:00+00:00" />
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=EUA/IVD" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00008" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00008" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSCFA240721PA008J" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=N/A" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat SARS-CoV-2/Flu" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Aborted=true" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.AbortedBy=User" />
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Lot_validation_status=NotValidated" />
        </NTE>
    </SVC>
</OBS.R02>
```

QC observations with aborted assay run

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-16T11:19:42+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="861"/>
    </ACK>
</ACK.R01>
```

Positive ACK message

```
<EOT.R01>
    <HDR>
        <HDR.control_id V="862"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-16T11:20:05+02:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OBS"/>
    </EOT>
</EOT.R01>
```

End of Topic message

- Observations (results) (48)
- Acknowledgment object (ACK) (89)
- End of topic object (EOT) (95)
- Header object (HDR) (97)
- Observation object (OBS) (99)
- Patient object (PT) (110)
- Operator object (OPR) (103)
- Reagent object (RGT) (104)
- Service Object (SVC) (106)
- Request object (REQ) (105)
- Note object (NTE) (98)
- Acknowledgment message (ACK.R01) (142)
- Observation messages (OBS) (146)

Operators topic

Full list with one operator

```
<OPL.R01>
    <HDR>
        <HDR.message_type V="OPL.R01"/>
        <HDR.control_id V="30"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-16T10:15:33+02:00"/>
    </HDR>
    <OPR>
        <OPR.operator_id V="USER4"/>
        <OPR.name V="Amy"/>
        <ACC>
            <ACC.method_cd V="SF2A" SN="ROCHE" SV="1.0"/>
            <ACC.method_cd V="SASA" SN="ROCHE" SV="1.0"/>
            <ACC.password>
                10001
            </ACC.password>
            <ACC.permission_level_cd V="Administrator" SN="ROCHE" SV="1.0"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact=my contact info"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department=RMD"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode=A45b97xA"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals=SASA,SF2A"/>
        </NTE>
    </OPR>
</OPL.R01>
```

Full list of operators with one operator

Partial operator list with one insert and one delete

```
<OPL.R02>
    <HDR>
        <HDR.message_type V="OPL.R02"/>
        <HDR.control_id V="53"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-16T10:24:08+02:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="I"/>
        <OPR>
            <OPR.operator_id V="USER5"/>
            <OPR.name V="John"/>
            <ACC>
                <ACC.method_cd V="SF2A" SN="ROCHE" SV="1.0"/>
                <ACC.method_cd V="SASA" SN="ROCHE" SV="1.0"/>
                <ACC.password>
                    10001
                </ACC.password>
                <ACC.permission_level_cd V="Administrator" SN="ROCHE" SV="1.0"/>
            </ACC>
            <NTE>
                <NTE.text V="LIAT.Contact=my contact info"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.Department=RMD"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ReadGeneralUserManual=YES"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.Locked=NO"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.BadgeBarcode=A45v97xA"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ReadGeneralUserManual=YES"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ReadAssayUserManuals=SASA,SF2A"/>
            </NTE>
        </OPR>
    </UPD>
    <UPD>
        <UPD.action_cd V="D"/>
        <OPR>
            <OPR.operator_id V="USER1"/>
        </OPR>
    </UPD>
```

```
</OPL.R02>
```

Partial operator list with one insert and one delete

- Operator and lot lists (52)
- About operators (56)
- Access control object (ACC) (88)
- Header object (HDR) (97)
- Operator object (OPR) (103)
- Note object (NTE) (98)
- Update Action object (UPD) (109)
- Operator messages (OPL) (148)

Device configuration directive

Complete device configuration (all attributes)

```
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-04-26T16:10:00+00:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Central European Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Content.ArchiveResults V="olderthan365days"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Destination V="networkshare1"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Trigger V="on demand"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Frequency V="monthly"/>
        <GEN_CFG.ScheduledTasks.ArchiveDeleteResults.Schedule.Time V="20:00"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Execution V="on demand"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Frequency V="monthly"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Time V="21:00"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ArchiveReduceAuditTrails.Schedule.Destination V="networkshare1"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Creation V="on demand"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.DayOfMonth V="firstdayofmonth"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.DayOfWeek V="sunday"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Destination V="remoteservicesystem"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Time V="16:00"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Schedule.Frequency V="monthly"/>
        <GEN_CFG.Sound.sSoundInitialization V="Beep2"/>
        <GEN_CFG.Sound.sSoundBarcodeScan V="Beep3"/>
        <GEN_CFG.Sound.sSoundTubeInsert V="Beep4"/>
        <GEN_CFG.Sound.sSoundAssayFinish V="BUZZER"/>
        <GEN_CFG.Sound.sSoundTouchScreen V="Soft"/>
        <GEN_CFG.Sound.sSoundKeyClicks V="Soft"/>
        <GEN_CFG.Sound.SoundVolume V="1"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
        <GEN_CFG.Authentication.authenticationType V="User ID &amp;amp; Password"/>
        <GEN_CFG.Languages.Language V="en-US"/>
        <GEN_CFG.AutoReboot.Time V="05:30"/>
        <GEN_CFG.Connectivity.Timeout V="30"/>
        <GEN_CFG.Connectivity.DataSynchronizationUsers V="true"/>
        <GEN_CFG.Connectivity.DataSynchronizationAssayLots V="true"/>
        <GEN_CFG.Connectivity.DataSynchronizationLogEvents V="true"/>
        <GEN_CFG.Connectivity.DataSynchronizationInformation V="true"/>
```

```
        <GEN_CFG.Connectivity.DataSynchronizationWarningErrors V="true"/>
        <GEN_CFG.Connectivity.ConnectionInterval V="5"/>
        <GEN_CFG.Result.AutoRelease V="false"/>
        <GEN_CFG.BarcodeITF.Enabled V="false"/>
        <GEN_CFG.BarcodeITF.Checksum V="true"/>
        <GEN_CFG.BarcodeITF.FixLength V="One discrete length"/>
        <GEN_CFG.BarcodeITF.BarcodeLength V="10"/>
        <GEN_CFG.BarcodeCodabar.Enabled V="true"/>
        <GEN_CFG.BarcodeCodabar.TransmitStartStopChar V="false"/>
        <GEN_CFG.BarcodeCode39.Enabled V="true"/>
        <GEN_CFG.BarcodeCode39.Checksum V="true"/>
        <GEN_CFG.BarcodeCode93.Enabled V="true"/>
        <GEN_CFG.BarcodeEAN8.Enabled V="true"/>
        <GEN_CFG.BarcodeEAN13.Enabled V="true"/>
        <GEN_CFG.BarcodeGS1Databar14.Enabled V="true"/>
        <GEN_CFG.LoggingLevels.LoggingLevel V="Normal"/>
        <GEN_CFG.MachineName.sMachineName V="NewMachine"/>
        <GEN_CFG.PV.Verification V="prior run"/>
        <GEN_CFG.PV.VerificationType V="o"/>
        <GEN_CFG.PV.PatientMismatch V="run allowed"/>
        <GEN_CFG.PV.DisplayedData V="verbose"/>
        <GEN_CFG.PV.ManualConfirmation V="not required"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.CommunicationLog V="included"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.Runlog V="included"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.DataRange V="last30days"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.Sampleresults V="included"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.SampleID V="excluded"/>
        <GEN_CFG.ScheduledTasks.ProblemReport.Content.Users V="excluded"/>
        <GEN_CFG.Printers.InkLaserName V="HP Officejet Pro 8100"/>
        <GEN_CFG.Printers.InkLaserDescription V="Officejet Pro 8100 [126E24]"/>
        <GEN_CFG.Printers.InkLaserLocation V=""/>
        <GEN_CFG.Printers.InkLaserColorMode V="greyscale"/>
        <GEN_CFG.Printers.InkLaserConnection V="dnssd://Officejet%20Pro%208100%20%5B126E24%5D._pdld
atastream._tcp.local/?uuid=1c852a4d-b800-1f08-abcd-a02bb8126e24"/>
        <GEN_CFG.Printers.ThermalName V="Brother QL-820NWB"/>
        <GEN_CFG.Printers.ThermalDescription V="Brother QL-820NWB"/>
        <GEN_CFG.Printers.ThermalLocation V=""/>
        <GEN_CFG.Printers.ThermalColorMode V="greyscale"/>
        <GEN_CFG.Printers.ThermalConnection V="dnssd://Brother%20QL-820NWB._ipp._tcp.local/?uuid=e3
248000-80ce-11db-8000-0080775abcab"/>
        <GEN_CFG.Printers.ReportPrinting.SelectedPrinter V="inklaser"/>
        <GEN_CFG.Printers.ResultPrinting.Autoprinting V="false"/>
        <GEN_CFG.Printers.ResultPrinting.SelectedPrinter V="thermal"/>
        <GEN_CFG.Printers.ResultPrinting.Manualprinting V="use default printer"/>
        <GEN_CFG.SLNetworkShare1.Name V="Network Share 1"/>
        <GEN_CFG.SLNetworkShare1.ServerName V="10.138.206.208"/>
        <GEN_CFG.SLNetworkShare1.FolderPath V="SharedFolder_1"/>
        <GEN_CFG.SLNetworkShare1.UserName V="UserRW"/>
        <GEN_CFG.SLNetworkShare1.Password V="617617"/>
        <GEN_CFG.SLNetworkShare2.Name V="Network Share 2"/>
        <GEN_CFG.SLNetworkShare2.ServerName V="10.138.206.208"/>
        <GEN_CFG.SLNetworkShare2.FolderPath V="SharedFolder_2"/>
        <GEN_CFG.SLNetworkShare2.UserName V="UserRW"/>
        <GEN_CFG.SLNetworkShare2.Password V="617617"/>
        <GEN_CFG.SLNetworkShare3.Name V="Network Share 3"/>
        <GEN_CFG.SLNetworkShare3.ServerName V="10.138.206.208"/>
        <GEN_CFG.SLNetworkShare3.FolderPath V="SharedFolder_3"/>
        <GEN_CFG.SLNetworkShare3.UserName V="UserRW"/>
        <GEN_CFG.SLNetworkShare3.Password V="617617"/>
```

```
        <GEN_CFG.SLFTPShare1.Name V="FTP share 1"/>
        <GEN_CFG.SLFTPShare1.Type V="FTP"/>
        <GEN_CFG.SLFTPShare1.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare1.Port V="2554"/>
        <GEN_CFG.SLFTPShare1.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare1.UserName V="SI"/>
        <GEN_CFG.SLFTPShare1.Password V="617617"/>
        <GEN_CFG.SLFTPShare2.Name V="FTP share 2"/>
        <GEN_CFG.SLFTPShare2.Type V="FTP"/>
        <GEN_CFG.SLFTPShare2.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare2.Port V="2554"/>
        <GEN_CFG.SLFTPShare2.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare2.UserName V="SI"/>
        <GEN_CFG.SLFTPShare2.Password V="617617"/>
        <GEN_CFG.SLFTPShare3.Name V="FTP share 3"/>
        <GEN_CFG.SLFTPShare3.Type V="FTP"/>
        <GEN_CFG.SLFTPShare3.IP V="192.168.222.44"/>
        <GEN_CFG.SLFTPShare3.Port V="2554"/>
        <GEN_CFG.SLFTPShare3.FolderPath V="c:\testfolder"/>
        <GEN_CFG.SLFTPShare3.UserName V="SI"/>
        <GEN_CFG.SLFTPShare3.Password V="617617"/>
        <GEN_CFG.RemoteService.HTTPproxy V="false"/>
        <GEN_CFG.RemoteService.Server V=""/>
        <GEN_CFG.RemoteService.Port V=""/>
        <GEN_CFG.RemoteService.Authentication V="false"/>
        <GEN_CFG.RemoteService.UserName V=""/>
        <GEN_CFG.RemoteService.Password V=""/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
```

Complete device configuration (all attributes)

Partial device configuration (not all attributes)

```
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-04-26T16:10:00+00:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
```

Partial device configuration (not all attributes)

- Device Configuration (62)
- Header object (HDR) (97)
- Generic configuration object (GEN_CFG) (112)
- Device configuration message (DTV.ROCHE.LIAT.CFG) (150)

Communication ending

Terminate topic

```
<END.R01>
    <HDR>
        <HDR.control_id V="507"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T13:21:45+02:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="ABN"/>
        <TRM.note_txt V="Timeout occurred."/>
    </TRM>
</END.R01>
```

Terminate message

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="8"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T13:21:28+02:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V=""/>
        <ACK.ack_control_id V="507"/>
    </ACK>
</ACK.R01>
```

Positive ACK message

- Communication termination (37)
- Acknowledgment object (ACK) (89)
- Header object (HDR) (97)
- Termination object (TRM) (108)
- Acknowledgment message (ACK.R01) (142)
- Termination message (END.R01) (149)

Keep alive message

```
<KPA.R01>
    <HDR>
        <HDR.control_id V="58"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-08-14T13:13:36+02:00"/>
    </HDR>
</KPA.R01>
```

Keep alive message

Keep alive (42)

Keep alive message (KPA.R01) (145)

Device lock/unlock messages

```
<HEL.R01>
  <HDR>
    <HDR.control_id V="34" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:30:05-04:00" />
  </HDR>
  <DEV>
    <DEV.device_id V="08:00:27:8f:06:96" />
    <DEV.vendor_id V="ROCHE" />
    <DEV.serial_id V="M1-E-00003" />
    <DEV.manufacturer_name V="Roche Molecular Diagnostics" />
    <DEV.sw_version V="3.4.0.xxxx" />
    <DEV.device_name V="cobasLiat" />
    <DCP>
      <DCP.application_timeout V="20" />
    </DCP>
    <DSC>
      <DSC.connection_profile_cd V="SA" />
      <DSC.topics_supported_cd V="D_EV" />
      <DSC.topics_supported_cd V="DTV" />
      <DSC.directives_supported_cd V="LOCK" />
      <DSC.max_message_sz V="614400" />
    </DSC>
  </DEV>
</HEL.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="2" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:30:08+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="34" />
  </ACK>
</ACK.R01>
<DST.R01>
  <HDR>
    <HDR.control_id V="35" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:30:06-04:00" />
  </HDR>
  <DST>
    <DST.status_dttm V="2022-03-23T05:30:06-04:00" />
    <DST.new_observations_qty V="109" />
    <DST.new_events_qty V="45" />
    <DST.condition_cd V="S" />
  </DST>
</DST.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="3" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:30:09+01:00" />
  </HDR>
```

```
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="35" />
  </ACK>
</ACK.R01>
<DTV.R01>
  <HDR>
    <HDR.control_id V="4" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:30:13+01:00" />
  </HDR>
  <DTV>
    <DTV.command_cd V="LOCK" />
  </DTV>
</DTV.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="36" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:30:11-04:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="4" />
    <ACK.note_txt />
  </ACK>
</ACK.R01>
<END.R01>
  <HDR>
    <HDR.control_id V="37" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:30:32-04:00" />
  </HDR>
  <TRM>
    <TRM.reason_cd V="NRM" />
    <TRM.note_txt V="There are no more commands to process." />
  </TRM>
</END.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="5" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:30:34+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="" />
    <ACK.ack_control_id V="37" />
  </ACK>
</ACK.R01>
```

Sending Lockout directive when analyzer status is Standby

```
<HEL.R01>
  <HDR>
    <HDR.control_id V="42" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:33:09-04:00" />
  </HDR>
  <DEV>
    <DEV.device_id V="08:00:27:8f:06:96" />
```

```
    <DEV.vendor_id V="ROCHE" />
    <DEV.serial_id V="M1-E-00003" />
    <DEV.manufacturer_name V="Roche Molecular Diagnostics" />
    <DEV.sw_version V="3.4.0.xxxx" />
    <DEV.device_name V="cobasLiat" />
    <DCP>
      <DCP.application_timeout V="20" />
    </DCP>
    <DSC>
      <DSC.connection_profile_cd V="SA" />
      <DSC.topics_supported_cd V="D_EV" />
      <DSC.topics_supported_cd V="DTV" />
      <DSC.directives_supported_cd V="UNLOCK" />
      <DSC.max_message_sz V="614400" />
    </DSC>
  </DEV>
</HEL.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="2" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:33:12+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="42" />
  </ACK>
</ACK.R01>
<DST.R01>
  <HDR>
    <HDR.control_id V="43" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:33:10-04:00" />
  </HDR>
  <DST>
    <DST.status_dttm V="2022-03-23T05:33:10-04:00" />
    <DST.new_observations_qty V="109" />
    <DST.new_events_qty V="45" />
    <DST.condition_cd V="L" />
  </DST>
</DST.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="3" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:33:13+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="43" />
  </ACK>
</ACK.R01>
<DTV.R01>
  <HDR>
    <HDR.control_id V="4" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:33:18+01:00" />
  </HDR>
  <DTV>
```

```
    <DTV.command_cd V="UNLOCK" />
  </DTV>
</DTV.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="44" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:33:16-04:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="4" />
    <ACK.note_txt />
  </ACK>
</ACK.R01>
<END.R01>
  <HDR>
    <HDR.control_id V="45" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T05:33:37-04:00" />
  </HDR>
  <TRM>
    <TRM.reason_cd V="NRM" />
    <TRM.note_txt V="There are no more commands to process." />
  </TRM>
</END.R01>
<ACK.R01>
  <HDR>
    <HDR.control_id V="5" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2022-03-23T10:33:40+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="" />
    <ACK.ack_control_id V="45" />
  </ACK>
</ACK.R01>
```

Sending Release lockout directive when device status is Locked

Basic directive message (DTV.R01) (142)

Example message logs

Communication logs with DML

This chapter contains logs of example communication between the **cobas® liat** system and the DML.
Messages are highlighted on each communication example:
Green for messages sent by the analyzer.
Blue for messages sent by the DMS.
Bold for values that change depending on the assay used.

In this chapter 6

6 Example message logs

Generic observation message log

This section shows communication sent from and received by a host connected to the **cobas® liat** system for a generic result message.

The result message structure is identical for every assay. Some values in the structure will change depending on which assay is used. In this example, the following placeholders are used to mark values that will change based on the assay used:

OBS.observation_id: result type (script name)	Description
Target 1 (TEST)	Generic example assay, target 1
Target 2 (TEST)	Generic example assay, target 2

Placeholders for Observation ID

ORD.universal_service_id
Generic Assay

Placeholder for universal_service_id

Other values in the example are for information purposes only, and will be different to the observed values. For example, timestamps, serial numbers or version numbers.

Events occur at the following timestamps in the example:

- Hello message received: 19:25:30
- ACK sent: 19:25:32
- Device status received: 19:25:34
- ACK sent: 19:25:36
- Request sent: 19:25:38
- Patient observation received: 19:25:40
- ACK sent: 19:25:42
- End of topic: 19:25:44

```
<HEL.R01>
  <HDR>
    <HDR.control_id V="903" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:30+01:00" />
  </HDR>
  <DEV>
    <DEV.device_id V="f8:dc:7a:03:3a:6a" />
    <DEV.vendor_id V="ROCHE" />
    <DEV.serial_id V="M1-E-00547" />
    <DEV.manufacturer_name V="Roche Molecular Diagnostics" />
    <DEV.sw_version V="3.5.0.xxxx" />
    <DEV.device_name V="cobasLiat" />
```

```
    <DCP>
      <DCP.application_timeout V="120" />
    </DCP>
    <DSC>
      <DSC.connection_profile_cd V="SA" />
      <DSC.topics_supported_cd V="D_EV" />
      <DSC.max_message_sz V="614400" />
    </DSC>
  </DEV>
</HEL.R01>

<ACK.R01>
  <HDR>
    <HDR.control_id V="2" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:32+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="903" />
  </ACK>
</ACK.R01>

<DST.R01>
  <HDR>
    <HDR.control_id V="904" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:34+01:00" />
  </HDR>
  <DST>
    <DST.status_dttm V="2020-02-01T19:25:34+01:00" />
    <DST.new_observations_qty V="1" />
    <DST.new_events_qty V="1" />
    <DST.condition_cd V="R" />
  </DST>
</DST.R01>

<ACK.R01>
  <HDR>
    <HDR.control_id V="3" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:36+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="904" />
  </ACK>
</ACK.R01>

<REQ.R01>
  <HDR>
    <HDR.control_id V="4" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:38+01:00" />
  </HDR>
  <REQ>
    <REQ.request_cd V="ROBS" />
  </REQ>
</REQ.R01>
```

```
<OBS.R01>
  <HDR>
    <HDR.message_type V="OBS.R01" />
    <HDR.control_id V="905" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:40+01:00" />
  </HDR>
  <SVC>
    <SVC.role_cd V="OBS" />
    <SVC.observation_dttm V="2020-02-01T19:25:40+01:00" />
    <PT>
      <PT.patient_id V="PAT002" />
      <OBS>
        <OBS.observation_id V="Target 1 (TEST)" SN="ROCHE" SV="1.0" />
        <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0" />
        <OBS.method_cd V="M" />
        <NTE>
          <NTE.text V="LIAT.CT=29.7783202283394" />
        </NTE>
      </OBS>
      <OBS>
        <OBS.observation_id V="Target 2 (TEST)" SN="ROCHE" SV="1.0" />
        <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0" />
        <OBS.method_cd V="M" />
        <NTE>
          <NTE.text V="LIAT.CT=N/A" />
        </NTE>
      </OBS>
    </PT>
    <OPR>
      <OPR.operator_id V="ADMIN" />
    </OPR>
    <ORD>
      <ORD.universal_service_id V="Generic Assay" SN="ROCHE" SV="1.0" />
    </ORD>
    <RGT>
      <RGT.name V="TEST" />
      <RGT.lot_number V="TEST^20126A^1.0" />
      <RGT.expiration_date V="2030-01-31T00:00:00+00:00" />
    </RGT>
    <NTE>
      <NTE.text V="LIAT.Use=EUA/IVD" />
    </NTE>
    <NTE>
      <NTE.text V="LIAT.Run=00012" />
    </NTE>
    <NTE>
      <NTE.text V="LIAT.Tube=00013" />
    </NTE>
    <NTE>
      <NTE.text V="LIAT.Tube_id=TTEST3001E1PA013V" />
    </NTE>
    <NTE>
      <NTE.text V="LIAT.Approver=ADMIN" />
    </NTE>
    <NTE>
      <NTE.text V="LIAT.Universal_service_id=Liat Generic Assay" />
    </NTE>
    <NTE>
```

```
      <NTE.text V="Liat.PPID:0"/>
    </NTE>
    <NTE>
      <NTE.text V="Liat.SPT:1"/>
    </NTE>
    <NTE>
      <NTE.text V="Liat.SRI:S_PAT002"/>
    </NTE>
  </SVC>
</OBS.R01>

<ACK.R01>
  <HDR>
    <HDR.control_id V="5" />
    <HDR.version_id V="POCT1" />
    <HDR.creation_dttm V="2020-02-01T19:25:42+01:00" />
  </HDR>
  <ACK>
    <ACK.type_cd V="AA" />
    <ACK.ack_control_id V="905" />
    </ACK>
</ACK.R01>

<EOT.R01>
  <HDR>
    <HDR.control_id V="906"/>
    <HDR.version_id V="POCT1"/>
    <HDR.creation_dttm V="2020-02-01T19:25:44+01:00"/>
  </HDR>
  <EOT>
    <EOT.topic_cd V="OBS"/>
  </EOT>
</EOT.R01>
```

Generic result message example

Additional examples

In this chapter 7

7 Additional examples

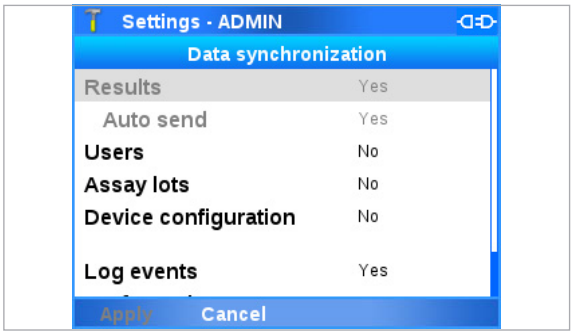
Communication scenarios

General information and preconditions

- Relevant messages are highlighted on each communication example:
  - Green for messages sent by the analyzer.
  - Blue for messages sent by the DMS.
  - Relevant data for particular scenario is in bold.
- For the current **configuration/preconditions** on each scenario, screen captures are shown.
- Most of the scenarios are sequential, and the provided order is important to show how the data and configuration changes on the analyzer, after the messages are exchanged.

In this section

Communication scenario 1 - Wrong system setting to receive a device configuration



- **Purpose:** to see how the Liat does not accept (escapes) a Device Configuration directive, as it is explicitly not accepting them.
- **Configuration/Preconditions:** Device Config disabled.

Steps

1. DMS: send a DevConf when not logged on.
2. Liat: ESC

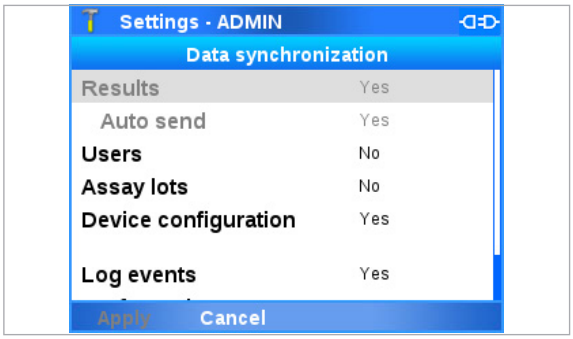
Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	DTV.ROCHE.LIAT.CFG	DMS sends DevConf.
Analyzer➔DMS	ESC.R01	Liat rejects it because **Device configuration** (on the Data synchronization screen) is “no”
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="985"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:30:28-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
```

```
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:30:14+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="985"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="986"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:30:28-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2019-12-19T08:30:28-05:00"/>
        <DST.new_observations_qty V="3"/>
        <DST.new_events_qty V="76"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:30:15+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="986"/>
    </ACK>
</ACK.R01>
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:30:17+01:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Eastern Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
        <GEN_CFG.Authentication.authenticationType V="User ID & Password"/>
        <GEN_CFG.Languages.Language V="en-US"/>
        <GEN_CFG.AutoReboot.Time V="05:30"/>
        <GEN_CFG.Connectivity.Timeout V="30"/>
        <GEN_CFG.Connectivity.DataSynchronizationUsers V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationAssayLots V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationLogEvents V="false"/>
```

```
        <GEN_CFG.Connectivity.DataSynchronizationInformation V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationWarningErrors V="false"/>
        <GEN_CFG.Connectivity.ConnectionInterval V="05"/>
        <GEN_CFG.Result.AutoRelease V="false"/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
<ESC.R01>
    <HDR>
        <HDR.control_id V="987"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:30:31-05:00"/>
    </HDR>
    <ESC>
        <ESC.esc_control_id V="4"/>
        <ESC.detail_cd V="TOP"/>
        <ESC.note_txt V="Message not accepted."/>
   </ESC>
</ESC.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="988"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:31:01-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="ABN"/>
        <TRM.note_txt V="Timeout occurred."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:30:48+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="988"/>
    </ACK>
</ACK.R01>
```

Communication scenario 2 - Wrong instrument state to receive a device configuration



- **Purpose:** to see how the Liat does not accept (escapes) a Device Configuration directive, as this was received when the instrument was not in standby mode.
- **Configuration/Preconditions:** Device config enabled.

Steps

1. DMS: send a DevConf when logged on.
2. Liat: ESC

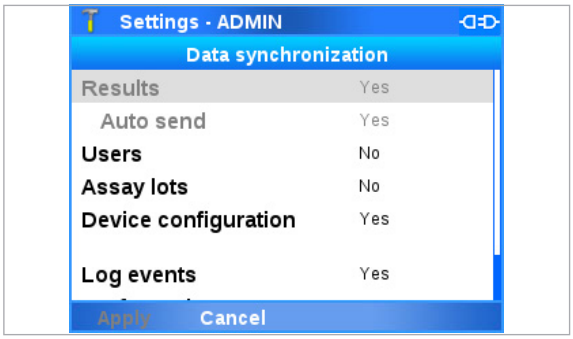
Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	DTV.ROCHE.LIAT.CFG	DMS sends Device Configuration directive.
Analyzer➔DMS	ESC.R01	Liat rejects it: device status is Ready, and should be Standby
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="993"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:40:28-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
```

```
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:40:14+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="993"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="994"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:40:28-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2019-12-19T08:40:28-05:00"/>
        <DST.new_observations_qty V="3"/>
        <DST.new_events_qty V="78"/>
        <DST.condition_cd V="R"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:40:15+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="994"/>
    </ACK>
</ACK.R01>
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:40:17+01:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Eastern Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
        <GEN_CFG.Authentication.authenticationType V="User ID & Password"/>
        <GEN_CFG.Languages.Language V="en-US"/>
        <GEN_CFG.AutoReboot.Time V="05:30"/>
        <GEN_CFG.Connectivity.Timeout V="30"/>
        <GEN_CFG.Connectivity.DataSynchronizationUsers V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationAssayLots V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationLogEvents V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationInformation V="false"/>
```

```
        <GEN_CFG.Connectivity.DataSynchronizationWarningErrors V="false"/>
        <GEN_CFG.Connectivity.ConnectionInterval V="05"/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
<ESC.R01>
    <HDR>
        <HDR.control_id V="995"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:40:31-05:00"/>
    </HDR>
    <ESC>
        <ESC.esc_control_id V="4"/>
        <ESC.detail_cd V="TOP"/>
        <ESC.note_txt V="Message not accepted."/>
    </ESC>
</ESC.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="996"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:41:01-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
   <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:40:48+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="996"/>
    </ACK>
</ACK.R01>
```

Communication scenario 3 - Device configuration file with an invalid parameter



- **Purpose:** to see how the Liat does not accept (rejects with an “Error ACK”) a wrong Device Configuration directive.
- **Configuration/Preconditions:** Device configuration enabled

Steps

1. DMS: send a wrong Device Configuration directive (with AutoRelease = INT, instead of a BOOLEAN).
2. Liat: error acknowledgment

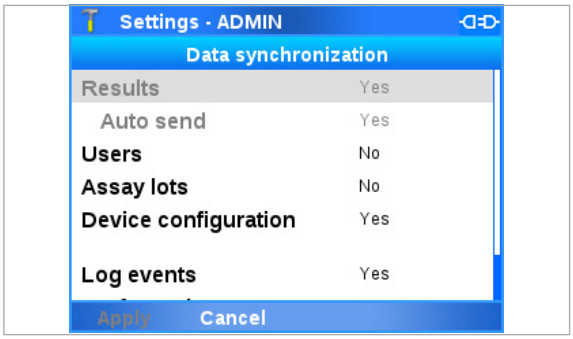
Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	DTV.ROCHE.LIAT.CFG	DMS sends Device Configuration directive with incorrect parameter.
Analyzer➔DMS	ACK.R01	Liat acknowledges with an error (does not accept the data received).
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="1005"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:55:28-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
```

```
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:55:14+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="1005"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="1006"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:55:29-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2019-12-19T08:55:29-05:00"/>
        <DST.new_observations_qty V="3"/>
        <DST.new_events_qty V="82"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:55:16+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="1006"/>
    </ACK>
</ACK.R01>
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:55:18+01:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Eastern Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
        <GEN_CFG.Authentication.authenticationType V="User ID & Password"/>
        <GEN_CFG.Languages.Language V="en-US"/>
```

```
        <GEN_CFG.AutoReboot.Time V="05:30"/>
        <GEN_CFG.Connectivity.Timeout V="30"/>
        <GEN_CFG.Result.AutoRelease V="3"/>
        <GEN_CFG.Connectivity.DataSynchronizationUsers V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationAssayLots V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationLogEvents V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationInformation V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationWarningErrors V="false"/>
        <GEN_CFG.Connectivity.ConnectionInterval V="05"/>
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
<ACK.R01>
    <HDR>
        <HDR.control_id V="1007"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:55:32-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AE"/>
        <ACK.ack_control_id V="4"/>
        <ACK.note_txt V="Unable to parse POCT1A message."/>
    </ACK>
</ACK.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="1008"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T08:56:03-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="There are no more commands to process."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2019-12-19T14:55:50+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="1008"/>
    </ACK>
</ACK.R01>
```

Communication scenario 4 - Device configuration successfully synchronized

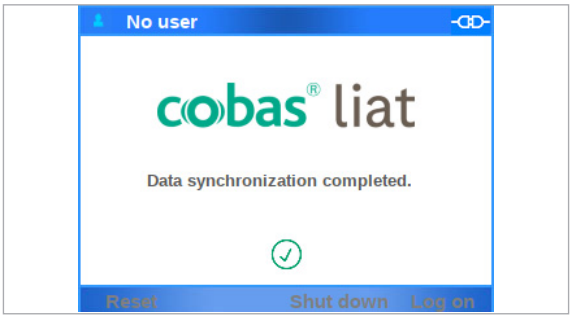


- **Purpose:** to see how the Liat accepts a Device Configuration directive.
- **Configuration/Preconditions:** Device Configuration enabled

Steps

1. DMS: send a correct Device Configuration directive with: Lots enabled, AutoRelease true.
2. Liat: acknowledgment

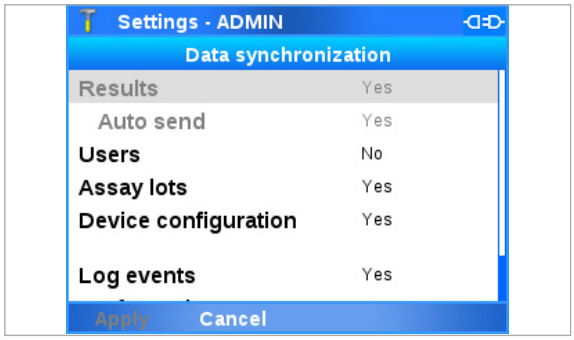
Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	DTV.ROCHE.LIAT.CFG	DMS sends DevConf.
Analyzer➔DMS	ACK.R01	Liat accepts the DevConf. -> data sync.
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed



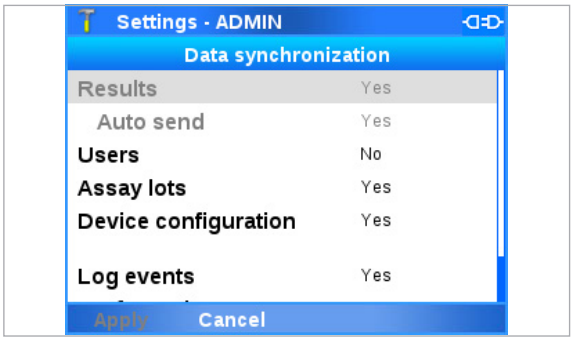
```
<HEL.R01>
    <HDR>
        <HDR.control_id V="401"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T09:31:11-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:31:10+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="401"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="402"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T09:31:11-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-15T09:31:11-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="15"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:31:11+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
```

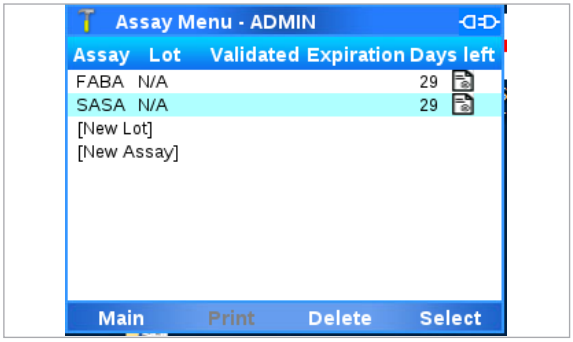
```
        <ACK.ack_control_id V="402"/>
    </ACK>
</ACK.R01>
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:31:13+01:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.DateTime.sntp V="false"/>
        <GEN_CFG.DateTime.Server V=""/>
        <GEN_CFG.DateTime.TimeZone V="Eastern Standard Time"/>
        <GEN_CFG.DateTime.TimeFormat V="12"/>
        <GEN_CFG.DateTime.DateFormat V="yyyy-mm-dd"/>
        <GEN_CFG.Display.brightness V="7"/>
        <GEN_CFG.TubeInsertTime.iTubeInsertTime V="15"/>
        <GEN_CFG.AutoLock.autolocktime V="7"/>
        <GEN_CFG.Authentication.authenticationType V="User ID & Password"/>
        <GEN_CFG.Languages.Language V="en-US"/>
        <GEN_CFG.AutoReboot.Time V="05:30"/>
        <GEN_CFG.Connectivity.Timeout V="30"/>
        <GEN_CFG.Result.AutoRelease V="true"/>
        <GEN_CFG.Connectivity.DataSynchronizationUsers V="false"/>
        <GEN_CFG.Connectivity.DataSynchronizationAssayLots V="true"/>
        <GEN_CFG.Connectivity.ConnectionInterval V="05"/>
     </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
<ACK.R01>
    <HDR>
        <HDR.control_id V="403"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T09:31:14-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="4"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="404"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T09:31:45-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="There are no more commands to process."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
```

```
        <HDR.creation_dttm V="2020-01-15T15:31:44+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="404"/>
    </ACK>
</ACK.R01>
```



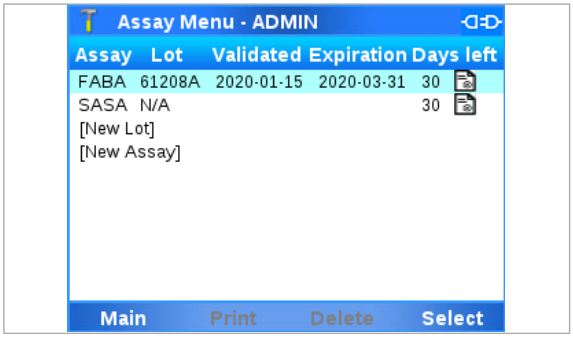
Communication scenario 5 - Send a validated assay lot to a DMS





- **Purpose:** to see lot related exchanges, after a lot validation (negative and positive QC's) are performed on the analyzer.
- **Configuration/Preconditions:** Assay Menu with no Lots, Lots enabled, Events enabled, AutoRelease on (Note that config changed).

Steps



1. Liat: validate SF2A Lot.
2. Liat: connect to DMS
3. DMS: request device events
4. Liat: send Events -> Lot added (TR.001)
5. DMS: request Lots
6. Liat: send SF2A Lot
7. DMS: request OBS
8. Liat: send OBS (this message contains the QCs for SF2A Lot)
9. EOT
10. END

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	Observe that 2 OBS (the positive and negative QC's) are reported.
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	REQ.R01	DMS requests device events.
Analyzer➔DMS	EVS.R01	Device event TR.001 informs the DMS to request lots.
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
DMS➔analyzer	REQ.R01	DMS requests assay lots (RRDL_D).

Direction	Message type	Comment
Analyzer➔DMS	ROCHE.LIAT.LOTS.R02	Lots
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
DMS➔analyzer	REQ.R01	DMS requests observations / results.
Analyzer➔DMS	OBS.R02	QC lot results (negative and positive)
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="331"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:34:33-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
           </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="1"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:33+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="331"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="332"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:34:34-05:00"/>
    </HDR>
    <DST>
```

```
        <DST.status_dttm V="2020-01-15T14:34:34-05:00"/>
        <DST.new_observations_qty V="2"/>
        <DST.new_events_qty V="5"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:34+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="332"/>
    </ACK>
</ACK.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:43+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="RDEV"/>
    </REQ>
</REQ.R01>
<EVS.R01>
    <HDR>
        <HDR.message_type V="EVS.R01"/>
        <HDR.control_id V="333"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:34:45-05:00"/>
    </HDR>
    <EVT>
        <EVT.description V="AC.001:User [ADMIN] logged on with authentication mode [User ID &
Password]"/>
        <EVT.event_dttm V="2020-01-14T08:54:41-05:00"/>
        <EVT.severity_cd V="N"/>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
    <EVT>
        <EVT.description V="SC.013:'Host' settings changed by user [ADMIN]"/>
        <EVT.event_dttm V="2020-01-15T09:21:50-05:00"/>
        <EVT.severity_cd V="N"/>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
    </EVT>
   <EVT>
        <EVT.description V="TR.001:Trigger notification for lot data upload to DMS"/>
        <EVT.event_dttm V="2020-01-15T14:28:19-05:00"/>
        <EVT.severity_cd V="N"/>
        <OPR>
            <OPR.operator_id V="System"/>
        </OPR>
    </EVT>
    <EVT>
```

```
        <EVT.description V="AM.001:Lot(s) [SF2A^61208A^1.0.0] validated by user [ADMIN]"/>
        <EVT.event_dttm V="2020-01-15T14:28:21-05:00"/>
        <EVT.severity_cd V="N"/>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
    </EVT>
    <EVT>
        <EVT.description V="AC.002:User [ADMIN] logged off"/>
        <EVT.event_dttm V="2020-01-15T14:31:15-05:00"/>
        <EVT.severity_cd V="N"/>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
    </EVT>
</EVS.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:45+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="333"/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="334"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:34:45-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="EVS"/>
    </EOT>
</EOT.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:58+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="RRDL_D"/>
    </REQ>
</REQ.R01>
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="335"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:35:00-05:00"/>
    </HDR>
<UPD>
    <UPD.action_cd V=”I”/>
    <LOT>
        <LOT.lot_id V="SF2A^61208A^1.0.0"/>
        <LOT.lot_insert_id V="ISF2A20036B8AAAAAAAAAAAH"/>
```

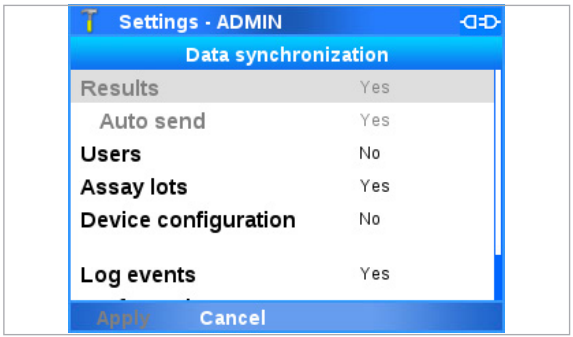
```
        <LOT.parameters V="AAAAAAAAAAA"/>
        <LOT.assay V="SF2A"/>
        <LOT.expiration_date V="2020-03-31T00:00:00+00:00"/>
        <LOT.lot_number V="61208A"/>
        <LOT.minimum_compatible_version V="1.0.0"/>
        <LOT.validation_dttm V="2020-01-15T14:28:16-05:00"/>
        <LOT.data ENC="B64"
V="ouWnn4r3ErOJHy22bmsdhLOq3welDVBzrHy6JptBeQ2BuBcFICnTZW49mQIlIypr1/0MpOodM131b13LKAVHxuYIClG1QJIHt
gBbS/LJP+UwTMMqh02zzqeYWvTAnU0DvG77jFtubEC3SLe9i8fsdxi3t4GSpIknhcqWQDFBtpSKlvYPzyYtxhVGMGr4RHonONCjP
7jaZR2SxeT5uf8THYuwxdJzSVGBTXkVea8d1paWOCjHBkanVfLo43JtHBOaH/E1CmBoUeZYsmoQvWQw/yWMAUGHH0Z4bCiYpiTXI
cPDoCHaphrJB25cHtL7TkvVVLojRXAii5l6R4t0C5GM6Q==">
        </LOT>
</UPD>
</ROCHE.LIAT.LOTS.R02>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:34:59+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="335"/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="336"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:35:00-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="ROCHE.LIAT.LOTS"/>
    </EOT>
</EOT.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="7"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:35:11+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="ROBS"/>
    </REQ>
</REQ.R01>
<OBS.R02>
    <HDR>
        <HDR.message_type V="OBS.R02"/>
        <HDR.control_id V="337"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:35:13-05:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="LQC"/>
        <SVC.observation_dttm V="2020-01-15T14:27:16-05:00"/>
        <CTC>
            <CTC.name V="SF2A control"/>
            <CTC.lot_number V="61208A"/>
            <CTC.expiration_date V="2020-03-31T00:00:00+00:00"/>
```

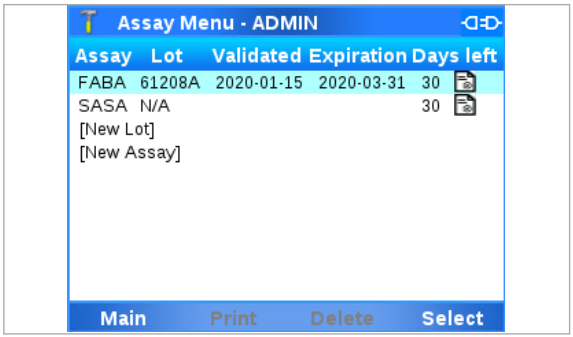
```
            <CTC.level_cd V="N" SN="ROCHE" SV="1.0"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A"/>
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A"/>
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Not Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=N/A"/>
                </NTE>
            </OBS>
        </CTC>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^61208A^1.0.0"/>
            <RGT.expiration_date V="2020-03-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00009"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00003"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSF2A20036B8A00003U"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=N/A"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Lot_validation_status=Incomplete"/>
       </NTE>
    </SVC>
    <SVC>
        <SVC.role_cd V="LQC"/>
        <SVC.observation_dttm V="2020-01-15T14:28:07-05:00"/>
```

```
<CTC>
    <CTC.name V="SF2A control"/>
    <CTC.lot_number V="61208A"/>
    <CTC.expiration_date V="2020-03-31T00:00:00+00:00"/>
    <CTC.level_cd V="L" SN="ROCHE" SV="1.0"/>
    <OBS>
        <OBS.observation_id V="SARS-CoV-2(SF2A)" SN="ROCHE" SV="1.0"/>
        <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
        <OBS.method_cd V="M"/>
        <NTE>
            <NTE.text V="LIAT.CT=29.7783202283394"/>
        </NTE>
    </OBS>
    <OBS>
        <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
        <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
        <OBS.method_cd V="M"/>
        <NTE>
            <NTE.text V="LIAT.CT=29.7783202283394"/>
        </NTE>
    </OBS>
    <OBS>
        <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
        <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
        <OBS.method_cd V="M"/>
        <NTE>
            <NTE.text V="LIAT.CT=29.7783202283394"/>
        </NTE>
    </OBS>
</CTC>
<OPR>
    <OPR.operator_id V="ADMIN"/>
</OPR>
<RGT>
    <RGT.name V="SF2A"/>
    <RGT.lot_number V="SF2A^61208A^1.0.0"/>
    <RGT.expiration_date V="2020-03-31T00:00:00+00:00"/>
</RGT>
<NTE>
    <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Run=00010"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Tube=00004"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Tube_id=TSF2A20036B8A00004T"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Approver=N/A"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
</NTE>
<NTE>
    <NTE.text V="LIAT.Lot_validation_status=Validated"/>
</NTE>
```

```
    </SVC>
</OBS.R02>
<ACK.R01>
    <HDR>
        <HDR.control_id V="8"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:35:12+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="337"/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="338"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:35:13-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OBS"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="339"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T14:35:43-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="ABN"/>
        <TRM.note_txt V="Timeout occurred."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="9"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T20:35:43+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="339"/>
    </ACK>
</ACK.R01>
```

Communication scenario 6 - Send a validated assay lot from DMS to an instrument





- **Purpose:** to see how the Liat receives/accepts lots from the DMS.
- **Configuration/Preconditions:** Assay menu with SF2A lot, Lots enabled, Events enabled, and AutoRelease on.

Steps

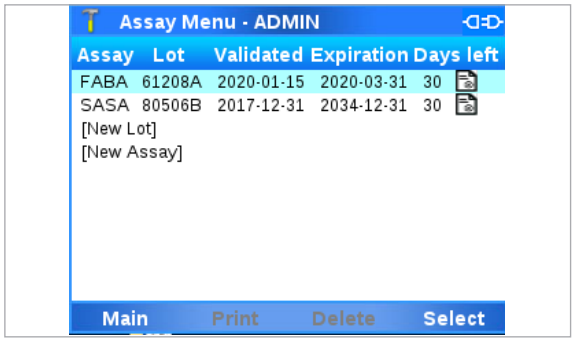
1. (Info) SASA Lot was added on another instrument and was already successfully sent to the DMS.
2. DMS: send SASA lot.
3. Liat: ACK

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	ROCHE.LIAT.LOTS.R02	DMS sends SASA lot.
Analyzer➔DMS	ACK.R01	Liat accepts SASA lot.
DMS➔analyzer	EOT.R01	End of Topic (Lot transmission)
Analyzer➔DMS	END.R01	Liat: close connection
DMS➔analyzer	ACK.R01	DMS: connection closed

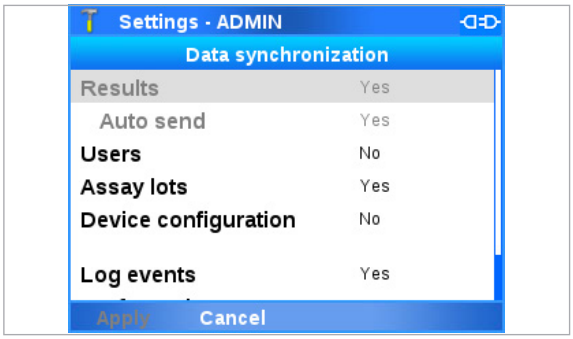
```
<HEL.R01>
    <HDR>
        <HDR.control_id V="350"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:04:33-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:04:33+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="350"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="351"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:04:34-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-15T15:04:34-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="2"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:04:34+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="351"/>
```

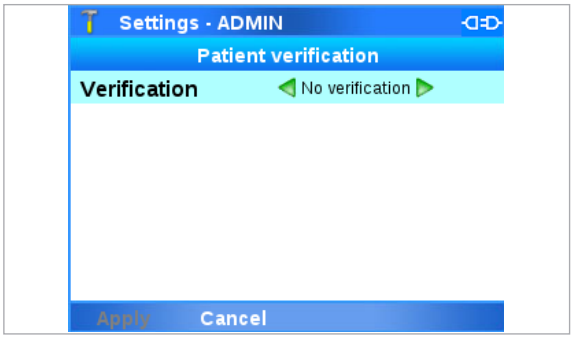
```
    </ACK>
</ACK.R01>
<ROCHE.LIAT.LOTS.R02>
    <HDR>
        <HDR.message_type V="ROCHE.LIAT.LOTS.R02" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:04:36+01:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="I"/>
        <LOT>
            <LOT.lot_id V="SASA^A56B^1.26"/>
            <LOT.lot_insert_id V="ISASA3412A56BAAAAAAAAAAAT"/>
            <LOT.parameters V="AAAAAAAAAAA"/>
            <LOT.assay V="SASA"/>
            <LOT.expiration_date V="2034-12-31T00:00:00+00:00"/>
            <LOT.lot_number V="A56B"/>
            <LOT.minimum_compatible_version V="1.26"/>
            <LOT.validation_dttm V="2018-01-01T00:00:00+00:00"/>
            <LOT.data
V="ORO2TpIanrlO4iOB3SYH/jIrzI7XXaqNcB0xQjalVBZ3GGp2GoxFPNfEYS2g37keDruTNymT6v3HuJo2VnZhDf5hSxNj8/VSo
GLhvBOaxmLqbrVpPC7EGAZO4NGLLrTLBYIX2OjQg/dC4wiRqnUVIIxDQoVbIdJKCorngVxrkl+IMEIZ+8gxSeLzNpbM7wlX8HTJW
niqFxMcEkwp6hJxAt29jTNxlItyt97i6FpEgl495ECV4m+zxR5o/sPXd2lSMzZUYHEPLLmMkyoGfRuxohgcEjBDPSWSni45Da3oD
MZ5cTW82etpyK4M7BqR9/4K9Kzpeo4vkOoK4HtCVLZ44A==" ENC="B64"/>
        </LOT>
    </UPD>
</ROCHE.LIAT.LOTS.R02>
<ACK.R01>
    <HDR>
        <HDR.control_id V="352"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:04:37-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="4"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-27T08:27:23-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="ROCHE.LIAT.LOTS"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="354"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:05:08-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
```

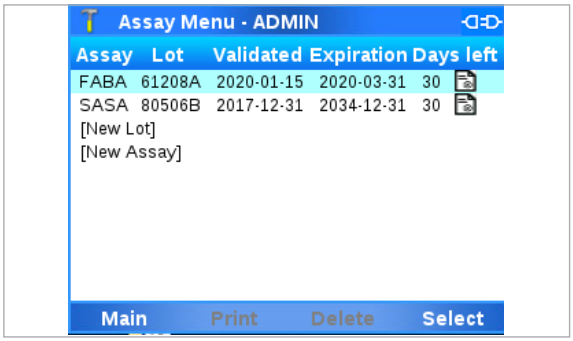
```
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:05:09+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="354"/>
    </ACK>
</ACK.R01>
```



Communication scenario 7 - Liat automatically sends a result to a DMS







- **Purpose:** to see how the Liat sends observations.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, and PV disabled.

Steps

1. Liat: perform a SASA run, for patient with sample ID 12345 (this is result I).
2. Liat: send result I.
3. DMS: ACK

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	REQ.R01	DMS requests observations / results
Analyzer➔DMS	OBS.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
Analyzer➔DMS	END.R01	Liat: connection closed
DMS➔analyzer	ACK.R01	DMS: connection closed

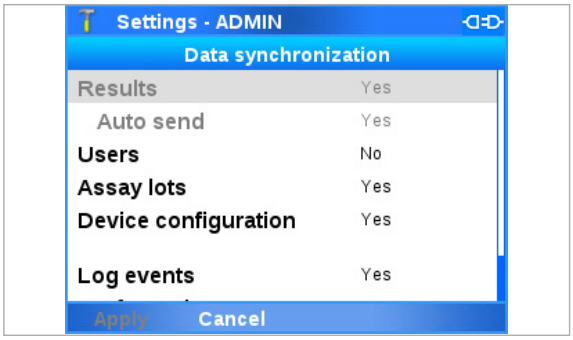
```
<HEL.R01>
    <HDR>
        <HDR.control_id V="365"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:16:24-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:16:24+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="365"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="366"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:16:25-05:00"/>
```

```
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-15T15:16:25-05:00"/>
        <DST.new_observations_qty V="1"/>
        <DST.new_events_qty V="10"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:16:25+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="366"/>
    </ACK>
</ACK.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:16:35+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="ROBS"/>
    </REQ>
</REQ.R01>
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01"/>
        <HDR.control_id V="367"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:16:36-05:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS"/>
        <SVC.observation_dttm V="2020-01-15T15:10:53-05:00"/>
        <PT>
            <PT.patient_id V="12345"/>
            <OBS>
                <OBS.observation_id V="Strep A (SASA)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394" />
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <ORD>
            <ORD.universal_service_id V="Strep A Assay" SN="ROCHE" SV="1.0"/>
        </ORD>
        <RGT>
            <RGT.name V="SASA"/>
            <RGT.lot_number V="SASA^A56B^1.26"/>
```

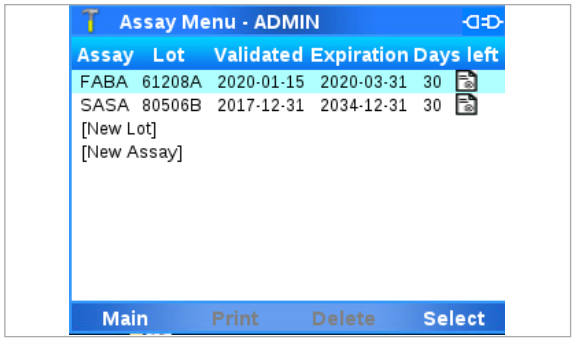
```
            <RGT.expiration_date V="2034-12-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00011"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00005"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSASA3412A56B00005E"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=N/A"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Strep A Assay"/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.PPID:0”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SPT:1”/>
        </NTE>
        <NTE>
            <NTE.text V=”Liat.SRI:S_12345”/>
        </NTE>
    </SVC>
</OBS.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:16:36+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="367"/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="368"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:16:38-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OBS"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="369"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T15:17:08-05:00"/>
    </HDR>
    <TRM>
```

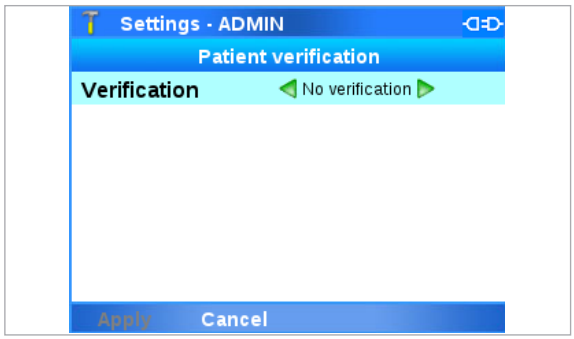
```
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T21:17:08+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="369"/>
    </ACK>
</ACK.R01>
```

Communication scenario 8 - Activate the patient verification workflow via DMS



- **Purpose:** to see how the DMS enables the patient verification workflow on a Liat.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, PV disabled, and Result I is visible.





Steps

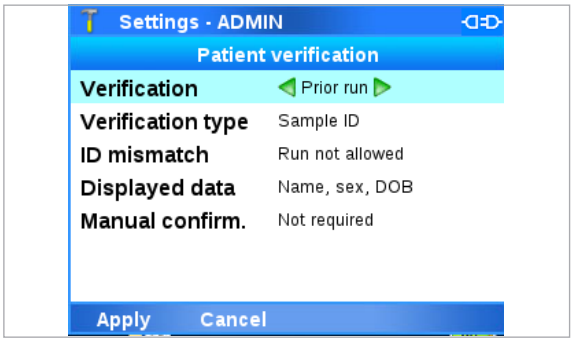
1. DMS: send DevConf with PV enabled.
2. Liat: ACK

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	DTV.ROCHE.LIAT.CFG	DMS sends DevConf.
Analyzer➔DMS	ACK.R01	Liat accepts DevConf. -> data sync.
Analyzer➔DMS	END.R01	Liat: connection closed
DMS➔analyzer	ACK.R01	DMS: connection closed

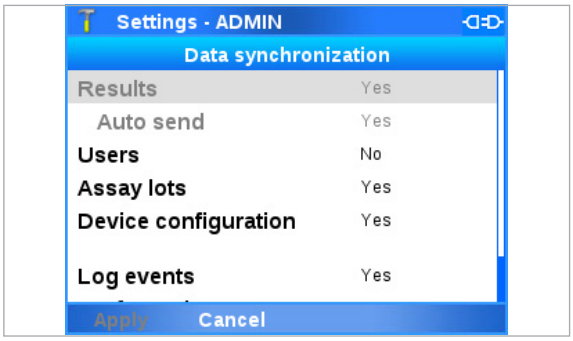
```
<HEL.R01>
    <HDR>
        <HDR.control_id V="225"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T13:43:17-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02;DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
```

```
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T19:43:17+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="225"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="226"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T13:43:18-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-15T13:43:18-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="71"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T19:43:18+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="226"/>
    </ACK>
</ACK.R01>
<DTV.ROCHE.LIAT.CFG>
    <HDR>
        <HDR.message_type V="DTV.ROCHE.LIAT.CFG" SN="ROCHE" SV="1.0"/>
        <HDR.control_id V="7"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T19:43:20+01:00"/>
    </HDR>
    <DTV>
        <DTV.command_cd V="SET_CONFIG" SN="ROCHE" SV="1.0"/>
    </DTV>
    <GEN_CFG>
        <GEN_CFG.PV.Verification V="prior run"/>
        <GEN_CFG.PV.VerificationType V="s"/>
        <GEN_CFG.PV.PatientMismatch V="run allowed"/>
        <GEN_CFG.PV.DisplayedData V="verbose"/>
        <GEN_CFG.PV.ManualConfirmation V="not required"/>
```

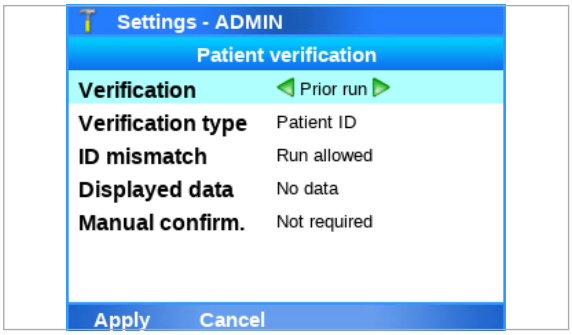
```
    </GEN_CFG>
</DTV.ROCHE.LIAT.CFG>
<ACK.R01>
    <HDR>
        <HDR.control_id V="227"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T13:43:23-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="7"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="228"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T13:43:54-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="There are no more commands to process."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="8"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T19:43:54+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="228"/>
    </ACK>
</ACK.R01>
```

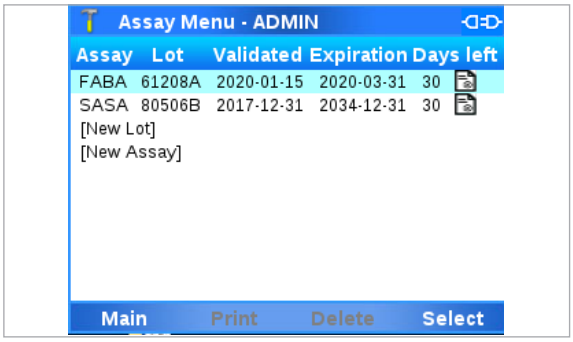


Communication scenario 9 - Patient verification passed - run performed



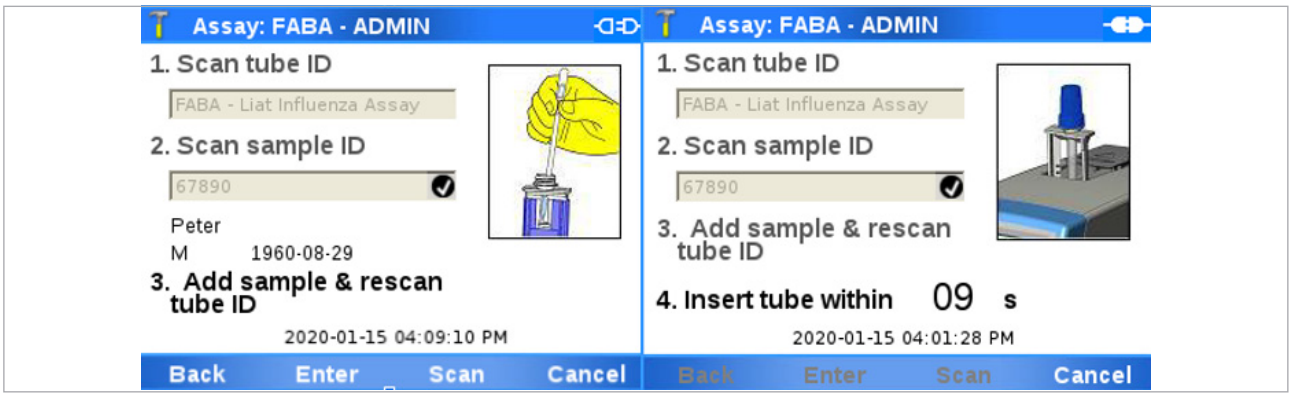
- **Purpose:** to see how during a run, a Liat performs a patient verification (by sample ID) workflow.
- **Configuration/Preconditions:** Assay Menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, PV enabled, and Result I is visible.





Steps

1. Liat: start a run using SF2A, for patient with sample ID 67890 (result II).
2. Liat: send HEL (notice that it reports patient verification support)
3. Liat: PV workflow starts -> ID 67890 is known (DMS side) -> DMS: sends the patient ID and data (777, Peter, 1960-08-29, 'M').



4. Liat: sends END. connection is closed.
5. Liat: run finishes.
6. Liat: wait for the next Liat - DMS connection
7. Liat: send result (II)

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	Reports that patient verification is supported.
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	REQ.R01	DMS requests to send sample ID for PV.
Analyzer➔DMS	ROCHE.LIAT.PVI.R01	Liat sends sample ID for PV check.
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
DMS➔analyzer	ROCHE.LIAT.PVR.R01	DMS sends PV data (“Peter”)
Analyzer➔DMS	ACK.R01	Liat: acknowledges patient verification.
DMS➔analyzer	EOT.R01	
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	REQ.R01	DMS requests for observations / results.
Analyzer➔DMS	OBS.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	EOT.R01	
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="328"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T04:31:53-10:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:03:3b:74"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-09967"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.0.xxxx"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="120"/>
            <DCP.vendor_specific>ROCHE.LIAT.PVI;ROCHE.LIAT.PVR</DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="ROCHE.LIAT.PVI"/>
            <DSC.topics_supported_cd V="ROCHE.LIAT.PVR"/>
            <DSC.max_message_sz V="612345"/>
        </DSC>
    </DEV>
</HEL.R01>
```

```
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:46+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="328"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="329"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T04:31:55-10:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2021-01-08T04:31:55-10:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="3"/>
        <DST.condition_cd V="R"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="914"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:47+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="329"/>
    </ACK>
</ACK.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="915"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:47+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="RPVI"/>
    </REQ>
</REQ.R01>
<ROCHE.LIAT.PVI.R01>
    <HDR>
        <HDR.control_id V="330"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T04:31:57-10:00"/>
    </HDR>
    <PVI>
        <PVI.verification_type_cd V="S"/>
        <PVI.identifier_id V="67890"/>
    </PVI>
</ROCHE.LIAT.PVI.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="916"/>
```

```
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:50+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="330"/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="331"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T04:31:57-10:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="ROCHE.LIAT.PVI"/>
    </EOT>
</EOT.R01>
<ROCHE.LIAT.PVR.R01>
    <HDR>
        <HDR.message_type V="PVR.R01"/>
        <HDR.control_id V="917"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:50+01:00"/>
    </HDR>
    <PVF.status_cd V="T"/>
    <PT>
        <PT.patient_id V="777"/>
        <PT.name V="Peter"/>
        <PT.birth_date V="1960-08-29"/>
        <PT.gender_cd V="M"/>
    </PT>
</ROCHE.LIAT.PVR.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="332"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T04:31:59-10:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="917"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="918"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:51+01:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="ROCHE.LIAT.PVR"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="333"/>
        <HDR.version_id V="POCT1"/>
```

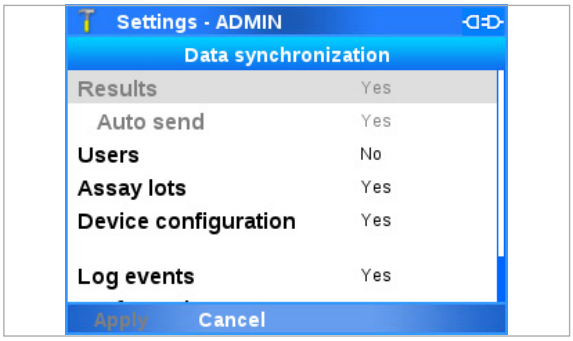
```
        <HDR.creation_dttm V="2021-01-08T04:32:01-10:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="919"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2021-01-08T15:30:53+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="438"/>
    </ACK>
</ACK.R01>


<HEL.R01>
    <HDR>
        <HDR.control_id V="443"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T16:12:52-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.0.4027"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T22:12:52+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="443"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
```

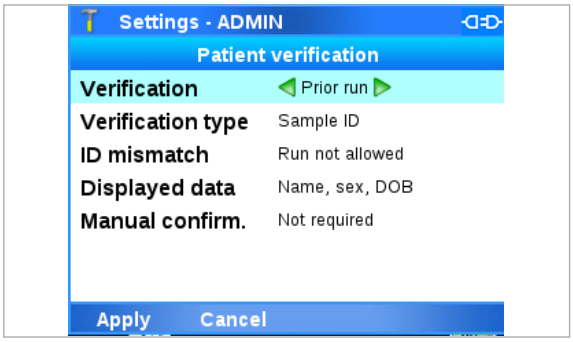
```
        <HDR.control_id V="444"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T16:12:53-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-15T16:12:53-05:00"/>
        <DST.new_observations_qty V="1"/>
        <DST.new_events_qty V="53"/>
        <DST.condition_cd V="R"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T22:12:53+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="444"/>
    </ACK>
</ACK.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T22:13:13+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="ROBS"/>
    </REQ>
</REQ.R01>
<OBS.R01>
    <HDR>
        <HDR.message_type V="OBS.R01"/>
        <HDR.control_id V="445"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T16:13:14-05:00"/>
    </HDR>
    <SVC>
        <SVC.role_cd V="OBS"/>
        <SVC.observation_dttm V="2020-01-15T16:01:37-05:00"/>
        <PT>
            <PT.patient_id V="PTN001"/>
            <OBS>
                <OBS.observation_id V="SARS-CoV-2 (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394"/>
                </NTE>
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza A (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394"/>
                </NTE>
```

```
            </OBS>
            <OBS>
                <OBS.observation_id V="Influenza B (SF2A)" SN="ROCHE" SV="1.0"/>
                <OBS.qualitative_value V="Detected" SN="ROCHE" SV="1.0"/>
                <OBS.method_cd V="M"/>
                <NTE>
                    <NTE.text V="LIAT.CT=29.7783202283394"/>
                </NTE>
            </OBS>
        </PT>
        <OPR>
            <OPR.operator_id V="ADMIN"/>
        </OPR>
        <ORD>
            <ORD.universal_service_id V="Influenza Assay" SN="ROCHE" SV="1.0"/>
        </ORD>
        <RGT>
            <RGT.name V="SF2A"/>
            <RGT.lot_number V="SF2A^61208A^1.0.0"/>
            <RGT.expiration_date V="2020-03-31T00:00:00+00:00"/>
        </RGT>
        <NTE>
            <NTE.text V="LIAT.Use=For In Vitro Diagnostic Use"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Run=00012"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube=00005"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Tube_id=TSF2A20036B8A00005S"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Approver=N/A"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Universal_service_id=Liat Influenza Assay"/>
        </NTE>
        <NTE>
            <NTE.text V="Liat.PPID:1"/>
        </NTE>
        <NTE>
            <NTE.text V="Liat.SPT:2"/>
        </NTE>
        <NTE>
            <NTE.text V="Liat.SRI:S_67890"/>
        </NTE>
       </SVC>
</OBS.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T22:13:14+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="445"/>
```

```
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="446"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T16:13:15-05:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OBS"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="447"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T16:13:45-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="ABN"/>
        <TRM.note_txt V="Timeout occurred."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-15T22:13:45+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="447"/>
    </ACK>
</ACK.R01>
```

Communication scenario 10 - Patient verification failed - run prevented





- **Purpose:** to show how a run is prevented due to a mismatch during Patient Verification workflow.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, PV enabled but if mismatch, "run not allowed", and Result I and II are visible.

Steps

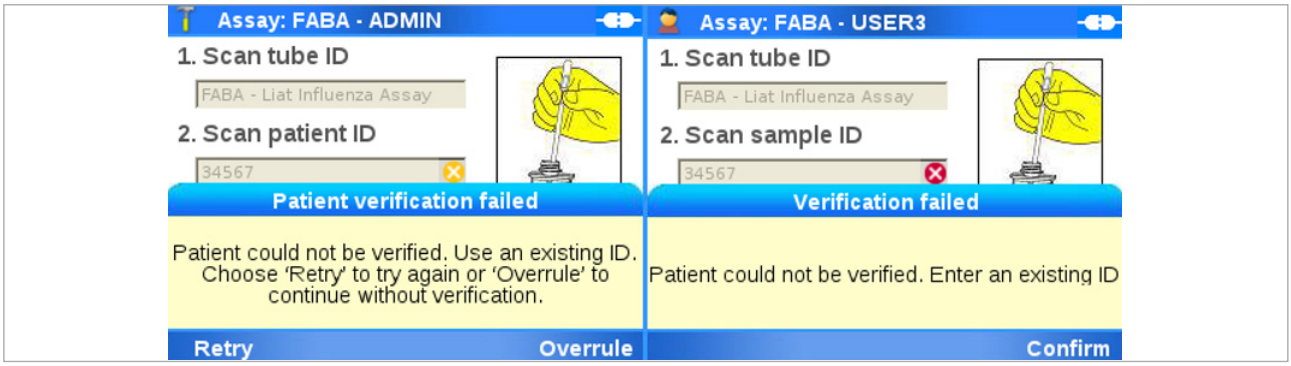
1. Liat: send HEL (highlight PV support).
2. Liat: start a run using SF2A, for patient with sample ID 34567 (III).
3. Liat: PV starts, ID 34567 is unknown (DMS side).
4. DMS: send: "I could not find 34567".
5. Liat: conn closed.

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	Reports that patient verification is supported.
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	REQ.R01	DMS: request for PV information
Analyzer➔DMS	ROCHE.LIAT.PVI.R01	Liat: sends sample ID.
DMS➔analyzer	ROCHE.LIAT.PVR.R01	DMS: sample ID unknown -> PV failed.
Analyzer➔DMS	ACK.R01	Liat: acknowledges issue during patient verification. Run cannot be started.
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="205"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T10:39:35-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.PVI;ROCHE.LIAT.PVR
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="ROCHE.LIAT.PVI"/>
            <DSC.topics_supported_cd V="ROCHE.LIAT.PVR"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T16:39:35+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="205"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="206"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T10:39:35-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-16T10:39:35-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="89"/>
        <DST.condition_cd V="R"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T16:39:36+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
```

```
        <ACK.ack_control_id V="206"/>
    </ACK>
</ACK.R01>
<REQ.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T16:39:42+01:00"/>
    </HDR>
    <REQ>
        <REQ.request_cd V="RPVI"/>
    </REQ>
</REQ.R01>
<ROCHE.LIAT.PVI.R01>
    <HDR>
        <HDR.control_id V="207"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T10:39:42-05:00"/>
    </HDR>
    <PVI>
        <PVI.verification_type_cd V="P"/>
        <PVI.identifier_id V="34567"/>
    </PVI>
</ROCHE.LIAT.PVI.R01>
<ROCHE.LIAT.PVR.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T16:39:48+01:00"/>
    </HDR>
    <PVF.status_cd V="F"/>
</ROCHE.LIAT.PVR.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="208"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T10:39:48-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="5"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="209"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T10:40:19-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
```

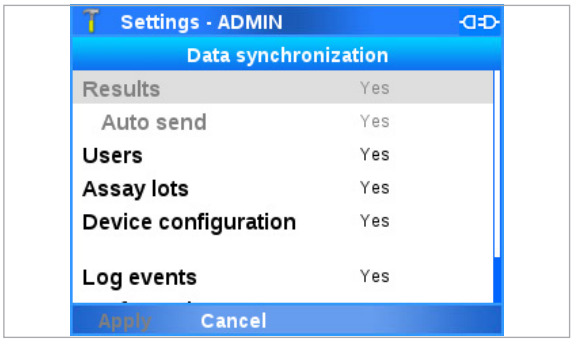
```
        <HDR.creation_dttm V="2020-01-16T16:40:20+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="209"/>
    </ACK>
</ACK.R01>
```



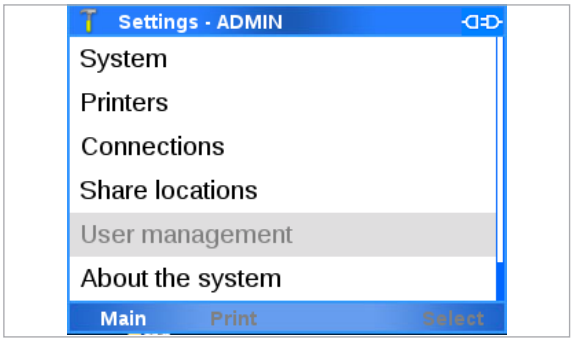
Note: whether you have the permission to overrule a failed patient verification depends on the analyzer configuration and your user role. To overrule a failed patient verification, you need a user role with a higher level of permission than the role “USER”.

- Left screenshot: the DMS protocol of Stage 10 shows the communication workflow for the user role “ADMIN” which permits overruling the failed patient verification.
- Right screenshot: example for the user role “USER” which does not permit overruling the failed patient verification.

Communication scenario 11 - Wrong instrument state does not accept a user list



- **Purpose:** to see how the Liat does not accept (escapes) an Operator list, as it is not in standby mode.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, Users enabled, PV enabled but if mismatch, "run not allowed", Result I and II are visible, and Default users (ADMIN, SUPERVISOR, USER1, USER2) are available (but not accessible, as the users are managed by the DMS, in this configuration scenario).



Steps

1. Info: we are still logged on.
2. DMS: send full list with (USER3, USER4, USER5).
3. Liat: ESC

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	OPL.R01	DMS sends operator list.
Analyzer➔DMS	ESC.R01	Liat rejects operator list because the device status is Ready.
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

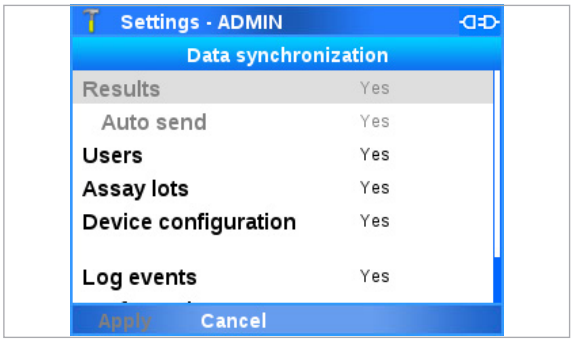
```
<HEL.R01>
    <HDR>
        <HDR.control_id V="253"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:44:35-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="OP_LST"/>
            <DSC.topics_supported_cd V="OP_LST_I"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:44:35+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="253"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="254"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:44:35-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-16T12:44:35-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="97"/>
        <DST.condition_cd V="R"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:44:36+01:00"/>
    </HDR>
    <ACK>
```

```
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="254"/>
    </ACK>
</ACK.R01>
<OPL.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:44:42+01:00"/>
    </HDR>
    <OPR>
        <OPR.operator_id V="USER3"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
    <OPR>
        <OPR.operator_id V="USER4"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact=34141411 321"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
        <NTE>
```

```
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
    <OPR>
        <OPR.operator_id V="USER5"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
</OPL.R01>
<ESC.R01>
    <HDR>
        <HDR.control_id V="255"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:44:42-05:00"/>
    </HDR>
    <ESC>
        <ESC.esc_control_id V="4"/>
        <ESC.detail_cd V="TOP"/>
        <ESC.note_txt V="Message not accepted."/>
    </ESC>
```

```
</ESC.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="256"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:45:13-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="ABN"/>
        <TRM.note_txt V="Timeout occurred."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:45:13+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="256"/>
    </ACK>
</ACK.R01>
```

Communication scenario 12 - Replace operators list via DMS



- **Purpose:** to see how the Liat accepts an operator list.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, User enabled, PV enabled but if mismatch, "run not allowed", Result I and II are visible, and default users (ADMIN, SUPERVISOR, USER1, USER2) available but not accessible.

Steps

1. Info: we are logged off.
2. DMS: send full list with (USER3, USER4, USER5).
3. Liat: ACK

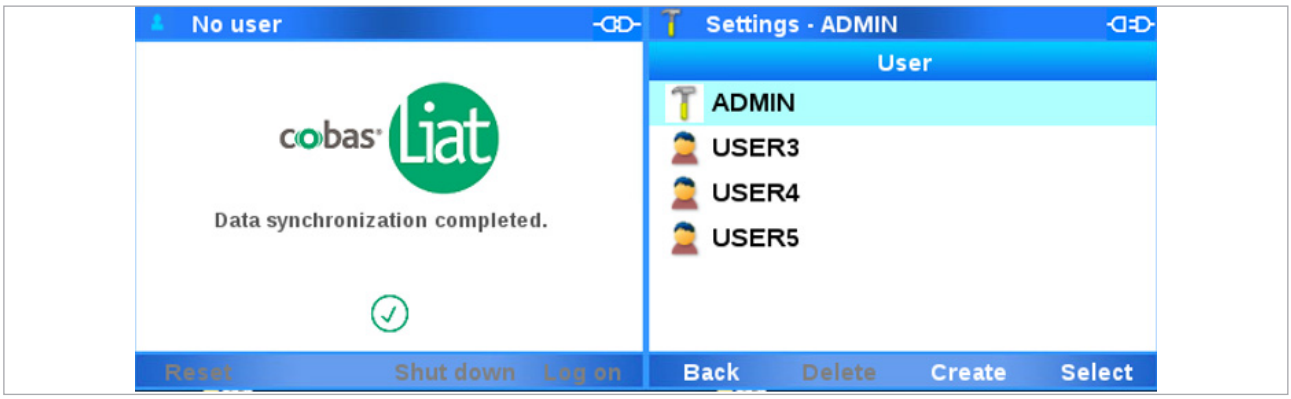
Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	OPL.R01	DMS sends operator list for full replacement.
Analyzer➔DMS	ACK.R01	Liat accepts operator list -> default users replaced (except ADMIN)
DMS➔analyzer	EOT.R01	
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="257"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:49:35-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02;DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="OP_LST"/>
            <DSC.topics_supported_cd V="OP_LST_I"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:49:35+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="257"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="258"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:49:35-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-16T12:49:35-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="98"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:49:36+01:00"/>
    </HDR>
```

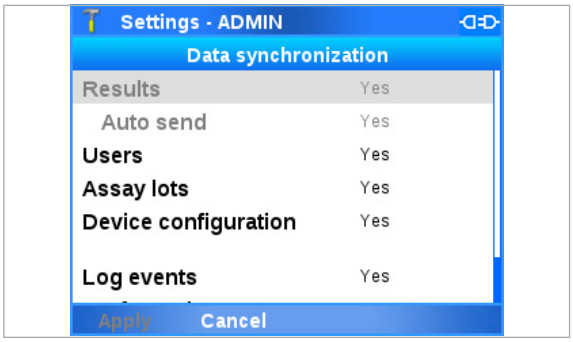
```
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="258"/>
    </ACK>
</ACK.R01>
<OPL.R01>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:49:40+01:00"/>
    </HDR>
    <OPR>
        <OPR.operator_id V="USER3"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
    <OPR>
        <OPR.operator_id V="USER4"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact=34141411 321"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
```

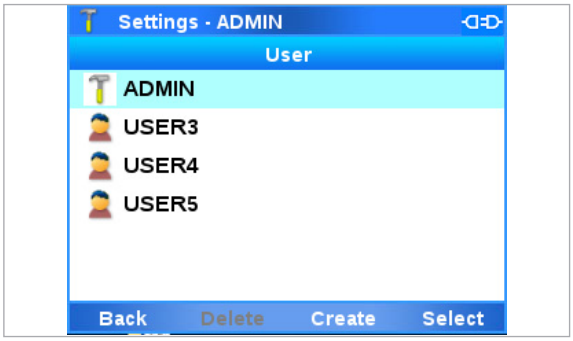
```
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
    <OPR>
        <OPR.operator_id V="USER5"/>
        <ACC>
            <ACC.method_cd V="SASA"/>
            <ACC.method_cd V="SF2A"/>
            <ACC.password>
                Maxi
            </ACC.password>
            <ACC.permission_level_cd V="User"/>
        </ACC>
        <NTE>
            <NTE.text V="LIAT.Contact="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Department="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.ReadAssayUserManuals="/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.Locked=NO"/>
        </NTE>
        <NTE>
            <NTE.text V="LIAT.BadgeBarcode="/>
        </NTE>
    </OPR>
</OPL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="259"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:49:44-05:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="4"/>
        <ACK.note_txt/>
```

```
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:49:44+01:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OPL"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="260"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T12:50:15-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T18:50:15+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="260"/>
    </ACK>
</ACK.R01>
```



Communication scenario 13 - Delete and add operators via DMS





- **Purpose:** to see how the Liat processes a partial operator list, where USER5 is deleted and SUPERVISOR is added. All other users remain the same.
- **Configuration/Preconditions:** Assay menu with SF2A & SASA Lots, Lots enabled, Events enabled, AutoRelease on, PV enabled but if mismatch, "run not allowed", Result I and II are visible, and Users (ADMIN, USER3, USER4, USER5).

Steps

1. Info: we are still logged on.
2. DMS: send delete for USER5, and add SUPERVISOR back (with the role "SUPERVISOR").
3. Liat: ACK

Direction	Message type	Comment
Analyzer➔DMS	HEL.R01	
DMS➔analyzer	ACK.R01	
Analyzer➔DMS	DST.R01	
DMS➔analyzer	ACK.R01	Handshake successful
DMS➔analyzer	OPL.R02	DMS: indicates that “USER5” must be deleted and “SUPERVISOR” must be added.
Analyzer➔DMS	ACK.R01	Liat: “User5” deleted and “SUPERVISOR” added.
DMS➔analyzer	EOT.R01	
Analyzer➔DMS	END.R01	Liat: close connection.
DMS➔analyzer	ACK.R01	DMS: connection closed.

```
<HEL.R01>
    <HDR>
        <HDR.control_id V="282"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T13:54:35-05:00"/>
    </HDR>
    <DEV>
        <DEV.device_id V="f8:dc:7a:1c:a3:c9"/>
        <DEV.vendor_id V="ROCHE"/>
        <DEV.serial_id V="M1-E-16036"/>
        <DEV.manufacturer_name V="Roche Molecular Diagnostics"/>
        <DEV.sw_version V="3.4.1.4061"/>
        <DEV.device_name V="cobasLiat"/>
        <DCP>
            <DCP.application_timeout V="30"/>
            <DCP.vendor_specific>
                ROCHE.LIAT.LOTS.R01;ROCHE.LIAT.LOTS.R02;DTV.ROCHE.LIAT.CFG
            </DCP.vendor_specific>
        </DCP>
        <DSC>
            <DSC.connection_profile_cd V="SA"/>
            <DSC.topics_supported_cd V="OP_LST"/>
            <DSC.topics_supported_cd V="OP_LST_I"/>
            <DSC.topics_supported_cd V="D_EV"/>
            <DSC.topics_supported_cd V="DTV"/>
            <DSC.max_message_sz V="614400"/>
        </DSC>
    </DEV>
</HEL.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="2"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T19:54:35+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="282"/>
    </ACK>
</ACK.R01>
<DST.R01>
    <HDR>
        <HDR.control_id V="283"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T13:54:35-05:00"/>
    </HDR>
    <DST>
        <DST.status_dttm V="2020-01-16T13:54:35-05:00"/>
        <DST.new_observations_qty V="0"/>
        <DST.new_events_qty V="135"/>
        <DST.condition_cd V="S"/>
    </DST>
</DST.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="3"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T19:54:36+01:00"/>
    </HDR>
```

```
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="283"/>
    </ACK>
</ACK.R01>
<OPL.R02>
    <HDR>
        <HDR.control_id V="4"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T19:54:56+01:00"/>
    </HDR>
    <UPD>
        <UPD.action_cd V="D"/>
        <OPR>
            <OPR.operator_id V="USER5"/>
        </OPR>
    </UPD>
    <UPD>
        <UPD.action_cd V="I"/>
        <OPR>
            <OPR.operator_id V="SUPERVISOR"/>
            <ACC>
                <ACC.method_cd V="SASA"/>
                <ACC.method_cd V="SF2A"/>
                <ACC.password>
                    1234
                </ACC.password>
                <ACC.permission_level_cd V="SUPERVISOR"/>
            </ACC>
            <NTE>
                <NTE.text V="LIAT.Contact="/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.Department="/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ReadGeneralUserManual=NO"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ChangePasswordOnNextLogin=YES"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.ReadAssayUserManuals="/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.Locked=NO"/>
            </NTE>
            <NTE>
                <NTE.text V="LIAT.BadgeBarcode="/>
            </NTE>
        </OPR>
    </UPD>
</OPL.R02>
<ACK.R01>
    <HDR>
        <HDR.control_id V="284"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T13:54:44-05:00"/>
    </HDR>
```

```
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="4"/>
        <ACK.note_txt/>
    </ACK>
</ACK.R01>
<EOT.R01>
    <HDR>
        <HDR.control_id V="5"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T19:54:44+01:00"/>
    </HDR>
    <EOT>
        <EOT.topic_cd V="OPL"/>
    </EOT>
</EOT.R01>
<END.R01>
    <HDR>
        <HDR.control_id V="285"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T13:55:47-05:00"/>
    </HDR>
    <TRM>
        <TRM.reason_cd V="NRM"/>
        <TRM.note_txt V="Conversation was terminated by the user."/>
    </TRM>
</END.R01>
<ACK.R01>
    <HDR>
        <HDR.control_id V="6"/>
        <HDR.version_id V="POCT1"/>
        <HDR.creation_dttm V="2020-01-16T19:55:47+01:00"/>
    </HDR>
    <ACK>
        <ACK.type_cd V="AA"/>
        <ACK.ack_control_id V="285"/>
    </ACK>
</ACK.R01>
```