

Chromeleon 7

Chromatography Data System

Version 7.3.2 MUF

Release Notes

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1 Maintenance updates

Maintenance Updates (MU) are not a full installation of their base software. They only contain files that are updated as a result of defect fixes relating to maintenance updates. However, maintenance updates are cumulative; that is, an MU also includes all the files and defect fixes of previous MUs.

To install a Maintenance Update:

- Ensure that a full base version of Thermo Scientific™ Chromeleon™ is installed.
- Previous Maintenance Updates do not need to be installed first but having them will not cause any issues.

2 Release Notes

These Release Notes list the new features and improvements of the current Maintenance Update release only. For information on extensions and enhancements in previous Chromeleon releases, including previous Maintenance Updates, please refer to the Release Notes of that release.

2.1 Other documentation

The following documents have been updated with this release:

- *List of Supported Instruments - Chromeleon 7.3.2 MUf*
- *Online Help (distributed with this release)*
- *Supported Operating Systems - Chromeleon 7.3.2 MUf*
- *Installation Guide - Chromeleon 7.3.2 MUf*

2.2 Installation

Before you install this Maintenance Update, verify that Chromeleon 7.3.2 is installed. To install this Maintenance Update, run the following program from the distribution media:

Install.exe

2.2.1 Allotrope Exporter

If the optional Allotrope Exporter package has previously been installed, it is also necessary to install the latest version, which is part of a separate installation package. Please contact your local Thermo Fisher Scientific representative for a copy of this.

To install this additional Maintenance Update, run the following program from the Allotrope distribution media:

Install.exe.

2.2.2 Hotfixes

Any previously installed Hotfixes must be removed prior to installing 7.3.2 MUf. The relevant files will be replaced as part of this update. Details of the specific files can be found in the Hotfix Release Notes.

3 What's new in Chromeleon 7.3.2 MUF

This section provides a short overview of all new features of Chromeleon 7.3.2 MUF. For more details, refer to the *Online Help*.

3.1 New and updated Functionality

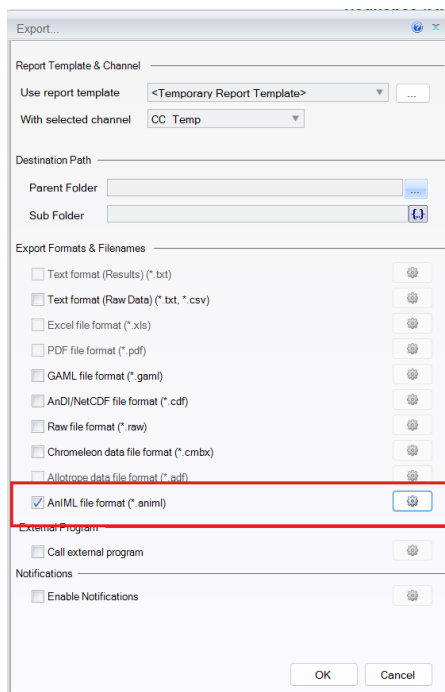
3.1.1 Export to AnIML format [840915]


With this release Chromeleon supports the export of 2D/3D LC, GC and Mass Spectrometry data to the Analytical Information Markup Language (AnIML) data format. AnIML is an open, XML-based format for storing and sharing analytical data in a standardized format.

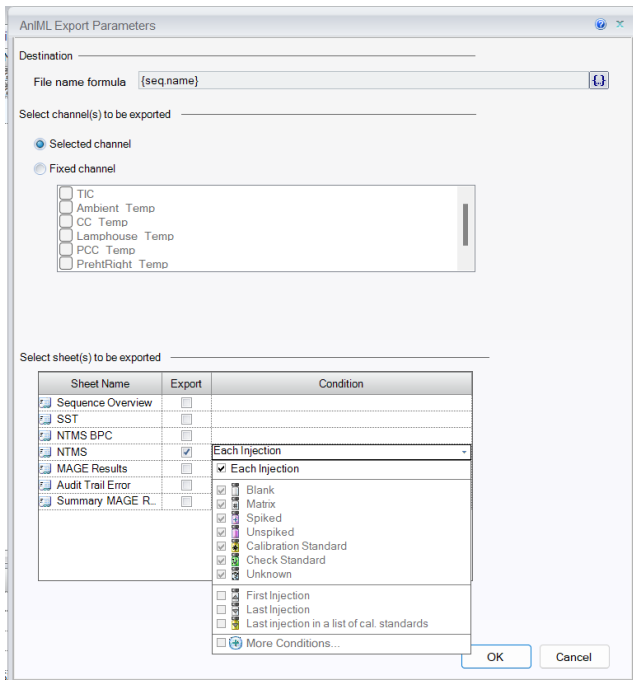
With Chromeleon 7.3.2 MUF the following information is in the generated AnIML file:

- Sequence information
- Peak Table information
- Sample information, method information, spectra and chromatograms
- Report tables (text only - export of charts is not supported)

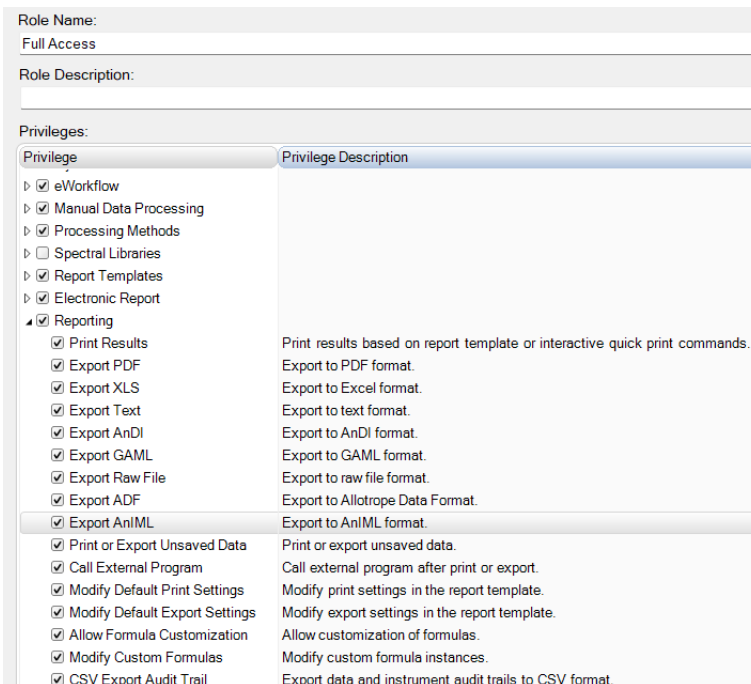
From the Chromeleon Console, the sequence or injection to be exported can be exported via selecting the Export option and then selecting AnIML file format (*.animl) from the available list of export options.



Clicking on the  button opens a dialog box allowing users to configure the AnIML export parameters. Users can define the file name of the output AnIML and select the injection(s) and channel(s) to be exported.



With this release, reporting role-based privileges in the Administration Console have been extended to include a new privilege for exporting data to the AnIML format.



3.1.2 Remote Sequence Acquisition Performance Optimizations [851664]

This release brings performance optimizations and improvements for sequence acquisitions on remote instruments. Uploading MS raw files acquired on remote instruments is now quicker for all acquisitions, but especially for sequences from multi-user data vaults that store raw files in shared folders on separate network drives, resulting in faster acquisition turnaround times.

3.2 Thermo Scientific instrument drivers

3.2.1 Thermo Scientific Vanquish Sample Hub (VH-A91-A) [808670]

This Chromeleon release introduces support for the new Thermo Scientific™ Vanquish™ Sample Hub. The Vanquish Sample Hub extends the sample capacity of the autosampler by nine sample racks for vials/deep well plates or 20 shallow well plates. The sample racks/well plates are transferred by a robotic mover from the shelf storage location into the autosampler carousel and back. The Vanquish Sample Hub provides an autocalibration feature for the alignment of the mover. Its cooling system ensures stable temperature conditions.

3.2.2 Thermo Scientific Vanquish CAD HP (VH-D21-A) and Thermo Scientific Vanquish CAD FP (VF-D21-A) Independent Driver Release [309559]

This Chromeleon release introduces support for the new Thermo Scientific™ Vanquish™ Charged Aerosol Detector P Series. The Vanquish CAD P Series offers several new features including enhanced sensitivity, an integrated 3-position diverter valve, optimized linearization with an updated power function and the introduction of the temperature coupling mode to improve precision and sensitivity for detection and quantitation of semi-volatile analytes.

3.2.3 Thermo Scientific Cindion Combustion/Absorption Module [822689]

The Thermo Scientific™ Cindion™ Combustion/Absorption Module is part of the Cindion Combustion Ion Chromatography (C-IC) System, which combines the Cindion Combustion system with the Thermo Scientific™ Dionex™ Inuvion™ IC system with RFIC or the Thermo Scientific™ Dionex™ Integrion™ HPIC system. The Cindion Combustion Ion Chromatography (C-IC) System allows the analysis of total halogens and sulfur in difficult-to-analyze samples.

3.2.4 Vanquish Autosampler - Driver update [808670]

The Vanquish Autosampler driver has been updated to include the following features:

The Vanquish Autosampler driver now supports vial bottom detection. Vial bottom detection maximizes sample extraction by using sensors to detect the vial bottom before aspiration. This reduces dead volume and ensures that a maximum amount of sample is used.

The Vanquish Autosampler driver now supports wash solvent monitoring for the Thermo Scientific™ Vanquish™ Split Samplers (VH-A10-A, VF-A10-A, VC-A12-A, VC-A12-A). Wash solvent monitoring is off by default and can be enabled via a command. A warning is reported when Vanquish autosamplers run out of liquid.

The Vanquish Autosampler driver has been updated to support Vanquish Binary Pump Synchronization. The Vanquish Binary Pump Synchronization functionality is now available for Vanquish Flex and Vanquish Core systems.

3.2.5 Vanquish Column Compartment - Driver update [456301, 850580]

The Vanquish Column Compartment driver now supports the new Active Pre-heater TQ and Vanquish Low-Dispersion valves 2pos-6port, 1500 bar.

3.2.6 Generic Fraction Collection – Driver update [85378]

The Generic Fraction Collection driver has been updated to support the Custom Channel Evaluation option for fractionation, allowing users to define logical rules to include or exclude detection channels when determining fraction collection. This enhancement provides greater flexibility for LC-MS applications utilizing multiple detection channels. A new category box on the Peak Detection Options page expands when “Custom” is selected to enable rule configuration. The functionality is available for the Thermo Scientific™ Vanquish™ Integral Fraction Collector FT (VF-F20-A) and other collectors that use the Generic Fraction Collection engine.

3.3 New and updated third party instrument drivers

This chapter lists new and updated Third Party Instrument Drivers added to Chromeleon 7.3.2 MUF. For details on supported options, required licenses, installation, and control, refer to the Online Help or the List of Supported Instruments document found on the Chromeleon 7.3.2 MUF installation kit and to the Release Notes of the respective Third-Party Instrument Driver.

3.3.1 Updated drivers

- Shimadzu Driver Package version 4.20:
Shimadzu GC Drivers for Chromeleon 7 (Version 2.50)
- Agilent Drivers for Chromeleon Revision 3.1 Update 1 (ADC 3.1 U1)

3.3.2 New devices and drivers available from third parties

- Evosep Eno HPLC system

3.4 Operating systems

3.4.1 Windows Server 2025 [825763]

With this maintenance update, Windows Server 2025 is now supported. Also see Supported Operating Systems document.

3.4.2 Windows 11 25H2 [825763]

With this maintenance update, Windows 11 25H2 is now supported. Also see Supported Operating Systems document.

4 Resolved issues

This chapter describes the issues that have been resolved with the release of Chromeleon 7.3.2 MUF only. For issues that have been resolved in previous MUs, please refer to the Release Notes for the relevant release.

Other trivial and minor issues may have been resolved but are not mentioned here. If you require information about the status of an issue observed in a Chromeleon 7 release, but which is not listed here, please contact your local Thermo Fisher Scientific representative for more information.

The numbers in the first column of the table below refer to the Thermo Fisher Scientific tracking IDs.

ID	Description
124934	CM7 SDK: Cannot evaluate custom formulas in report tables. Issue is now fixed.
128084	Chromeleon Studio - Report Templates: Calculation of group table report variables in report templates. Issue caused the table variables to show the wrong value when pointing on a column with spreadsheet formulas. Issue is now fixed.
137924	Chromeleon Studio - Electronic Report: Pages may be missing depending upon which user views the report. Issue is now fixed.
152827	Chromeleon Studio - Reporting: The report variable msDet only reports default MS detection settings. Now it can be used to access the component's settings.
164111	Instrument Driver – LCMS TSQ: With a TSQ Altis and TSQ Endura/Quantiva after an upgrade of the instrument driver, sequences were interrupted with an error message: "Configuration mismatch." This has been addressed with the TSQ Series II 4.0 driver.
164965	Chomeleon Studio - Electronic Report: Electronic report not displaying calculated values. When creating an electronic report via the "Electronic Report" category, the electronic report is now created with the correct channel.
195555	Chromeleon Studio – Reporting 2.0: Spreadsheet function TRUNC() in the report designer truncates numbers by their binary coded representation which is not 100% identical to their corresponding decimal representation which is either entered manually or formatted to a certain precision by a corresponding formatting expression. Thus it might happen that the TRUNC() function results in a truncated number which is not the number you would expect when truncating its decimal representation. Example: TRUNC(1,2671; 4) returns 1,2670 instead of the decimal expected 1,2671. Issue is now fixed in Reporting 2.0, but it persists in Reporting 1.0.
202205	Audit Trail Details - Manual Integration: The details of an audit trail record for a manual integration of a chromatogram did not report if the chromatogram had been integrated manually in the previous version, or if the integration was based on detection parameters set within the Processing Method. With CM 7.3.2 MUF the detailed record of a manual chromatogram modification has two new properties: 'Manually Integrated' and 'Manually Assigned', with possible values of 'Yes' and 'No' for the current and the previous version of the chromatogram. It is now possible to see if a chromatogram in a previous version was manually integrated as well as if manual component assignment was part of this change.
206945	Chromeleon Studio - Audit Trail: Message "String too long" displayed in Interactive Results audit trail in Studio. Issue is now fixed.

ID	Description
249777	Chromeleon Online Help - Sequence Statuses and Instrument Operation License: The Help topic describing Sequence statuses previously listed the statuses without explaining how displaying them is affected when the User does not have the "Instrument Operation" license. In that case the User has no access to the Instrument and its Queue, and hence only three basic Sequence statuses can be displayed: New, Incomplete and Run Finished. Further states (like Connecting, Queued, Running, Downloading, Uploading, etc.) depend on accessing the Instrument and its Queue. The Online Help is now updated to clearly differentiate between the basic statuses and the statuses that are available when the "Instrument Operation" license is granted.
263390	Printing - Sheet with scaling factor: Incorrect page numbers are shown in the header. Issue is now fixed.
290654	Chromeleon Studio - Electronic Report: An Electronic Report with a long submit comment (>128 JPN characters) caused issues with the follow error message reported "The electronic report of the injection is corrupted and cannot be read.". Issue is now fixed.
297798	Instrument Driver - Orbitrap Exploris MX: On a system with the Orbitrap Exploris 4.0 SP1 driver installed, it was not possible to modify the instrument configuration of the Orbitrap Exploris MX in the Chromeleon Instrument Configuration Manager. When launching the Chromeleon Instrument Configuration Manager where the configuration was previously created, it stopped responding and closed. This issue has been addressed with Orbitrap Exploris Series driver 4.4.
360184	3rd Party Instrument Driver - Agilent 1290 Infinity II: Connection error issues for 1290 Infinity II after upgrade from Chromeleon 7.2.9 to 7.3.1 MUa (linked with LABMAN software). Issue was fixed in 7.3.2 MUa.
370368	3rd Party Instrument Driver - ADC 2.5 ELSD: The ELSD method parameters as set in the instrument method were not downloaded to the instrument and the injection was executed with the settings present on the ELSD. Additionally, no audit trail entries were written. This issue has been fixed in ADC 3.0.
379007	Orbitrap Exploris: With the Exploris Method Editor, a full scan MS method created in Quan view could result in incorrect scan range settings during method execution. For instance, while a Full scan MS instrument method includes a scan range of m/z 100-500, the instrument executed the acquisition with a range of m/z 100-1000. This has been fixed with Orbitrap Hybrid Series driver 5.1.
403143	Chromeleon Console - Copying sequences with a large number of versions: For sequences located on a datavault with versioning enabled, the copy operation or the creation of a corresponding cmbx-file sometimes failed if the number of versions for the sequence (especially the number of versions for the injections) were high (for example, more than 1000 versions). The error message 'An item with the same key has already been added' was displayed. With Chromeleon 7.3.2 MUf this error has been resolved. However, in some extreme scenarios a System.OutOfMemory error may still be created, as such still preventing the copy operation of such sequences.
411224	Chromeleon Studio - Electronic Report: Electronic Report created with Reporting 2.0 template lost the option to zoom in. Issue is now fixed.
421467	Chromeleon Studio - Reporting 2.0: Exporting template to Excel results in including unselected worksheets as hidden. Issue is now fixed.
435290	Chromeleon Studio - Reporting 2.0: SmartLink/Autorepeat of a Summary Table does not work for MS Components. Issue is now fixed.
436977	Instrument Driver - Vanquish Binary Pump: Using Smart Shutdown or Smart Standby with a Vanquish Binary Pump prevented the system from calculating the eluent consumption for the Queue. This has been corrected.
443632	Chromeleon Studio - Reporting 2.0: SmartLink Button not active if only the Chromatogram and the Interactive results panes are visible in the view setting. Issue was fixed in 7.3.2MUe.

ID	Description
459190	Chromeleon Studio - Reporting 1.0: Difference in updating Report Designer Results between 7.3 and 7.3.2. Issue is now fixed.
463694	Chromeleon Studio - Reporting 2.0: Export to XLSX contains wrong Author information. Author information is now correct.
493071	Instrument Driver - UltiMate 3000 FLD and Vanquish FLD F: For the UltiMate 3000 FLD-3100 and FLD-3400RS and the Vanquish VF-D50-A and VF-D51-A no message is provided in the Audit Trail upon completion (successful or failed) of a calibration/validation.
494180	3rd Party Instrument Driver - ADC 2.5 HDR Cluster: For an Agilent HDR Cluster with two DAD detectors the UV-VIS spectra of a selected peak were shown as an overlay of discrete spectra. This issue has been fixed with ADC 3.1. Now the 3D field is displayed and it is possible to filter on the detected UV-VIS spectra,
494274	Chromeleon Console - Copying Processing Methods: In certain scenarios, most likely when using Fixed Calibration in the processing method of a sequence and having multiple versions of the processing method where Fixed Calibration has been switched on and off multiple times, it could happen that an error message telling 'field was empty' popped up when trying to copy such a sequence or the affected processing method. In this case Chromeleon has been looking for a raw file in used for Fixed Calibration although Fixed Calibration was not enabled at this time. This unnecessary check is now removed. Such sequences can now be copied successfully with CM 7.3.2 MUF again.
495742	Chromeleon Architecture - Discovery: Discovery Information incomplete and outdated after minutes. Discovery server web log file was extended to contain warnings related to time synchronization issues. Time difference threshold defining if the time difference is within the threshold can from now on be configured in the configuration file. Issue was fixed in 7.3.2 MUC.
598736	Chromeleon Studio - Reporting 2.0: Custom Margins form does not show dimensions. Issue is now fixed.
621046	Chromeleon Studio – View settings 2.0: when users clicked elsewhere, the view did not change. Issue is now fixed.
633242	Chromeleon Studio - Reporting 2.0: when conditional formatting is used, text alignment gets corrupted. Issue is now fixed.
651219	Chromeleon Studio - Reporting 2.0: Summary table with custom formula displays n.a. Issue is now fixed.
751412	Instrument Driver - Orbitrap Exploris: Trying to start a run on an MS with an instrument method with 55,000 masses in the inclusion list for the Exploris resulted in an out-of-memory error. This has been fixed with Orbitrap Exploris driver version 4.4.
756529	Chromeleon Console - Audit Trail: If a user A had started a sequence run and a user B had resumed the sequence run after, for example, a stop or abort, user A was reported as the user who started and finished the sequence run. Now the user who resumed the sequence run (user B) is reported as the user who started and finished the sequence run.
758920	Chromeleon Studio - Reporting 2.0: Discrepancy in Report 2.0: Custom Formula in Summary Table Returns 'n.a.' While Correct in Integration Table. Issue is now fixed.

ID	Description
764666	Chromeleon Architecture - Chromeleon 7 Application Processing Service: the Chromeleon 7 Application Processing Service is executing the background processing for MS-Sequences if the MS Processing Compatibility Mode 'Chromeleon 7.3,2 or later' is enabled for the sequence. Yet when the corresponding windows service started it could happen that the connection to the database could not be properly established. For a subsequence processing request the user was notified with the message 'The selected sequence is waiting to be processed on the data processing server. Current position in queue: 1'. The only way to get the processing server running was to restart the corresponding windows services. However, ordinary users may not be allowed to execute a restart of a windows service. With CM 7.3.2 MUf this is not necessary anymore. The Chromeleon 7 Application Processing Service will now recognize the failing connection to the database when the service is started and will retry the connection until the required or pending processing requests can be executed.
766522	Chromeleon Studio - Reporting 2.0: Option Hide & Unhide is disabled when using the CTRL key to select multiple adjacent rows or columns. Issue is now fixed.
766716	Chromeleon Studio - Reporting 2.0: Unable to Redo all changes. Issue is now fixed.
767297	Chromeleon Architecture - Performance, Fixed Calibration & MS Sequences: When activating or updating a fixed calibration in the processing method editor for a MS Sequence it could take several minutes until the fixed calibration update was completed even when using the option to not copy the injection raw files into the processing method. With CM 7.3.2 MUf the time span to activate or update the fixed calibration is now much smaller than before.
767895	Chromeleon Studio - Reporting: Scrolling upwards increments rows upwards, scrolling down also increments rows upwards. Issue is now fixed.
768407	Chromeleon Studio - Reporting 2.0: MS Raw Spectra Table: Increase/decrease number of decimals is not saved when using Reporting 2.0. Issue is now fixed.
773369	Instrument Driver - Orbitrap Exploris Series: The MS Method Editor did not size properly to show its entire content in a terminal session. In particular the right hand side of the Method Editor, e.g., the "Ion Source properties" section, only became visible if the Method Editor window was made very small. This has been fixed with the Orbitrap Exploris Series 4.4 driver.
781839	Chromeleon Studio - Fixed Calibration using Extracted MS-Channels: If new channels have been created for a sequence via extracting the 'Extract MS Channel' command in the navigation area of a Studio Window or a corresponding IRC-Step and a different sequence applied a Fixed Calibration using the first sequence with the extracted MS channels the (fixed) calibration for the extracted MS channels didn't work. Those channels were not copied into the Processing Method of the sequence and/or the corresponding chromatogram results to compute the (fixed) calibration were not copied. This is now fixed with 7.3.2 MUf. Also extracted MS channels can be used for Fixed Calibration.
783189	Instrument Driver - Orbitrap Exploris 120: On an Orbitrap Exploris 120 MS instrument configured with an Orbitrap Exploris Series 4.3 or 4.4 driver, sequence interruptions related to an MS response timeout are seen. A fix has been developed as part of Orbitrap Hybrid Series 5.0 QF-827917. This Quick Fix reduces the frequency of the sequence interruption issue but does not fully address it. Note that it is also important to make sure that the Service Diagnostic Tool is closed after service and troubleshooting tasks. Customers experiencing this issue are invited to contact their local Support in order to obtain the Quick Fix.
787301	Chromeleon Studio - Reporting: Peak results for one Injection are reported for another Injection. Issue is now fixed and incorrect data is no more presented in printouts.

ID	Description
790452	<p>Chromeleon Console - Out of Memory Exception for Sequences with a number of Versions and Audit Trail Records: If the audit trail of a sequence contains a high number of versions, including versions of multiple processing methods or other associated items in the sequence it could happen that certain operations with the sequence (for example, copying the sequence to another location or creating an audit trail report with change details) ran into an Out Of Memory Exception Error. Sometimes in this case Chromeleon becomes nonresponsive or crashed after some time.</p> <p>In Chromeleon 7.3.2 MUF operations with such sequences which need to load all versions, including the ones for associated methods and the corresponding audit trail have been improved to avoid unnecessary memory consumption.</p> <p>Note: This does not mean that an Out of Memory Exception may not happen for such sequences, but with 7.3.2 MUF the probability of this has been reduced.</p>
792972	<p>Instrument Driver - Corona Veo: After logging an error message regarding low gas pressure the Corona Veo driver would log a large number of identical message blocks to the audit trail thereby filling up the instrument audit trail. This in turn would result in an extremely large audit trail which could not be signed or moved using the scheduler.</p> <p>Now, if the system detects that a large number of such warning messages are written to the audit trail at high frequency, no more of these warning messages are written to the audit trail and an error message indicates that no further such warnings messages will be written.</p>
798166	<p>Chromeleon Studio - Tentatively Identified Peaks: When opening the pane 'Tentatively Identified Peaks' for a chromatogram with lots of peaks, especially very small ones, it could happen that an unexpected error 'Index was outside the bounds of the array' appeared in the pane window. This is now fixed with 7.3.2 MUF.</p>
798254	<p>Chromeleon Console - Sequence Table: Replicate ID field not filled with the right values when adding injections - behavior different when compared against Vial position. Issue is now fixed.</p>
804046	<p>Chromeleon Studio - Auto-Dilution: Default Value for injection variable 'Auto-Dilution Ratio' is not working as expected. Issue is now fixed.</p>
807751	<p>Administration Console - User Management: Privileges: Enabling the Deny checkbox for Full Access in the access control list of a data vault role now correctly denies the privilege, preventing users from modifying custom variables.</p>
807845	<p>Chromeleon Console - eWorkflows: When appending samples to a running sequence in Chromeleon 7.3.2, the data in the first appended line reverted to the default values listed in the eWorkflow, rather than retaining the changes made in the launch program of the eWorkflow. This has been resolved and changes are now correctly reflected in the appended injections.</p>
811125	<p>Administration Console - Privileges: Allow user without 'Acquire Sequences Without Approval' to perform manual upload of sequence. Previously this was blocked because user is forbidden any update to sequence in the queue, but we now allow this special case because the sequence isn't in the queue any more by the time it is saved.</p>
813833	<p>Instrument Driver - Vanquish pumps: If the values of the flow, pressure upper limit and/or pressure lower limit were changed on the ePanel and "Tab" was pressed after each change, sometimes two entries were written to the audit trail for one change.</p>
813836	<p>Instrument Driver - Vanquish pumps: It was not possible to change the values of pressure upper limit and pressure lower limit on the ePanel by clicking on the up- and down arrows next to the input field or using the up- and down arrow keys on the keyboard.</p>
813837	<p>Instrument Driver - Vanquish Flex DAD: For the Vanquish Flex DAD (VF-D11-A) the "Slit width" setting was not shown on the ePanel.</p>

ID	Description
816108	Chromeleon Architecture - Licensing: A rare condition was identified in the application of licenses to the Network Failure Protection (NFP) cache on Instrument Controllers (IPCs). This issue intermittently resulted in the Hardware Monitoring Service (HMS) overwriting the Instrument Controller licenses that should be provided by the License Service. Consequently, on network failure, the IPC did not have the cached Instrument Controller license available to continue operations, potentially leading to failed sequence injections. This has been resolved and now on network failure the NFP operation continues as expected and the Instrument Controller licenses are correctly applied and cached which prevents the overwriting of licenses and ensures reliable operation during network failures.
816133	Chromeleon Console - Sequence queue: For a sequence that was interrupted by a hardware error, removing the sequence from the queue after an interruption resulted in data loss of the already completed injections; the status of the already completed injections reverted from "Finished" to "Idle". The root cause of this issue was that it was possible to add an XVault sequence to a sequence queue. This is no longer possible.
816957	Chromeleon Architecture - Discovery: Client unpublished from Chromeleon domain which was previously Regional Proxy Server has data from unpublished domain still accessible. Issue is now fixed.
816965	Chromeleon Studio - Custom definition: It would happen in the custom definition editor that when the 'Definition Path' was left blank, an unhandled exception would occur. Now, a tooltip error message saying "No Definition Path defined" is displayed on the Custom Definition Import/Export dialogue page. Selecting the definition file from the dropdown removes the tooltip error message and enables the Export/Continue button as expected.
817003	Chromeleon Studio - Processing Method Editor, Update XIC Settings: When using the option 'Update Filters for all ions' in the Update XIC Settings dialog the value of the new component property 'Polarity' (Positive or Negative) introduced in Chromeleon 7.3.2 MUE was not used to pick the correct MS-Filter. No matter which polarity is specified in the filter string, the first filter which matched the XIC-Properties 'Precursor' and 'XIC Mass(es) or Range(s)' was always used. This is now changed in 7.3.2 MUF. If the option 'Select best batch from all filters in current injection' is selected, only MS-Filters with the same polarity as specified in the XIC record are used to update the corresponding filter property in the XIC record.
822782	Instrument Driver - Vanquish Charged Aerosol Detector: Random sequence aborts were seen with an abort message "Failed to lock the module for exclusive use". This issue has been fixed.
822784	Instrument Driver - Vanquish Charged Aerosol Detector: Although the detector was unchecked in the SmartShutdown of an Instrument Method, the shutdown was executed. This issue has been fixed.
823555	Administration Console – improved privilege descriptions: Descriptions of privileges related to Read-Only states (Make Folder Read-Only, Remove Folder Read-Only, Make Sequence Read-Only, Remove Sequence Read-Only, Delete Read-Only Sequence) previously mirrored the names of the privileges. This is now improved and the new wordings of these descriptions should provide more clarity about these privileges. Online Help has also been updated accordingly.
826552	Chromeleon Console - Instruments Category: If the Chromeleon Console opened with the Instruments view as the last previously viewed area of the Console, options to create an Instrument Method, a Processing Method or a Report Template were disabled until the User navigated to the Data view. This issue was introduced with Chromeleon 7.3.2 MUE and, but it is now fixed in Chromeleon 7.3.2 MUF.
826879	Chromeleon Studio - Reporting: Queuing multiple sequences (more than 20) at once to the Instrument Sequence queue in the report manager would result in download failure due to excessive memory usage. Issue is now fixed.
826894	Chromeleon Studio – Export: Raw data export to TXT/CSV behaves differently for file renaming/overwriting between reporting 1.0 and 2.0. Issue is now fixed.

ID	Description
827286	Chromeleon Studio - Reporting 2.0: Unable to save a Report 2.0 template when adding Fraction table. Issue is now fixed.
827672	Chromeleon Console – Instrument view: In the Instruments view of the Chromeleon Console, it was not possible to create a Processing method or a Report template when no Instrument was selected, because Chromeleon issued an error. This issue is now fixed, and Processing methods and Report templates can be created even in these circumstances.
828480 823152	<p>Chromeleon Console – Case sensitivity: Chromeleon 7.3.2 MUF fixes two inconsistencies related to case-insensitivity of object names. In both cases, object names were incorrectly evaluated in a case-sensitive manner, thus failing to recognize that an object (of the same type) with a similar name, differing only in letter case, was already present in the same location. This caused an issue in the subsequent case-insensitive steps.</p> <p>In one case, when saving an object under a certain name, this object could overwrite a previously existing object (with a similar name differing only by letter case) without prompting the User for confirmation. This is now fixed, and the User is correctly prompted about overwriting, even if the object names do not match in letter case.</p> <p>Similarly, when object names are automatically appended with "Copy" or incremented to "Copy (2)", "Copy (3)", and so on, Chromeleon could previously fail to identify, due to different letter case, that a copy already exists. Attempting to use this existing name, the subsequent operation resulted in an error. This is now also fixed, and names automatically appended with "Copy" or incremented to "Copy (2)", and so on, are correctly evaluated in a case-insensitive manner, without causing errors.</p>
830385	<p>3rd Party Instrument Driver - Markes driver: Initialized the following method properties in the Chromeleon driver as sequence variables:</p> <p>Airserver 3 channel - On-line Sampling - Channel Airserver 8 channel - On-line Sampling - Channel TD100 - Trap Heat - Tube</p>
835309	Instrument Driver - Orbitrap Hybrid Series: With an Orbitrap Exploris MS while the user was tuning for specific compounds, in the Chromeleon console in the 'Thermo MS Tuning' tab the values in the 'Define Scan' section would randomly switch to different values. This has been fixed in Orbitrap Hybrid Series 5.1.
836216	Instrument Driver - Orbitrap Exploris 240: Using Orbitrap Exploris 240 with a Vanquish Neo occasionally an error message "Fatal error in the first injection in a sequence: Object '/9a946367_6775_403a_817d_2cc2108d24a9/tawm6sw3pfxwblk f7fh889ux_9.rem' has been disconnected or does not exist at the server." was seen. This issue affected the first injection and was observed in certain conditions, such as Run-start Easy IC is active and current Ion Transfer Tube temperature differs substantially from the method used in the injection. This has been fixed in Orbitrap Hybrid Series 5.1.
849804	Instrument Driver - Vanquish FLD: With the Vanquish FLD, error messages sent by the firmware would be displayed in an internal format. While all information was present, the format was hard to interpret, and the text was not localizable.
834532	Chromeleon Console - Console printing: When users selected injections and printed them directly using the print option, the "operator" name in the audit trail was incorrectly recorded as 'Scheduler' instead of the actual logged-in user. This has been resolved, and the audit trail now correctly captures and records the name of the actual logged-in user when printing injections.
834753	Administration Console - Station Audit Logger: In Chromeleon version 7.3.2MUC and onwards, the station audit trail logger would record an error message: ERROR Dionex.Chromeleon.StationAuditLogger.StationAuditLogging - StationAuditLoggingData.bin could not be written. This error prevented the station audit trail logging from functioning due to a failure in serialization.

ID	Description
834845	Chromeleon Console - Sequences: In previous versions of Chromeleon, when a new sequence was created with the New Sequence Wizard or using Save As, and saved into the XVault of a local Instrument, a message informed the User that the sequence was only accessible from the Instrument's Queue. Some users found the message confusing, because they understood that the sequence would be automatically queued. The message is now adjusted to inform the user as follows: <i>"Sequence '...' will only be accessible on the assigned instrument. You can add the sequence to the instrument's queue from its Queue tab."</i>
836577	Chromeleon Console - Instrument Queue: When a new sequence is created with the New Sequence Wizard, or using Save As, and saved into the XVault of a local Instrument, it can later be added to that Instrument's Queue from the Instrument's Queue tab in the Console's Instrument view. In previous versions of Chromeleon, the Object picker that opens when adding sequences to the Queue displayed all sequences assigned to the given Instrument that were present anywhere in the XVault. This potentially included sequences that were downloaded to the XVault for network data acquisition, or sequences that might have been created in random locations of the XVault by some mistake. Adding such sequences to the queue could cause unpredictable issues. In Chromeleon 7.3.2 MUF, this is prevented by limiting the Object Picker such that it allows to add only those sequences that were saved in the XVault from the New Sequence Wizard or by using Save As.
837281	Chromeleon Console - Data Audit Trail: Printer Name removed from audit trail as it is calculated locally for each machine so was showing a current value as a historic value incorrectly.
839844	3rd Party Instrument Driver - Markes Thermo Desorber: An incorrect ready check warning, when RecollectionType was explicitly set to None in the method script has been resolved. Recollection now works as expected when the sequence is set up with injection custom variables as documented in the online help.
841809	Chromeleon Console – Paste object: In the Chromeleon Console, it was previously possible to paste the same object from the clipboard into the same destination multiple times while the first paste operation was still running. After the first paste operation completed correctly, subsequent paste operations resulted in error messages. This issue is now resolved and pasting an object into the same destination more than once is no longer possible.
842134	Chromeleon Console - MS Sequence Run, Data Dependent Acquisition (DDA): When using DDA in instrument methods for MS instruments it could happen that the Chromeleon Console became frozen and unresponsive if the user had opened a corresponding sequence during the run, for example, a sequence with a DDA instrument method. Also trying to open such a running sequence in a studio window did not work.
845877	Chromeleon Studio – Reporting 2.0: Report Templates 2.0 are not working as expected for 'Print Preview' with missing/unticked privilege 'Print Results'. Issue is now fixed.
849104	Chromeleon Console - Large Transfers: When using the Large Transfers feature, all Data Vaults on the same PC share a common transfer queue. However, the Transfers folder of each Data Vault previously listed only transfers outgoing from that specific DV. As a result, a Transfers folder could list the top-priority transfer waiting as number 2, while the ongoing transfer (numbered as 1) was located in a Transfers folder of a different DV, which could be cumbersome in systems with many DVs on the same PC. The issue has now been resolved such that the Transfers folder includes new radio buttons that enable the User to switch between displaying transfers outgoing from the given DV as before (radio button "This Data Vault", the default) and displaying the entire queue of all transfers outgoing from the PC (radio button "This PC"). This makes it easy to understand the state of transfers from any given machine without having to inspect multiple different Data Vaults.
849767	Chromeleon Studio - Reporting 2.0: Exporting sequence data from CM Studio's Report Designer or from CM Console (Report Template 2.0) is limited to 1 export format at the time. Limitation was removed.

ID	Description
850131	Chromeleon Studio - PDF Export: Format of chromatogram copied to MS Word changes after document is exported to PDF. Issue is now fixed.
850829	Chromeleon Console – Client inactivity: If the Client Inactivity settings of the User Database Policies are configured to close the Console, Studio, and Process Analyzer clients after a specified period of user inactivity, checks are in place to prevent closing if there are unsaved changes. Previously, however, the Console could close while copying was in progress, interrupting the copying process. This issue has now been resolved, and the Console will not close due to inactivity if copying is in progress.
852211	Chromeleon Console - Large Transfers: Previously, large transfers could silently overwrite sequences that shared the same name and parent folder as the destination URI of a transfer, if those sequences were created after the transfer was added to the queue. This issue has now been fixed. If a sequence matching the destination URI is created after a transfer with the same destination URI has already been queued, the transfer will now fail. The tooltip will display <i>Destination Occupied</i> as the reason for the failure.
856711	<p>Chromeleon Console – Online Help: Online Help has been enhanced with details related to some basic operations in the Console, namely the following:</p> <ul style="list-style-type: none"> • When deleting an entire folder, in addition to the "<i>Delete Folder</i>" privilege, users must also have the corresponding "<i>Delete [...]</i>" privileges for all child items (including [data item]) in the folder to delete a folder; otherwise, the folder cannot be deleted. • When copying an entire folder, in addition to the "<i>Copy Folder</i>" privilege, users must also have the corresponding "<i>Copy [...]</i>" privileges for all child items (including [data item]) in the folder in order to copy the folder completely; otherwise, the folder itself will be copied, but some or all of its child items might be missing. • Users with the "<i>Move Folder</i>" privilege can relocate an entire folder along with all its child items (such as sequences, processing/instrument methods, and queries), regardless of whether they also have the corresponding "<i>Move [...]</i>" privileges for the individual child items. • You cannot move data objects that are associated items inside a sequence. Standalone objects (in a folder) of the same type can be moved (if they are not locked due to pending changes, for instance), but associated items cannot. • When an instrument method or processing method is assigned to one or more injections, renaming the item prompts the user to specify whether the associated injection references should also be updated. If the references are updated, the entire sequence is marked as having a 'pending change,' and the updates are committed only when the sequence is explicitly saved. However, the item itself is renamed immediately, regardless of whether the references are updated.
858553	Chromeleon Console – Sequences, Read-only: If a sequence is queued or running, it should not be possible to make it read-only, and the same applies to its parent folder, or any ancestor folders. Previously, Chromeleon was not always consistent in this regard, for example, when the sequence was queued for local acquisition, but the Read-Only operation was attempted from a remote Client, or when the Console was closed and re-opened without viewing the sequence such that it might not capture the information about the sequence being queued in the meantime. This issue is now resolved and if a sequence is queued or running, it is no longer possible to make the sequence or any of its ancestor folders read-only.
859386	Chromeleon Architecture - Discovery Web Service: Overflow Exception encountered during update of DiscoveryResources.sqlite. Issue is now fixed.

ID	Description
860879	Chromeleon Console – Sequences, copy: If a sequence is queued or running, it should not be possible to copy it, and the same applies to its parent folder, or any ancestor folders. Previously, Chromeleon was not always consistent in this regard, for example, when the sequence was queued for local acquisition, but the Copy operation was attempted from a remote Client, or when the Console was closed and re-opened without viewing the sequence such that it might not capture the information about the sequence being queued in the meantime. This issue is now resolved and if a sequence is queued or running, it is no longer possible to copy the sequence or any of its ancestor folders.
860160	Chromeleon Architecture - Chromeleon Discovery Setup: Unable to connect to domain with newly created client and subsequently unpublish it. Issue was fixed in 7.3.2MUb.
860284	Service Manager: More than only dependent services are stopped/restarted. Issue was fixed in 7.3.2MUb.
860287	Chromeleon Console - ePanels: Visibility setting is not distributed properly through the domain. Issue was fixed in 7.3.2MUb.
860289	Chromeleon Studio - Reporting: Unable to save certain format functionalities for IPD Component Results Table for Reporting 1.0 and 2.0. Issue was fixed in 7.3.2MUc.
860297	Chromeleon Studio - Reporting 2.0: Some settings in Table Properties of Consolidated Table are missing. Issue was fixed in 7.3.2MUc.
860298	Administration Console – Station Audit Trail: Station Audit Trail records are not visible outside of CM Domain Controller. Issue was fixed in 7.3.2MUd.
860444	Administration Console - Load Balancing and Global Policy FQDN: When using a load balanced multi-user data vault and the option 'Use Full Qualified Domain Names' (FQDN) in the section 'Host Name Resolution' of the Global Policies in the Chromeleon AdminConsole the download of sequences from the data vault failed if the main data vault server could not be connected.
860607	Chromeleon Studio - Reporting 2.0: Report Designer does not show dynamic data. Issue was fixed in 7.3.2MUe.
860608	SDK Test Harness: Unable to create sequence from eWorkflow section. Issue was fixed in 7.3.2MUc.
860609	Chromeleon Studio - Reporting 2.0: Navigating through Injections reports error. Issue was fixed in 7.3.2MUc.
860611	Chromeleon Studio - Reporting 2.0: Unable to save linked reporting 1.0 variable as reporting 2.0 variable. Issue was fixed in 7.3.2MUc.
860612	Chromeleon Studio - Reporting 2.0: Preview of Report template 2.0 fails in case that user is missing Create electronic report privilege. Issue was fixed in 7.3.2MUd.
860613	Chromeleon Studio - Reporting 2.0: Error is shown when saving default reporting templates without any changes. Issue was fixed in 7.3.2MUc.
860614	Chromeleon Studio - Reporting 2.0: Reporting variables are duplicated and not properly converted/positioned when they have position below table. Issue was fixed in 7.3.2MUc.
860615	Chromeleon Studio - Reporting 2.0: Converting Report template from 1.0 to 2.0 results in error. Issue is now fixed.
860616	Chromeleon Studio - Reporting 2.0: Some SmartLink settings are not converted from Reporting 1.0 to 2.0. Issue was fixed in 7.3.2MUd.
860617	Chromeleon Studio - Reporting 2.0: Unexpected error during conversion of MAM template from Reporting 1.0 to Reporting 2.0. Issue was fixed in 7.3.2MUd.
860618	Chromeleon Studio - Reporting 2.0: User receives unexpected exception when trying to create print preview. Issue was fixed in 7.3.2MUd.

ID	Description
860619	Chromeleon Console - Sequences: Clicking Save button while creating a new sequence results in error. Issue is now fixed.
860620	Chromeleon Console - eWorkflows: Unable to use Chromeleon in case that associated items are offline. Issue was fixed in 7.3.2MUe.
860621	Chromeleon Architecture - Discovery: Resource status is not properly updated when services are turned off through Service Manager and PC is assigned to Region. Issue is now fixed.
860847	Chromeleon Architecture - Discovery: Resource status is not properly updated when services are turned off through Services Manager. Issue is now fixed.
860951	Chromeleon Studio - Processing Method: the Evaluation formula in the Processing Method SST/IRC table can no longer be updated without the required privileges.
860952	Chromeleon Studio – Rulesets: The fill down action on the Peak Group(s) column of the Processing Method Component Table can no longer be performed without the appropriate privileges.
860995	Chromeleon Architecture - Sequences: Sequences are now correctly set to read-only for users who do not have the "Acquire Sequences Without Approval" privilege, regardless of whether they are viewed from the IPC, the DataVault machine, or queued in the local XVault.
861171	Chromeleon Studio – Processing Method (MS): if the charge state value for a master peptide was changed from null (empty) to an integer, it could not be reverted back to null. The only accepted values were integers. The charge column for the master peptide is now read-only. However, due to limitations with the component properties dialog, the component properties dialog will still allow users to set the charge and polarity for the master peptide, and a similar state can be reached. It is not possible to conditionally disable the UI based on the selected components.
860114	Chromeleon Studio - Reporting 2.0: Inability to 'double-click' injection selection from interactive results (consolidated, summary, multiple channels) - with strange grouping of initial injections. Issue is now fixed.
861295	Administration Console - Privileged Actions: Removal of Computer in Domain Resources does not request Authorization dialog. Issue is now fixed.
861297	Administration Console - Chromeleon Discovery Setup: Buttons for switching Chromeleon domain not visible due to scaling issues. Issue is now fixed.
861299	Chromeleon Console - Instrument Configuration: Duplicate Baseline Monitor Sequences Created When Using Non-Existent Sequence Name. Issue is now fixed.
861303	Chromeleon Studio - Reporting 2.0: Spreadsheets formulas are not converted from Reporting 1.0 to Reporting 2.0. Issue is now fixed.
864365	Chromeleon Architecture - Instrument Controller: Running a sequences on an Exactive MS for 10 days resulted in the Instrument Controller running out of memory. Measures were implemented to prevent the Instrument Controller from running out of memory.
866300	Queries: Previously, different types of queries had different behavior in terms of the possibility to select all the result rows. The keyboard shortcut Ctrl+A worked only in Instrument Audit Trail Queries, but didn't work in any other query type. Clicking the top-left corner of the results table worked in Injection Queries and in Instrument Audit Trail Queries, but it didn't work in Data Audit Trail Queries and in Admin Audit Trail Queries. In Chromeleon 7.3.2 MUf, this behavior is now harmonized and all types of queries allow selecting all result rows by Ctrl+A, as well as by clicking the top-left corner of the results table.
866932	Chromeleon Studio - Rulesets: When a ruleset that does not allow Peak Group privileges was created and assigned to a logon role, users with this role were able to modify certain fields in the Peak Group table, despite these fields appearing greyed out and disabled. This has been resolved and fields in the Peak Group table are no longer editable when the ruleset does not allow Peak Group privileges.

ID	Description
867689	Chromeleon Console – Rename items: In the Chromeleon Console, when viewing contents of folders or associated items of sequences, it was not possible to rename any item through the context if the <i>Name</i> column had been moved and it was no longer the first column. Only the F2 shortcut worked in this case. This issue is now fixed and items in folders or associated items can be renamed regardless of the position of the <i>Name</i> column.
868036	Chromeleon Console - Sequence queue: Removing the sequence from the queue after an interruption resulted in data loss of the already completed injections; the status of the already completed injections reverted from "Finished" to "Idle". The root cause of this issue was the import of an instrument configuration, which deleted the sequence queue and stopped the replication. In the next step an XVault sequence was added to a sequence queue. This is no longer possible.
868117	Chromeleon Console - Network Data Acquisition: Chromeleon 7.3.2 MUf fixes an issue that sometimes appeared after a sequence was queued to a remote Instrument and downloaded for network data acquisitions. Due to an issue with re-connecting to the Instrument after some downloads, the Instrument might appear as <i>Not Connected</i> and as a consequence, the downloaded Sequence wouldn't appear as <i>Queued</i> , but as <i>New</i> , until the User manually refreshes the view. This issue is now fixed.
868464	Chromeleon Studio - MS Component: The Save button no longer becomes enabled when navigating through XIC components in MS Component properties unless actual changes are made.
870282	Chromeleon Console – Object overwrite with leading/trailing spaces: Chromeleon 7.3.2 MUf fixes the issue of failing to identify a name of an object as occupied if leading or trailing spaces are added. Due to this issue, it was previously possible to overwrite an object by providing its name with leading or trailing spaces as a target for an operation like Copy or Save As (provided that the User had the "Delete" privilege for the given object type). This issue is now fixed and an occupied name will register as such even if leading or trailing spaces are added.
870459	Chromeleon Console – Raw data statistics: Chromeleon 7.3.2 MUf fixes an issue with inconsistency of data in the Raw Data Statistics tab of the Sequence, Folder and Data Vaults when custom raw files are present. Their count and size were always included in the total, but they were not included in the pie chart. For this reason, summing the sizes and counts around the pie chart didn't always match the total figures stated above it. This issue is now fixed such that custom raw files are now also added to the pie chart.

5 Limitations and known issues

The comprehensive list of limitations and known issues affecting Chromeleon 7.3.2 LTS are documented in the Chromeleon 7.3.2 MUa and subsequent MU Release Notes.

New, updated, and recently reported known limitations and issues identified during the development of Chromeleon 7.3.2 MUf version are listed below.

5.1 Limitations with Thermo Scientific instruments

ID	Description
179261	<p>Instrument OQ/PQ: The HPLC Instrument OQ/PQ templates for UltiMate 3000 LPG SD pump instrument methods with an incorrect maximum pressure limit (e.g., 621 bar instead of 620 bar for the UltiMate 3000 LPG-3400SD). The Ready Check does not capture this incorrect pressure limit. While the sequence can be started, the incorrect pressure limit causes a sequence interruption. This has been documented in the "Thermo Scientific Chromeleon Operational Qualification/Performance Qualification for HPLC Instruments Operating Instructions", which needs to be purchased separately from Chromeleon.</p> <p><u>Workaround:</u> (from Chapter 3.10.3 of the HPLC OQ/PQ Operating Instructions) PGM / Instrument methods: The upper pressure limit is set to the value defined in the driver (server configuration). In rare cases, this value can be above the allowed range (due to rounding discrepancies) that results in a ready check error. To solve this issue, do the following:</p> <ol style="list-style-type: none"> 1. Open the server configuration. 2. Open the pump driver. 3. Select the Limit tab. 4. Enter the maximum allowed pressure value and press OK. 5. Create a new set of qualification templates via the Wizard.
454004	<p>Firmware update: Chromeleon does not prevent a firmware update while an acquisition is in progress.</p>
646919	<p>Baseline Monitoring: While baseline monitoring is running it can happen that it suddenly stops with an error message 'The command returned 0 rows when loading data for item The item may have been deleted'. In this case the connection to the corresponding instrument is lost. The IPC or the Instrument Controller Service need to be restarted to successfully reconnect the instrument.</p>
789292	<p>Instrument Drivers - Vanquish VWD: For the Vanquish VWD (VC-D40-A) in rare cases data for the UV-VIS channel are not recorded completely. Trying to open the affected data in the Studio results in an error message "Can't read channel UV_VIS_1 from injection #injection number - Injection name." or "The interpolation requires at least 4 points. But the number of data points is only 1."</p>
823168	<p>MS Systems: For an MS system, if in the "Chromeleon Services manager" the option "Start service on system start" is checked, the system does not connect to the MS with an error message "The device could not be connected (The configuration doesn't belong to the connected mass spectrometer. Please reconfigure the mass spectrometer module)." Selecting the option "Start service on system start" in the "Chromeleon Services manager" results in a timing issue, as the Chromeleon services are started before the MS driver and Chromeleon cannot connect to the MS driver.</p> <p><u>Workaround:</u> For an MS system, do not select the option "Start service on system start" in the "Chromeleon Services manager"</p>

ID	Description
823891	Instrument Drivers - UltiMate 3000 DAD: For the Ultimate 3000 DAD-3000(RS) in rare cases data for the UV-VIS channel are not recorded completely. Trying to open the affected data in the Studio results in an error message "Can't read channel UV_VIS_1 from injection #injection number - Injection name." or "The interpolation requires at least 4 points. But the number of data points is only 1."
854050	Vanquish Variable Wavelength Detector: If the shutter is opened or closed manually (e.g., via ePanel), no firmware download is possible afterwards. The audit trail message is "Error: Cannot start firmware installation. The module is still busy." <u>Workaround:</u> After opening or closing the shutter manually (e.g., via ePanel), disconnect and reconnect the Vanquish VWD before downloading the firmware.
854059	Vanquish Core: Vanquish Core modules require a minimum firmware version 2.01 or 2.02 for pumps, respectively. Please also use firmware version 2.01 (FW version 2.02 for pumps) for any new modules of the Vanquish Flex and Vanquish Horizon series. Vanquish Core modules can be combined with Vanquish Flex and/or Vanquish Horizon modules in one instrument as long as firmware version 2.01 (FW version 2.02 for pumps) or higher is used for all modules. For existing Vanquish Flex and Horizon modules, firmware version 2.01 (FW version 2.02 for pumps) is compatible with the minimum Chromeleon version required to control the instrument (or a higher version of Chromeleon) as stated in the List of Supported Instruments.
857917	Thermo MS drivers: With a Tribrid MS, Stellar MS and TSQ, pressing F1 on the Thermo MS Tuning ePanel to open the online help in some instances results in an error "Unhandled exception: The calling thread cannot access this object because a different thread owns it." and causes Chromeleon to crash. This will be addressed with Orbitrap Tribrid Series driver version 5.0, Stellar Series driver version 1.2 and TSQ Series driver version 5.0.
870251	Vanquish Dual Split Samplers: Wash solvent monitoring is currently not supported for the Vanquish Dual Split Samplers (VH-A40-A, VF-A40-A).
886494	Instrument methods – IC instruments: Instrument Method: Inject Options page: TTL/Relay output list not populated for Relay-Controlled Autosampler configurations in combination with the ICS-6000 (DC, DP, SP), ICS-5000 (DC, DP, SP), ICS-4000, Integrion, and Aquion IC instrument/modules. When creating an instrument method via the Instrument Method wizard or system pages for an instrument configuration using one or several of the modules above, with TTLs and/or Relays configured, but without an autosampler, when using the in the "Trigger Load Operation using" dropdown button is empty, where TTLs and/or Relays should have appeared. <u>Workaround:</u> As a workaround the command "Trigger Load Operation using", including correct TTL/Relay", can be added via the Script Editor in the Instrument Method.

5.2 Limitations with the Waters Driver Pack

ID	Description
N/A	N/A

5.3 Limitations with Agilent ICF

For a general overview regarding the Agilent Instrument Control Framework, please refer to the document *Chromeleon and Agilent ICF – Quick Start Guide.pdf*, found in the

\Documents\ folder of the Chromeleon 7.3.2 installation disk. For Agilent drivers, please refer to Agilent documentation.

ID	Description
279914	GC 6890 & PerkinElmer Turbomatrix: For an Agilent GC 6890 (controlled by the Agilent ICF driver) with a PerkinElmer TurboMatrix 40 Trap, if a wrong vial is placed in the oven, the run and sequence are not stopped. This in turn results in the sequence running continuously. This happens in a situation where single injections are added to a sequence over time and each time a new injection is added to the sequence the queue with the updated sequence is restarted. Also, the incubation time is significantly shorter than the analysis time.
884205	PerkinElmer Clarus 500 GC: For a PerkinElmer Clarus 500 GC on a Windows 11 PC with German regional settings, the unit for the sampler volume on the ePanel is displayed as "Åµl" instead of "µl".

5.4 Limitations with Agilent Drivers for Chromeleon

ID	Description
N/A	N/A

5.5 Limitations with other third-party instruments

ID	Description
763499	PerkinElmer Clarus 580 GC: When selecting column oven mode options 'Ramped flow' or 'Ramped velocity' Chromeleon crashes with an error message "Nullable object must have a value.".
854733	Markes TD: If an instrument configuration includes a Kori-xr, then methods created in Chromeleon versions prior to 7.3.1 will fail a 'Ready Check' when submitted as part of a sequence. <u>Workaround:</u> To resolve this issue, open the method in the method editor and on the script page, delete the command(s) that reference the "KoriTrapHeatingRate".

5.6 Limitations with setup

ID	Description
872555	After installing the Windows 11 24H2 feature update, some systems with an existing Chromeleon installation show corrupted a .NET Framework 3.5 , causing Chromeleon services and tools (e.g. CmDiscoveryService, StationAuditLogger, CM Console) to fail with .NET exceptions (MissingMethodException, TypeLoadException, AccessViolationException). This can break production . The IQ does not report a deviation, but .NET 3.5 reference assemblies may be missing, in particular: C:\Program Files\Reference Assemblies\Microsoft\Framework\v3.0\System.Runtime.Serialization.dll and System.ServiceModel.dll. Workaround: Repair “.NET Framework 3.5 (includes .NET 2.0 and 3.0)” by disabling and then re-enabling the Windows feature (via “Turn Windows features on or off” or equivalent administrative tools).

5.7 Other limitations

ID	Description
174091	<p>Console - Data: It was observed that while a sequence is being added to the instrument sequence queue, there was a very short time slot where its parent folder got renamed while the “adding to queue” operation was in progress. Afterward, the queued sequence got stuck in the instrument sequence queue. It will cause an upload failure at the end of the acquisition using the automatic upload as the original folder name that cannot be resolved anymore and breaks the data transfer link to the central data vault. In addition, the folder name cannot be reverted to resolve the upload failure because the sequence is marked as redirected when it is queued. When the sequence is redirected, it locks the folder to prevent the renaming folder operation.</p> <p>Workaround: To remove the sequence from the queue, a manual move operation needs to be executed.</p>
195555	<p>Chromeleon Studio - Reporting 1.0: Spreadsheet function TRUNC() in the report designer truncates numbers by their binary coded representation which is not 100% identical to their corresponding decimal representation which is either entered manually or formatted to a certain precision by a corresponding formatting expression. Thus it might happen that the TRUNC() function results in a truncated number which is not the number you would expect when truncating its decimal representation. Example: TRUNC(1,2671; 4) returns 1,2670 instead of the decimal expected 1,2671. Issue is a known limitation of Reporting 1.0, but it is fixed in Reporting 2.0.</p>
257813	<p>Chromeleon Studio - Reporting 1.0: Report Designer + Issue with Rounding "away_from_zero".</p> <p><u>Workaround:</u> in Reporting 2.0 this issue is not observed.</p>
262823	<p>Electronic Report contains outdated information, mismatch with Report Designer.</p> <p><u>Three available workarounds:</u></p> <ol style="list-style-type: none"> 1) avoiding the INDIRECT function using the reference directly in a formula 2) change the cell value of the argument for INDIRECT to a formula, for example, AnotherSheet!A123, becomes, ="AnotherSheet!A123" 3) add a "hidden" cell outside of printing area with a formula only to provide the references to further sheets , for example, =AnotherSheet!A1
267233	<p>Chromeleon Console - ePanels: ePanels spontaneously change the background color of Edit Field controls to LightPink and sometimes the Edit Field controls look empty.</p> <p><u>Workaround:</u> Pressing F5 refreshes the console and populates the value in the Edit Field. The following actions were reported to temporarily (for a few days) solve the problem:</p> <ul style="list-style-type: none"> • Type a value in the Edit Field or click inside the Edit Field and then click ESC, and the correct value becomes visible. This must be repeated for every affected Edit Field on the affected ePanel. • Close and re-open Chromeleon.
417332	<p>Chromeleon Studio: Very quick selection of multiple panes in the Data Processing ribbon by the user in the Chromeleon Studio does not remove tabs from different contexts in the ribbon. This doesn't happen if user selects the panes more slowly.</p>

ID	Description
429916	<p>User Roles and application access: If the user has 2 or more roles associated, the user cannot access the data vault properties within Chromeleon Administration Console, these can be only accessed from Chromeleon Console (Data vault properties). Query selection in the Scheduler editor is affected as well. These limitations only apply when using special set of access groups for data vault access control. The limitation will result in the following message: You are not in any of the access groups.</p>
451895	<p>Chromeleon Studio - Reporting 2.0: Spreadsheet functions with a certain stack-level is not working after saving the report template.</p> <p><u>Workaround:</u> Use Intermediate results in separate cells to avoid stack levels above 8.</p>
456264	<p>Chromeleon Console - Data Audit Trail: When a User moves a sequence between folders on a versioned data vault, for example by cutting and pasting, the sequence receives a <i>Moved</i> entry in its Data Audit Trail, and so does the parent folder from which the sequence was moved. In contrast, if the User creates a Scheduler task to move a sequence, then the operation is executed through coping the sequence and deleting the original. As a result, upon completion of this task, the Sequence displays a <i>Copied</i> entry in its Audit Trail, whereas the parent folder, from which the sequence was moved, displays a <i>Deleted</i> entry in its Audit Trail. This issue is resolved in Chromeleon 7.4 and newer. In Chromeleon 7.3.2, this inconsistency of wording between the two move operations remains a known limitation.</p>
633403	<p>Ribbon Customization in the Chromeleon Studio: If the User selects the chromatogram pane and opens the ribbon customization dialog, then after clicking OK, there are unexpected "Insert" controls on the Processing tab of the ribbon (regardless of whether customizations were performed or not). This state is temporary. Close and re-open the Studio to restore the state with a single "Insert" control.</p>
752180	<p>Instrument Configuration Manager: In some instances, the first start of the Instrument Configuration Manager (ICM) is slow (approx.1-2 minutes). A second start of the ICM is much faster.</p>
758318	<p>Chromeleon Studio - Report Designer 1.0: Unable to insert/copy sheet. In case there are too many hidden chromatogram plots contained within the report template, GDI default objects limit per application is reached and an out of memory application crash occurs.</p> <p><u>Workaround:</u> It is possible to increase the GDI objects limit per app on specific PC. For the case of this scenario, increase to 20000 is sufficient. GDI Objects - Win32 apps Microsoft Learn</p>
775543	<p>Instrument Method Run: A user without the privilege "Control Instrument While Queue is Running" cannot confirm a message box from an instrument method. Trying to run an instrument method with the "Message" command in the instrument setup or in the inject preparation stage results in a message box. Trying to confirm this message box with "OK" results in an error message: "The privilege "Control Instrument While Queue Is Running" is missing." and the instrument method run does not continue. The user lacking the privilege "Control Instrument While Queue is Running" can only abort the sequence run.</p>
781555	<p>Chromeleon Console – Sequence run: Occasionally it is observed that changes in a running sequence result in a misleading error message after the last injection finished: "The sequence has been uploaded to the instrument controller and changes cannot be saved." although the sequence was saved.</p>

ID	Description
792566	Sequence of instrument methods shows only layout of the last configured module.
802927	<p>Data Audit Trail: Data Audit Trail does not show changes correctly (cell range references) of an external Report Template when applied to a sequence.</p> <p><u>Workaround:</u></p> <p>Either adjust the sequence so that the report template is stored in the sequence itself or unlink the report template from the sequence, adjust it and apply it back to the sequence.</p>
806972	<p>Wrong Peak Area for Left and Right Integration Limits: When using integration limits for a component (component properties Left/Right Limit) and the corresponding peak in the chromatogram contains rider peaks the area computation is not correct. Instead of just computing the area between the left and right integration limits the computed area is subtracted by the area values of all rider peaks which belong to the main component peak. This can even lead to negative values for such a component peak.</p> <p><u>Workaround:</u></p> <p>When using integration Left/Right limits for a component prevent automatic rider detection by setting the corresponding detection parameter(s) in a way that peaks are not detected as riders, for example, Minimum Rider Ratio = 100.</p>
810249	<p>Instrument Method: In some instances, if an instrument method is modified by creating a virtual channel Chromeleon closes without an error message.</p> <p><u>Workaround:</u></p> <p>Copy the virtual channel step from one instrument method script to another instrument method script using copy/paste. While it is not possible to specify virtual channels in the Instrument Method Wizard, it may be possible to specify virtual channels in the Instrument Method Editor.</p>
827341	<p>Instrument Configuration Manager: If an IPC has a hostname or fully qualified domain name that exceeds 15 characters, the Instrument Configuration Manager will truncate the value at 15 characters. This will cause the DNS check against this value to fail as no DNS records exist for the truncated value.</p> <p><u>Workaround:</u></p> <p>Ensure the computer name/fully qualified domain name is less than 15 characters in length.</p>
851128	<p>Instrument Configuration - Import: Trying to import the configuration *.cmic for a Trace 1600 may result in an object reference exception.</p>
861302	<p>Chromeleon Studio - Reporting 2.0: Using any variable from the formula "Report Template" category always returns "n.a." value.</p>
861307	<p>Chromeleon Studio - Reporting 2.0: Conversion from Reporting 1.0 into 2.0 gives different values when sheet is protected.</p> <p><u>Workaround:</u></p> <p>Unprotect report sheets before converting Report Template (1.0) into Report Template (2.0).</p>

ID	Description
869738	<p>Network Data Acquisition: If Organizational Units are enabled, then it's possible that a User from the <Global> Org. Unit can assign and run a sequence from a Data Vault that is a resource of one Org. Unit on a remote Instrument that is a resource of another Org. Unit. If this sequence is inspected by a different User that doesn't have access to the Instrument, while the Sequence is downloaded to that Instrument, the User sees the Instrument as "Not Connected" and a yellow bar with information "<i>This sequence has been downloaded to the assigned instrument controller, but the downloaded sequence is not accessible.</i>" Upon clicking "Retry loading the downloaded sequence" link, the following message appears: "<i>The downloaded sequence no longer exists on the assigned instrument controller. Click OK to remove redirection for this sequence.</i>" If the User then clicks OK, and saves the changes, the final Upload of the sequence after acquisition finished will fail and Manual Move (performed by a User from the <Global> Org. Unit) will be necessary to recover the acquired data from the Instrument. Since Chromeleon 7.4, this issue is prevented entirely by preventing such removal of sequence redirection. In Chromeleon 7.3.2, this remains a limitation, and <u>Workaround:</u></p> <p>Users are advised to avoid running sequences on Instruments from other Org. Units, and if it is unavoidable, then the "<i>Retry loading the downloaded sequence</i>" link should not be used, in this case.</p>
870824	<p>Locked Injections using Multiple Processing Methods or 'Use recently detected retention times': When using so-called reference components and having multiple processing methods in a sequence or having components where the parameter 'Use recently detected retention times' is enabled locked injections apply an updated component window when the window value for such a component is changed in the processing method. This might change the component assignment for peaks in chromatograms of locked injections.</p>
876282	<p>Chromeleon Architecture - Discovery (Regions): Some TDS5 machines do not report their BIOS and motherboard serial numbers correctly - Chromeleon Discovery treats them as a single machine which causes issues during assignment of these machines into regions (multiple of them are assigned to the same region even if only one of them was requested to be assigned). If you run into this issue, please contact support which can provide you with steps to remediate it.</p>
877726	<p>Fixed Calibration Sequence with multiple Processing Methods: When using fixed calibration with a sequence having calibration injections assigned to different processing methods with a different set of components the processing method editor will show the error message 'Sequence contains no elements' when trying to set or update the fixed calibration injections. When this error message is ignored calibration levels of the processing methods might be updated incorrectly or even removed which can finally result in an incorrect of missing calibration for some components.</p>

6 Backward/Forward compatibility

6.1 Chromeleon Enterprise compatibility between Chromeleon versions

In general, for customers with Enterprise Chromeleon systems, Thermo Fisher Scientific does not recommend connecting clients or IPCs with different versions of Chromeleon into the same Chromeleon Domain.

Features available in newer versions, such as email notification, automated reporting, automated LIMS export, and so on, may not work correctly with data created or acquired on an older client or IPC.

Similarly, if data that was created on a newer version of Chromeleon is accessed from a client running an older version, then the data can be opened, edited, and saved without losing any parameters specific to the newer version. But any new parameters, like data processing enhancements or newer report variables, will not be included in any data processing as they are “invisible” to the older client and may cause results or reports to be generated with different values to those which would be generated on the newer version.

Additional restrictions may also apply. If you have any questions or concerns, please contact your local Chromeleon support channel.

6.2 CMBX file compatibility between Chromeleon versions

CMBX files are used for transferring data and data objects between separate Chromeleon systems.

CMBX files may be considered “forward compatible,” that is, a CMBX file generated by an earlier Chromeleon software release is always readable in newer releases of the software.

However, the reverse is not true. A CMBX file generated by a newer release of Chromeleon software should **NOT** be imported into older releases of the software. CMBX files generated by newer software releases may contain database schema extensions that are unrecognizable in older software releases, causing significant problems or damage to the data vault of the older release.

Additional restrictions may also apply. If you have any questions or concerns, please contact your local Chromeleon support channel.

6.3 Ardia Platform compatibility

This release has been tested for compatibility with Ardia Core version 1.1.1.

7 Legal notices

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7.2 Revision history

Revision	Date	Comment
1.0	Dec 2025	First issue
2.0	Mar 2026	Correction to version number of Shimadzu GC Drivers for Chromeleon 7.