LUCULLUS

01/2024

Release Notes for Lucullus® – 24.1.0

WHAT'S NEW

Securecell AG has released a new version of Lucullus®. The latest update follows version 23.0.0 and is named version 24.1.0 based on the new version naming convention.

With version 24.1.0, many new features were implemented, and a long list of bugs was resolved. A complete list is added below. The most important changes are:

- **After thorough assessment, we determined some functionalities are unused and in Lucullus® v24.1.0 were hidden. In case this affects your Lucullus® work, please contact Lucullus® support to re-activate the affected feature/s.**
- **Support for OPC UA server interface instead of OPC DA for interaction with OPC clients to retrieve Lucullus® real-time process data.**
- **Lucullus® REST API was improved with endpoints to retrieve Media Tool related data (Material detail, Osmometer values, weights and more).**
- **Functions are visible in the Operation tool interface, making them easily selectable during recipe creation.**
- **Asynchronous functions execution in Step Chains is introduced, allowing the function to be executed in the background while a Master Operation is running (i.e. executing functions does not stop the main process workflow).**
- **Default data logger operation is in place to allow immediate logging of process data after successful installation of Lucullus®.**
- **Oracle database versions 11 SE2/EE and XE are not further supported (upgrade to version 18/21 XE or 19 SE2/EE recommended).**
- **Windows 10 and 11 are supported (Windows 7 is no longer supported, for versions 3.9.0 onwards).**
- **Oracle Linux OS versions 8.0 to 8.9 are supported.**

LUCULLUS

NEW FEATURES

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14350	Hide User... ⟶ Preferences	Application Frame	Hidden functionality: user ⟶ preferences on application frame.
LUC-15088	Log rotation for Chromeleon Bridge	Chromeleon Bridge	Maximum size of logfile can be defined. After exceeding the defined file size limit Chromeleon Bridge is renamed to: {noformat} logfile-YYYY-MM-YY-HH-mm-SS.txt {noformat} and logfile.txt starts as empty file again. The configuration size is provided in MB, e.g. 10 for 10 mega bytes. The default is 50, if no value given in the configuration file. The smallest accepted value is 1 MB.
LUC-15175	Extend No. of Char in Attributes of Data Type String	Database	User can store JSON data in process string attributes. For this, extend the Number of Characters in Attributes of the Data Type String to 4000.
LUC-14144	Prevent overwriting of log file configuration during update	Deployment	The new fresh log4cplus.properties file is created and active (as-is with the current update procedure). Rationale: If user desires they can inactivate the new file and activate the old one, this will save time/effort on re configuring all logging parameters for many drivers, its faster than un-commenting lines within he file and it still provides a fresh start after the update (i.e. in case of bad config where logs are clogging the system disk space)
LUC-13178	Implement injection volume in Agilent ChemStation HPLC device driver	Device Drivers	As a user I want Agilent ChemStation device driver to support to read out and write the injector parameter injection volume. Adjusting loop size/volume for Agilent HPLC
LUC-13640	Retire labjack_driver in favour of modbusuni_driver	Device Drivers	Since the introduction of modbusuni_driver, many Modbus-based drivers have become obsolete. Since it should be possible to achieve all functionalities of labjack_driver with modbusuni_driver,.
LUC-13772	Customized OPC DA driver for Äkta FPLC Numera DSP workflows	Device Drivers	A new driver based on the universal '_opcda' was created.
LUC-15132	Create 3 Lucullus® ports for writing into FLEX2 OPC UA Tags	Device Drivers,Numera	It is desired to have 3 ports in Lucullus® to write into 3 existing OPC UA system command tags on the Nova Biomedical BioProfile FLEX2. These 3 ports and their respective command tag path are: Batch ID , <OPCSystemCommands>EXT_OLSScheduleAnalysis->SampleInformation->BatchID Cell Type, <OPCSystemCommands>EXT_OLSScheduleAnalysis->SampleInformation->CellType Vessel ID, <OPCSystemCommands>EXT_OLSScheduleAnalysis->SampleInformation->VesselID The Lucullus® user is able to specify a string of characters in each of these three ports which then get written for the drawn sample sent to Flex2 from Numera.
LUC-15171	Batch file support for Rebel 908 import source	Device Drivers, Staging Area	Batch file support is re-supported. Note: Reparsing is not implemented for batch files
LUC-14366	Hide File ⟶ New Process Group	Execution Monitor	Hidden functionality: File ⟶ New Process Group
LUC-14367	Hide Operation ⟶ Generate Names	Execution Monitor	Hidden functionality: Operation ⟶ Generate Names
LUC-14368	Hide Operation ⟶ Change operation	Execution Monitor	Hidden functionality: Operation ⟶ Change operation
LUC-14369	Hide Simple interface	Execution Monitor	Hidden functionality: Simple interface

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14370	Hide Consoles (button)	Execution Monitor	Hidden functionality: Consoles (button)
LUC-14371	Hide Attributes (tab) ⟶ Generate Process Names	Execution Monitor	Hidden functionality: Attributes (tab) ⟶ Generate Process Names
LUC-14372	Hide Table ⟶ Edit Remark (button)	Execution Monitor	Hidden functionality: Table ⟶ Edit Remark (button)
LUC-14373	Hide Console tab	Execution Monitor	Hidden functionality: Console tab
LUC-14374	Hide Genealogy tab	Execution Monitor	Hidden functionality: Genealogy tab
LUC-14375	Hide Media tab	Execution Monitor	Hidden functionality: Media tab
LUC-14791	Allow the user to interact with manual steps inside functions.	Execution Monitor	Manual steps can be used inside a function.
LUC-15164	Show currently running Functions in Lucullus® UI	Execution Monitor	Showing list of all running functions in execution monitor.
LUC-13126	Option to show only attributes with values	Execution Monitor, Graphic Tool, Planning Tool	Change: Implemented as a checkbox "Hide unused Attributes", which when checked hides attributes without values defined. Checkbox is available in the main tabs in planning tool, execution monitor, graphic tool, however not available in other places such as the process info dialog
LUC-14297	Differentiate Planned and Actual Cultivation Start	Execution Monitor, Graphic Tool, Operation Tool, Planning Tool	User is able to distinguish whether looking at / using Planned or Actual Clutivation Start value. change: renamed "Cultivation Start" labels according to their actual display of the data "Planned Cultivation Start" or Actual Cultivation Start, so there is no confusion for the user.
LUC-14298	Differentiate Planned and Actual Process Start/End	Execution Monitor, Graphic Tool, Operation Tool, Planning Tool	User is able to distinguish whether looking at / using Planned or Actual Process Start value. Change: renamed "Process Start" &"Process End" labels according to their actual display of the data "Planned Process Start" ("..End") or Actual Process Start ("..End"), so there is no confusion for the user.
LUC-14531	Sample Time Out Status in the sampling list	Execution Monitor, Numera	When Numera is drawing a sample and for any reason (because maybe the connection to the reactor is not tightened or there is a clump) no sample reaches the bubble sensor (detecting that the sample has arrived at Numera), Numera goes into "Time out" (typically after 10 min of the drawing). In the online Monitor, when this happens we can see in the sampling list by the column Numera the status "drawing" (see picture) which means actually Time out. Change: Depending on the Integer coming from "WARNING NUMBER" port (1, 2, or 3), the status of this port (e. g. Timeout SRU) is written in the Numera column of the sampling list. If status 0 is there, the current logic should remain.
LUC-14472	Dynamic Numera Analytical Method to Port mapping	Execution Monitor, Numera, Planning Tool, Sample Management	Numera Analytical Method Parameters mapped to corresponding Numera Ports by design (automatically) so that values provided in the Parameters are written into corresponding Ports when sample is being processed by Numera
LUC-15160	Call off Function	Execution Monitor, Operation Tool	Since Functions can now run asynchronously from the rest of the Operation, a "call off Function" is required. User has the option to stop (call off) functions within a Master Operation, also asynchronous ones._
LUC-15192	2 file dump & checksum on Disaster Recovery	Execution Monitor, Services	Two dump files introduced in case hard shutdown happens while dump file is created. Additionally, there is a checksum implemented on dump file to check that file is not corrupted.
LUC-15092	Use Begin/Shutdown Process events in Audit Trail	General	To align with LUC-12502, labels are changed to Begin Process" and "Shutdown Process". Any existing audit log entries are not modified. They will keep using old labels.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15275	Update Logo's for Lucullus® our own brand	General	Update of Securecell and Lucullus® brand logo for this release.
LUC-10971	As a user I want to export the start cultivation time	Graphic Tool	The Start Cultivation time (process time or timestamp is exportable together with attributes). Option to select the time format (process time or date and time).
LUC-14376	Hide File ⟶ New Process Group...	Graphic Tool	Hidden functionality: File ⟶ New Process Group...
LUC-14377	Hide File ⟶ Continuous Signal	Graphic Tool	Hidden functionality: File ⟶ Continuous Signal
LUC-14378	Hide File ⟶ Show Vectors	Graphic Tool	Hidden functionality: File ⟶ Show Vectors
LUC-14379	Hide File ⟶ Show Images	Graphic Tool	Hidden functionality: File ⟶ Show Images
LUC-14380	Hide Graphic ⟶ New Chart	Graphic Tool	Hidden functionality: Graphic ⟶ New Chart
LUC-14381	Hide Evaluations ⟶ Pattern	Graphic Tool	Hidden functionality: Evaluations ⟶ Pattern
LUC-14382	Hide Evaluations ⟶ Productivity	Graphic Tool	Hidden functionality: Evaluations ⟶ Productivity
LUC-14383	Hide Evaluations ⟶ Generic Evaluation	Graphic Tool	Hidden functionality: Evaluations ⟶ Generic Evaluation }
LUC-14384	Hiding Evaluations ⟶ Evaluation Sequence	Graphic Tool	Hidden functionality: Evaluations ⟶ Evaluation Sequence
LUC-14385	Hide Format ⟶ Summary Format	Graphic Tool	Hidden functionality: Format ⟶ Summary Format
LUC-14386	Hide Format ⟶ Screening Format	Graphic Tool	Hidden functionality: Format ⟶ Screening Format
LUC-14387	Hide Left & Right buttons at the bottom of the Graphic tool window	Graphic Tool	Hidden functionality: Left & Right buttons at the bottom of the Graphic tool window
LUC-14599	REST API Media Lot Search requirements	Media Tool, REST API	User can search & filter (via REST API request) media lots with the selected filters_ Selected filters include: • Search and filter media lots by media lot ID (name) with wildcards • Search and filter media lots by media recipe ID (name) & version number • Search and filter media lots by the username of the user who prepared the lot ('Supplier', 'Prepared by') • Search and filter media lots by media lot creation date ('Produced on') User must have permission to read lot and recipe from MEDIA TOOL. Supplier and internal suppliers are two different parameters due to them being maintained in different tables.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14600	Media Lot List via REST API	Media Tool, REST API	User can retrieve (via REST API request) the list of media lots with defined metadata. Defined metadata include: • Lot name • Recipe name • Lot type (medium, material or free lot) • Lot creation date ('Produced on') • Lot expiry date ('Expires on') • Lot state • Remaining amount • The user who prepared the lot ('Supplier', 'Prepared by') state - here should be the short version of the status of the lot. preparedBy should have internal producer details and supplier should have external supplier's details.
LUC-14601	Detailed data of selected Media Lot via REST API	Media Tool, REST API	User can retrieve (via REST API request) the following data of the selected media lot: • Lot name • Recipe name & version • Lot type (medium, material or free lot) • Lot state • Target material • The user who prepared the lot ('Supplier', 'Prepared by') • Preparation type (gravimetric or volumetric) Dates: • Lot creation date ('Produced on') • Lot expiry date ('Expires on') • Amount (with the unit, acc. to preparation type): • Target value • Actual value • Remaining value Storage: • Temperature • Condition Properties: • pH value • Osmolality value • Conductivity value Notes: • Composition remark • Safety information • Lot remark List of steps with detailed data of each step: • Action • Parameter • Material ID • Material Lot • Safety info • Ingredient ('Material') • Concentration value • Unit • Target value • Actual value • Range • Tolerance (true or false) • Equipment • pH, Osm, Cond (per step) • Time • Signature • Comment
LUC-14329	Lucullus® sends old samples to be processed by HPLC	Numera, Online Tool, Sample Management	Change: When shutting down a process all offline samples (samples without the Numera method selected) with the state "Planned" or state "Done" and Numera state "Processed" need to be automatically canceled by Lucullus®. Avoiding that old samples are processed when starting a new process. (samples where "draw now" was selected should be able to be canceled in the Sampling tab.)

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-12502	Change button Start/ Stop Operation to Begin/ Shutdown Process	Online Tool	Change "Start Operation" to "Begin Process" and "Stop Operation" to "Shutdown Process".
LUC-15117	OPC UA server to create Audit log including origin when writing a port value	OPC Server	Extension of Audit log for OPC-UA server value changes in Lucullus® in S_LOGTAB Each Interaction must have this data set: • Date (timestamp), when the change happened • User, the user that did change the data • Interaction, set to 'Change Setpoint' • Value, the new value, e..g 40 of port temp_sp • Port Name, the name of the port, e.g. temp_sp • Old Value, the value before the change, e.g. 35 • Origin, set to 'OPC-UA' (S_LOGTAB.EVENTORIGIN=3) These logs are shown in Graphic Tool or Online Tool as Interactions.
LUC-9824	All Attributes Attribute Set	Operation Tool	All Attributes Attribute Set defined as a special type of Attribute Set available for all Operations. Only Value set can be assigned to it
LUC-12497	Alarm text entries cannot be removed	Operation Tool	Once a text message has been defined for alarms in the Operation Tool, the text can only be edited, but not removed. There is now an option to remove alarm text messages.
LUC-12563	Edit User Interaction Name	Operation Tool	When a User Interaction is programmed in the Step chain, once a line with text is created, the text cannot be edited anymore. Only thing possible is to completely delete the line altogether. editing of User interaction text in manual step now possible.
LUC-14355	Hide File ⟶ New ⟶ Parallel operation	Operation Tool	Hidden functionality: File ⟶ New ⟶ Parallel operation
LUC-14356	Hide Edit ⟶ Replace device	Operation Tool	Hidden functionality: Edit ⟶ Replace device
LUC-14357	Hide Edit ⟶ Convert to Master	Operation Tool	Hidden functionality: Edit ⟶ Convert to Master
LUC-14358	Hide Operation tool ⟶ Edit menu	Operation Tool	Hidden functionality: Operation tool ⟶ Edit menu
LUC-14359	Hide Event Messaging button	Operation Tool	Hidden functionality: Alarms ⟶ Event
LUC-14360	Hide Left & Right buttons at the bottom of the Operation tool window	Operation Tool	Hidden functionality: Left & Right buttons at the bottom of the Operation tool window
LUC-14908	Asynchronous running of functions	Operation Tool	If selected, the function will run in the background to avoid blocking the master operation. Unselected, when the step chain hits a function it will not move forward in the Master Operation until the Function is finished.
LUC-15162	Selection of mode of Function execution (standard or asynchronously)	Operation Tool	User can select whether the called Function shall be executed asynchronously (acc. to LUC-14908) or acc. to standard execution, when designing an Operation. Functionality is also available in import/exports of operations (XML exports / imports).
LUC-15200	Enable/Disable Asynchronous running of functions	Operation Tool	Asynchronous function execution is disabled by default and possible to enable on a Lucullus® installation by an explicit action (for example by setting global property value). This issue (LUC-15200), Enable/Disable Asynchronous running of functions, shall not be confused with LUC-15162 Selection of the mode of Function execution (standard or asynchronously). Enabled Asynchronous running of functions (LUC-15200) is a prerequisite for the Selection of mode of Function execution (standard or asynchronously). If global property of LUC-15200 is set to disabled, then only standard (synchronous) execution of functions is possible, with no option for a user to select between synchronous or asynchronous when building an operation.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15201	Shutdown function step in Call off Function (Async)	Operation Tool	The shutdown function step behaves similarly to the Shutdown step in an Operation. However, it is not triggered by the Shutdown process button/command. Instead, it is triggered by the Call off Function command. This allows for a graceful end of asynchronous running function.
LUC-15265	Shutdown icon (red button) should stop all asyncs	Operation Tool	When the user shutdowns through UI button the operation, force asynchronous executed functions to stop.
LUC-9823	Default Logger operation	Operation Tool, System Administration Tool	Logger operation is automatically assigned to all Reactors. Logger will be read-only and deletion is not possible. No changes will be introduced on updated installations on update.
LUC-14361	Hide File ⟶ Plan new process ⟶ Campaign	Planning Tool	Hidden functionality: File ⟶ Plan new process ⟶ Campaign
LUC-14362	Hide Define ⟶ Experimental Design	Planning Tool	Hidden functionality: Define ⟶ Experimental Design
LUC-14363	Hide Well (column)	Planning Tool	Hidden functionality: <process (group)> ⟶ Equipment ⟶ Well (column)
LUC-14364	Hide Load Experimental Design (button)	Planning Tool	Hidden functionality: <process (group)> ⟶ Attributes ⟶ Load Experimental Design (button)
LUC-14365	Hide Genealogy tile	Planning Tool	Hidden functionality: <process (group) ⟶ Genealogy
LUC-14150	Implement start and stop operation in REST-API	REST API	User can start and stop a process / an operation via REST API. Then a second API call on end point /processes was implemented to start a process that is in state _Ready_ and also to be able to stop it when in state _Running_.
LUC-14257	Define REST end point to handle CRUD funcionality for Operations	REST API	Created a new end point_ /operations_ to allow CRUD functionalities for Operations. • Get all the operations • Get any Operation (by id) • Create an Operation (step chain not included) • Edit an Operation by id • Delete an operation ⟶ this can be done only by the owner of the operation and only if the operation is never used (check if a process using the operation is present inside the DB)
LUC-14434	Add datatype to signal end point	REST API	The "/signals" end point does now return the "datatype" of the signal when a full single signal is retrieved (either by id or by process and port id
LUC-14435	Add limit value and message in alarm end point	REST API	The /alarms end point returns a list of alarm beans. Add two new field to the bean to give more data to the caller. The fields to add are: • The limitValue • The message of the alarm if any is set
LUC-14437	Add permission to the role	REST API	On the end point that retrieve a user (i.e. /users /users/[id] /users/[username] /users/myself) add a new field lucullusGroupMembership that will contain the roles a user has inside each group as defined in Lucullus®. Furthermore add an included data object containing for each role that is contained in one or more users the permissions list of the role. For this user.
LUC-14524	Implement /signals/[id]/ alarmDefinitions CRUD operation	REST API	Create, read, update and delete alarms with REST interface on any running process's signal.
LUC-14714	Rework /processes create end point	REST API	User can create a process ready to be started over REST. The minimum required information are: • operation (by id) • reactor (by id or name. If both check id) The process validation for process belonging to a process group can be reused to validate and return errors in case of problems.

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LUC-14715	Add /hosts end point to get a list of all the configured hosts	REST API	User can retrieve list of all configured hosts.Unauthorized in case the user does not have correct permission or license
LUC-14751	Add mandatory field to included attribute definition of /processes/{id}	REST API	User can get to know if an attribute is mandatory or not.
LUC-14772	Complete processes end point to allow the UPDATING a process in ready state	REST API	User can update a process ready to be started over REST.
LUC-14924	Add default pagination to / alarms and /processes	REST API	To avoid performance issue and possible errors a default pagination for end points with potentially a lot of data we would like to introduce a default pagination. For /processes and /alarms if not pagination options are specified the end point should return only 100 processes top.
LUC-14986	Get roles end point	REST API	Retrieving roles defined in Lucullus® with the permission list. The end point will respond to: GET /roles ⟶ all the available roles GET /roles/[id] ⟶ only the role with the specified id GET /roles?name=rolename ⟶ only the role with the specified name
LUC-14987	Update roles end point	REST API	Administrator user can change the roles defined by changing the selection of permission. The end point will respond to PUT /roles/[id] If the request goes well an entry in the LOG in the audit trail with type updateRole needs to be added. The new role needs to be stored in the LOG.
LUC-15104	No login audit for Basic Authentication	REST API	Removed login audit log for Basic Authentication only, keep it for JSON Web Token based authentication in Lucullus® Web.
LUC-15114	Get current Step Chain Operation ID & Step ID via opcbridgeservice for REST API	REST API	User can get the information on currently running step chain operation and currently running step for a selected reactor/ process upon request sent via REST API
LUC-15115	Get current Step Chain Operation ID via REST API	REST API	User can get the information on currently running step chain operation for a selected reactor/process upon request sent via REST API This functionality is available for Step Chain Operations of Type = Master Availability
LUC-15116	Get the current Step ID for the currently running Step Chain Operation via REST API	REST API	User can retrieve the information on currently running step from a currently running step chain operation for a selected reactor/process upon request sent via REST API
LUC-15120	Get the Lucullus® license	REST API	Implemented REST end point GET /license to get the current license key.
LUC-15121	Get Lucullus® installation info	REST API	Implemented REST end point GET /license/installationInfo to get the values needed to create a license. (OPC extension required to get the server key)
LUC-15126	Return source and target position in sample information	REST API	Extend existing JSON REST API for Opal barcode scanners, API to return two additional fields on GET of a sample in the JSON sample information: • sourcePosition (equals to S_SAMPLETAB.POSITION1) • targetPosition (equals to S_SAMPLETAB.POSITION2)
LUC-15127	Return Numera state in sample information	REST API	Extend existing JSON REST API for Opal barcode scanners, API to return the Numera state field, analog to existing sample stateId on GET of a sample in the JSON sample information. Name of new JSON field: numeraState Value range: 1-13

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15191	Set the Lucullus® license	REST API	Implemented REST end point POST /license to set the licenses. The license needs to be validated and an error must be returned if the license is not valid. An OPC extension required get the server key!
LUC-15194	Get current Step Chain Step ID for parallel threaded steps via opcbridgeservice for REST API	REST API	User of REST API, can retrieve the information on all currently running (parallel) steps for a selected reactor/process upon request sent via REST API
LUC-15202	Get current Step ID's Step Time via opcbridgeservice for REST API	REST API	User is able to get the information on currently running step from a currently running step chain operation for a selected reactor/process upon request sent via REST API
LUC-15203	Get current Step Chain Operation Function(s) information (opcbridgeservice)	REST API	User can retrieve the information on the currently running function(s) from a currently running step chain operation for a selected reactor/process upon request sent via REST API Implement functionality to "opcbridgeservice" that can, upon command, get information on the currently running function(s) for a selected reactor/process. This functionality is available for Step Chain Operations of Type = Function. The functionality is also be available for asynchronously executed functions It is not required to get the contents of the step chain operation (Function) (no reactor selection, step chain design, alarms, etc.), with the exception of the information listed in the last three points (current step id, name & time)
LUC-15219	Get current Step ID's Step Time via REST API	REST API	The user can retrieve the information on currently running step from a currently running step chain operation for a selected reactor/process upon request sent via REST API, where the response shall among others also contain the current step time
LUC-15220	Get current Step Chain Step ID for parallel threaded steps via REST API	REST API	The user is able to get the information on all currently running (parallel) steps for a selected reactor/process upon request sent via REST API
LUC-15221	Get current Step Chain Operation Function(s) information via REST API	REST API	User is able to retrieve the information on the currently running function(s) from a currently running step chain operation for a selected reactor/process upon request sent via REST API This functionality shall be available for Step Chain Operations of Type = Function. The functionality is also be available for asynchronously executed functions In case when multiple functions are being executed asynchronously at the same time, the response is provided in an array, containing all below-listed information for each running function.
LUC-15232	Get Everything Audit Trail REST API	REST API	The GET /events end point extended to allow /events to return all the entries in audit trail. This call return a very big list so set a default page size of 100 entries.
LUC-15238	Set FIRST License over REST	REST API	Allows to update a Lucullus® license via implemented end point to set the very first license (i.e. after installation).
LUC-15284	Operation update	REST API	In /operations end point the following rules of state changes are checked: • From Draft to Active ⟶ ALLOWED • From Draft to Archived ⟶ ALLOWED • From Active to Archived ⟶ ALLOWED • From Active to Draft ⟶ NOT ALLOWED • From Archived to Active ⟶ NOT ALLOWED • From Archived to Draft ⟶ NOT ALLOWED

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15349	Get operation validation information on selected operation via REST API	REST API	User, can run an operation validation check for a selected operation via REST API. Upon command, trigger an operation validation check and get a response on the validity of the selected operation This functionality shall be available for Step Chain Operations of types (Master, Combined & Function)
LUC-15350	Save and activate selected operation via REST API	REST API	The user is able to save and activate a selected operation via a REST API call that can, upon command, trigger the saving and activation of an operation. This functionality shall be available for Step Chain Operations of types (Master, Combined & Function). Possible to: • Save <operation> • Save As... <operation> • Activate <operation> • Save and Activate <operation> Specify the operation and version which shall be saved and activated. Each call shall only save and activate only one operation (& version) at the time. If the version is not specified, the latest (highest version number shall be taken) Available for users with Operation tool and permission access rights to this.
LUC-15477	Add process id into signal bean	REST API	Inside all the signals returned by /signals end point extra field added specifying the process id of the process to whom the signals belong.
LUC-13670	Adjustment of the sample numbering Name generator	Sample Management	Replace the sample numbering from #01 to: 001 The first two digits for the day and the last digit for the sample number on the day (The first sample gets the number 1)
LUC-14352	Hide Tools ⟶ Predefined format	System Administration Tool	Hidden functionality: tools preferences - Predefined format in system administration tool.
LUC-14353	Hide Audit Trail ⟶ Audit Trail	System Administration Tool	Hidden functionality: Audit Trail ⟶ Audit Trail in system administration tool.
LUC-14354	Hide User configuration ⟶ Preferences	System Administration Tool	Hidden functionality: user configuration ⟶ preferenced in system admin tool
LUC-14457	PortShortName shouldn't allow '.' (dot) in name field	System Administration Tool	System prevents user entry of special character "." SysAdmin ⟶ Ports ⟶ Port details ⟶ Short Name entry field.
LUC-14639	Make process attribute names unique	System Administration Tool	Duplicate names for any two process attributes in the system prevented. Display of a proper error message to the user when trying to attempt it.
LUC-14857	Disable transformation settings for all ports except float and double in channel configuration in System Administration Tool	System Administration Tool	Administrator can only edit gain and offset parameters of transformable ports, either directly or using a wizard opened by Calculate button. Gain and offset parameters is non-editable in NON-transformable ports.Transformable ports are defined as ports with data types Float and Double. All other ports are non-transformable.
LUC-15111	Input Field Validation: Single characters and minimal No. of characters as identifiers	System Administration Tool	Extended rules for Naming in configuration fields: Reactor Name ⟶ (min length characters: 3, No pure numbers) Device Type Name ⟶ (min length characters: 3, No pure numbers) Subdevice Name ⟶ (min length characters: 3, No pure numbers) Hardware Name ⟶ (min length characters: 3, No pure numbers) Port Short Name ⟶ (min length characters: 3, No pure numbers)

BUG FIXES

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14507	System Administration tool - Process Attributes - Add an attribute group under the attribute - Database interaction error	System Administration Tool	Adding attribute group under an attribute pressing "Apply Changes" no database error.
LUC-14508	System Administration tool - Process Attributes - Add an attribute under another attribute should be not possible	System Administration Tool	Bug resolved.
LUC-15226	Fix issue with returning tuple by initializer_list		At a time when gcc 4.8 was released C++11 standard still had some inconsistencies, one of which was causing compilation error when returning std::tuple constructed implicitly from std::initializer_list - bug resolved.
LUC-15421	importers supporting 'InvalidateNotPresentResults' must not create any invalid ImportResult		Bug resolved.
LUC-15637	Staging Area permission label wrong in database	Staging Area	Label changed to "Staging Area" (Database level)
LUC-14591	Chromeleon Bridge - Instrument/Process method not updated in Chromeleon	Chromeleon Bridge	Bug resolved.
LUC-6749	Results from Numera on Chromeleon no longer read back after some time	Chromeleon Bridge, Device Drivers, Numera	Result reading issue resolved.
LUC-14429	The importdriver makes that the workstation database becomes slow and responds only delayed.	Database, Device Drivers, Staging Area	Improved performance of importdriver.
LUC-15207	OfflineImportSynchronizer:: cleanupEmptySignals may create invalid SQL query	Database, Device Drivers, Staging Area	The function creates and runs two queries, the second using output of the first. If the first query returns empty result, then the second one uses invalid SQL statement – bug resolved
LUC-15473	Services should be configured with systemd in Linux from OS version 7 on	Deployment	Bug resolved.
LUC-14865	Bioengineering driver missing in Windows installer	Deployment, Device Drivers	Driver included into Windows installer.
LUC-14922	After update Lucullus® on Linux the database connection string is wrong	Deployment, Web-Application	Bug resolved.
LUC-13678	iPump Driver setpoint issue	Device Drivers	iPump driver issue with setpoint association resolved (in regard to value 25).
LUC-14474	Wrong parse order for pH and conductivity	Device Drivers	Bug resolved: parse pH, if it is not pH, then parse conductivity.
LUC-14552	phmeter driver conductivity sometimes with wrong value 1	Device Drivers	Bug resolved.
LUC-15044	Dilution value command sent by HiRes not understood by Cedex analyzer	Device Drivers	Implemented properly formatted command with nn.mmm formated dilution value.
LUC-15206	Sequence 2 does not start while using BioHT	Device Drivers, Numera	Bug resolved.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15330	NumeraProcessor writes incorrect values in ports when having two analytical methods for the same device	Device Drivers, Numera	Bug resolved.
LUC-15397	Numera SEQ2 does not start with s7numera driver version 2.09	Device Drivers, Numera	Bug resolved.
LUC-15398	BioHT driver bug fix (sample rack position is lost in the BioHT software)	Device Drivers, Numera	Bug resolved.
LUC-14868	Provide functionality to interact with manual steps of threads in functions.	Execution Monitor	LUC-14791 provides the ability to the user to interact with manual steps inside functions. Nevertheless, the functions are simple vertical steps chains. If a function has a parallel block and that parallel block includes threads that all wait on manual steps, the user will not be able to interact with manual steps other than the leftmost thread.
LUC-15007	Exec mon crashes if method of sample is removed	Execution Monitor	Bug resolved.
LUC-15012	Closing of ExecMon disrupts running profiles and prevents of removing of profiles	Execution Monitor	Bug resolved.
LUC-15244	Main chain blocked when parallel chains wait for an async function completion.	Execution Monitor	Bug resolved.
LUC-15249	Display waiting time for a function's step	Execution Monitor	Bug resolved.
LUC-15422	ThreadController's index starts from 2	Execution Monitor	Bug resolved.
LUC-14866	UI displays wrong step execution when functions have parallel steps.	Execution Monitor, Operation Tool	Bug resolved.
LUC-14867	UI does not display execution of a function's parallel thread other than the leftmost.	Execution Monitor, Operation Tool	Adapted UI for showing all functions executed in parallel block.
LUC-15731	Graphic Tool crashes when loading data	Execution Monitor, Graphic Tool	Bug resolved.
LUC-14289	Transfer Type cannot be changed automatically	Execution Monitor, Numera	Transfer Type can be changed in Analytical methods.
LUC-14841	Function's probability of completion is random inside a parallel block.	Execution Monitor, Operation Tool	The body of a function may be partially executed (up to random step) when this function is inside a parallel block. – issue resolved.
LUC-15357	GMP_StepLogging does not log all executed steps	Execution Monitor, Operation Tool	Extended logging of executed steps in a running operation.
LUC-14647	Wrong license text for Java in sys directory	General	File sys/licenses/java.txt points to Azul Zulu OpenJDK.
LUC-15568	Accessing a mapped network drive results in endless loop of offline importer	Graphic Tool, System Administration Tool	Bug resolved.
LUC-10155	Media tool crashing on barcode scan when cursor in comment field	Media Tool	Media tool crash resolved.
LUC-13795	Media tool Scanning of Material which is not set as "Lot Ready"	Media Tool	In the media kitchen we want to avoid that Lots can be used which are not flagged as Av (Lot Ready) in the Lot Preparation however we could use the Barcode to get the Material Lot. There was no check against this Lot status, and no warning.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14178	Osmomat transmission failure	Media Tool	Wrong value transmitted from Osmomat to Media Tool - resolved
LUC-14179	Conductivity values not taken	Media Tool	Online data from conductivity meter includes now into lot user is working on.
LUC-14780	Media Tool crashing when receiving pH or Osmo signal	Media Tool	Bug resolved.
LUC-15803	Default Printer not selected in Printer Dialog	Media Tool	Printer Dialog (Media Tool ⟶ Manual Barcode ⟶ Print Label), DropDown list of Printers the selected default printer.
LUC-14441	Spontaneous restart of processes in Win 11	Online Tool	Bug resolved.
LUC-14157	OPC DA must ignore Shakeflask and Incubator reactors	OPC Server	Reactors having their type set to 'Shakeflask' or 'Incubator' excluded from OpcDa configuration.
LUC-14229	Set vector actions missing in audit log	OPC Server	User action of configuring vector values now tracked in audit trail.
LUC-15004	OPC Bridge service repeatedly crashing	OPC Server	Improved performance of OPC bridge service and extended problem checking and logging of issues.
LUC-12550	Continuous calculation mark unchecked after export & import	Operation Tool	If operation is exported and re-imported, the "continuous calculation" mark is now unchanged.
LUC-13164	Comments disappear after Operation import	Operation Tool	Comments are stored in XML exports of operations and are incompatible with importing.
LUC-13518	Operation import obstructed by "&" symbol in description Local Attribute	Operation Tool	Import no longer obstructed of operations containing "&" symbol in attribute descriptions.
LUC-14406	Operation Tool Crashes when user remove the first transition of a step.	Operation Tool	Bug resolved.
LUC-14871	User is prompted to save edits in operation tool, although he didn't edit anything.	Operation Tool	Bug resolved.
LUC-14891	New step chain structures and processing for Operation Tool	Operation Tool	Bug resolved. Attaching two functions. The first function has a manual step to its first thread, and a manual step to its second thread too. The second function has a manual step only to its second thread. Other things being equal and same, the first function will not execute its second thread. The second function will execute both threads.
LUC-14906	XML Export/Import of Functions in Operation tool is not working	Operation Tool	Allowing import/export of functions in operation tool.
LUC-14979	XML Export/Import of Alarms in Operation tool not working properly	Operation Tool	Exported port duplication resolved, reference port names corrected, included alarm limits into export and ports are included in export.
LUC-15061	1 sec delay step propagation when a step waits in the leftmost main chain of the main operation.	Operation Tool	Bug resolved.
LUC-15064	Step does not execute its elements if the previous step has set a function onExit.	Operation Tool	Bug resolved.
LUC-15072	Operation tool not all edits are watched properly	Operation Tool	Improved edit watching. Bug resolved.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-15090	Function of leftmost chain does not complete if the main op executes parallel threads.	Operation Tool	Bug resolved.
LUC-15374	Save and overwrite operation results in DB error	Operation Tool	Bug resolved.
LUC-15376	Operation validity check only works when Reactor is selected	Operation Tool	Validity check can be performed with no Reactor assigned.
LUC-15005	Label mix-up in Analytical Methods	Planning Tool, System Administration Tool	"SysAdmin ⟶ Configure ⟶ Analytical Methods" and "Planning tool ⟶ Define ⟶ Analytical Methods available ports show on the left and selected ports on the right. Updated accordingly the buttons Add and Remove port. Additional typos in tooltips removed.
LUC-14412	Setting string on number ports does not return an error	REST API	When, over REST and a value is specified not matching the configured port data type an error message is displayed.
LUC-14433	Asking for current values return integer type for choices	REST API	When asking for current values of a running process for ports of type "choice" the "datatype" is not set to "integer" anymore.
LUC-14436	Alarm end point return the device twice	REST API	Bug resolved.
LUC-14501	When using the aggregation end point on empty signal an exception is thrown	REST API	Implement a check that returns an error in case a user calls the aggregation end point on an empty signal.
LUC-14817	Alarms not sorted by absolute time	REST API	Fixed by having the alarms sorted by absolute time.
LUC-14835	Mandatory Local parameters breaks the process creation	REST API	Bug resolved.
LUC-15062	Getting a signal from a start Index to end not working	REST API	Bug resolved.
LUC-15443	String signals returns only first line	REST API	Bug resolved.
LUC-15582	Processes search multiple attributes filter is not working	REST API	Filtering by more than one attribute possible.
LUC-14477	Sequential order of aliquots wrong	REST API, Sample Management	Sequential order of aliquots fixed.
LUC-14779	File importer, e.g. FlexII and ViCell, network share access problems	Staging Area	Resolved importdriver/offlineimporter issue with FlexII and ViCell.
LUC-9368	Not all text input fields check maximum input length	System Administration Tool	All fields in System Administration tool check for input length validity.
LUC-13774	Unit conversion cannot be deleted	System Administration Tool	In "Sys Admin Tool" on the "Units" view when a unit is selected the available conversions are shown. In the middle of the unit conversion definition panel the left arrow it is supposed to delete the selected conversion. Now after the "Applying changes" button is clicked and a refresh is performed the unit conversion is not resetting back again.
LUC-13960	Spelling mistake in OPC tool in Sysadmin tool	System Administration Tool	Spelling mistake was corrected in warning message when warning pop-up window is shown from "Counldn't" to "Couldn't"
LUC-14388	Hardware device properties allows multiple time the same key	System Administration Tool	Uniqueness check implemented for Hardware Device property key creation.
LUC-14453	Endless loop in Hardware configuration	System Administration Tool	Warning message for identical hardware keys was shown in endless loop – bug resolved.

KEY	SUMMARY	COMPONENT(S)	DESCRIPTION
LUC-14543	Name field in Analytical Method Parameter edit dialog is too short	System Administration Tool	Increased length limit of the name field in edit dialog to match the limit in the DB.
LUC-14818	PhaseName ID not correct	System Administration Tool	Bug resolved.
LUC-14915	Possible to create user in System Admin tool without any roles	System Administration Tool	Not possible to create users without any roles.
LUC-15400	Continuous logging configuration incorrectly shows reactor long name on init	System Administration Tool	On initial load, and load after saving the changes, reactor short name is displayed.