

Chromeleon 7

Chromatography Data System

Version 7.4

Release Notes

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1 Introduction

Chromeleon™ 7.4 is the latest version of the Thermo Scientific™ Chromatography Data System (CDS). Chromeleon delivers superior compliance tools, networking capabilities, instrument control, automation, data processing, and much more, providing the fastest path from samples to results. Building upon market-leading innovations of prior Chromeleon software releases – such as dynamic interactive data displays, an integrated database for rapid data retrieval, and spreadsheet-based reporting – Chromeleon features a modern user interface, comprehensive tools for peak detection, and an innovative workflow management framework, all of which speed up learning, simplify operation, and deliver results with greater efficiency than any other chromatography data system.

This release provides updated and new instrument control for instruments from Thermo Fisher Scientific and third-party manufacturers. Improvements and enhancements have been made in several areas including ease of use, compliance, data reporting, and peptide analysis. Please see below for more details on these and other enhancements in this release.

2 Release Notes

These Release Notes list the new features and improvements of the Feature 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 7.4*
- *Online Help* (distributed with this release)
- *Supported Operating Systems - Chromeleon 7.4*
- *Installation Guide - Chromeleon 7.4*
- *Functional Specifications 7.4*

2.2 Installation

To install this Feature Release, 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 this Feature Release. 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 7.4

This section provides a short overview of all new features of Chromeleon 7.4. For more details, refer to the Chromeleon *Online Help*.

3.1 Thermo Scientific instrument drivers

3.1.1 Thermo Scientific Vanquish Sample Hub (VH-A91-A)

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.

3.1.2 Thermo Scientific Vanquish CAD HP (VH-D21-A) and Thermo Scientific Vanquish CAD FP (VF-D21-A) Independent Driver Release

This Chromeleon release introduces support for the new 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.

3.1.3 Thermo Scientific Cindion Combustion/Absorption Module

The Cindion™ Combustion/Absorption Module is part of the Cindion Combustion Ion Chromatography (C-IC) System, which combines the Cindion Combustion system with the Dionex Inuvion™ IC system with RFIC or the 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.

3.1.4 Vanquish Autosampler - Driver update [456290, 456300, 429814]

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

The Vanquish Autosampler driver now supports vial bottom detection [456290]. Vial bottom detection maximizes sample extraction by using sensors to detect the vial bottom before aspiration. This reduces lost volume and ensures that a maximum amount of sample is used.

The Vanquish Autosampler driver now supports wash solvent monitoring [456300] for the Vanquish Split Samplers (VH-A10-A, VF-A10-A, VC-A12-A, VC-A12-A). Wash solvent monitoring can be enabled via a command. A warning is reported when Vanquish autosampler runs out of liquid.

The Vanquish Autosampler driver has been updated to support Vanquish Binary Pump Synchronization [429814]. The Vanquish Binary Pump Synchronization functionality is now available for Vanquish Flex and Vanquish Core systems.

3.1.5 Vanquish Column Compartment - Driver update [456301]

The Vanquish Column Compartment driver now supports the new Active Pre-heater TQ.

3.1.6 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 Vanquish Integral Fraction Collector FT (VF-F20-A) and other collectors that use the Generic Fraction Collection engine.

3.2 IQ/OQ/PQ

3.2.1 HPLC Instruments IQ

Chromeleon 7.4 provides the same HPLC Instruments IQ tools as Chromeleon 7.3.2, namely HPLC Instruments IQ version 5.7. For details, please refer to the document \Documents\HPLC Instruments IQ V.5.7 - Release Notes.pdf on the Chromeleon CDS disk.

3.2.2 HPLC Instruments OQ/PQ

Chromeleon 7.4 provides the same HPLC Instruments OQ/PQ tools as Chromeleon 7.3.2, namely OQ/PQ version 9.10. HPLC OQ/PQ version 9.10 adds a carryover and collection test for Vanquish Fraction Collector, a check for the Delay Volume Determination test in the OQ wizard and an updated VFC_OQ_PQ_Report template. For details, please refer to the document \Documents\OQ PQ V.9.10 - Release Notes.pdf on the Chromeleon CDS disk.

Note: The Release Notes for Chromeleon 7.3.2 erroneously reported the version of the HPLC OQ/PQ tools as version 9.9.

Note: Vanquish drivers released as Independent Driver Releases may update the HPLC Instruments IQ tools and/or HPLC Instruments OQ/PQ tools.

3.3 New and updated third party instrument drivers

This chapter lists new and updated Third Party Instrument Drivers added to Chromeleon 7.4. 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 7.4 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)
- Shimadzu Driver Package version 4.20:
Shimadzu LC Drivers for Chromeleon 7 (Version 3.21)

- Agilent Drivers for Chromeleon version 3.1 (ADC 3.1)

3.3.2 New device and drivers available from third parties

- Advanced Electrophoresis Solutions CEInfinite Capillary Electrophoresis (CE) System
- Bio-Techne ProteinSimple Maurice CE Capillary Electrophoresis (CE) System
- Elysia Raytest GABI Nova Radio-detector
- Elysia Raytest POMO Nova Radio-detector
- Evosep Eno HPLC system
- VUV Analytics LUMA Vacuum Ultraviolet Detector

3.4 Removed Thermo Scientific instrument drivers

This chapter lists Thermo Scientific Instrument Drivers removed from the Chromeleon 7.4 distribution.

- Accela PDA
- Dionex Summit ASI-100 Autosampler
- Dionex Summit Gina 50 Autosampler
- Dionex Summit P680 Pump
- Dionex Summit TCC-100 Column Thermostat
- Dionex Summit UVD170U UV-VIS Detector
- Dionex Summit UVD340U PDA
- SpectraSYSTEM AS3000/AS3500 Autosampler
- SpectraSYSTEM FL2000 FL Detector
- SpectraSYSTEM P2000 Pump
- SpectraSYSTEM P4000 Pump
- SpectraSYSTEM UV1000 Detector
- SpectraSYSTEM UV2000/UVIS205 Detector
- SpectraSYSTEM UV3000 Detector
- SpectraSYSTEM UV6000 Detector
- Surveyor Plus PDA
- Surveyor Plus Pump
- Surveyor UV/VIS / Surveyor UV/VIS Plus

3.5 Removed third party instrument drivers

This chapter lists Third Party Instrument Drivers removed from the Chromeleon 7.4 distribution.

- Agilent LC-ICF Drivers
- Agilent CE-ICF Drivers

- CTC PAL Sampler for GC
- CTC PAL Sampler for LC
- Showa Denko Shodex RI-101/102/104 RI Detector

Note: With few exceptions the Agilent modules are supported by Agilent Drivers for Chromeleon version 3.1 (ADC 3.1). The exceptions are:

- G1364A - 1100 Series Automatic Fraction Collector
- G1364B - 1260 Infinity Fraction Collector
- G1364C - 1260 Infinity Fraction Collector
- G1364D - 1100 Series Micro Fraction Collector
- G1364E - 1260 Infinity II Preparative Fraction Collector
- G1364F - 1260 Infinity II Analytical Fraction Collector
- G4218A - 1260 Infinity Evaporative Light Scattering Detector
- G5664A - 1260 Infinity Bio-inert Fraction Collector AS
- G5664B - 1260 Infinity II Bio-inert Fraction Collector
- G7159B - 1290 Infinity II Preparative Open-Bed Fraction Collector
- G7166A - 1260 Infinity II Preparative Valve-Based Collector

Note: The Agilent LC-ICF and Agilent CE-ICF drivers are still available on the Chromeleon 7.4 installation media under /Packages. If there is a need to control the Agilent modules mentioned above which are not supported by Agilent Drivers for Chromeleon version 3.1 (ADC 3.1), the Agilent LC-ICF Drivers and Agilent CE-ICF Drivers can be manually installed. Please be aware that these drivers were removed to address Corporate Information Security findings and that if you choose to install these drivers, you do so at your own risk.

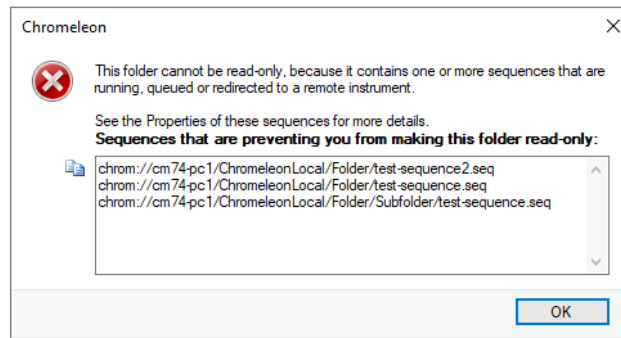
3.6 Chromeleon Console

3.6.1 Simplified Taking Over Control of Instruments [322254]

Previously, if a Client attempted to control an Instrument while another Client had control, an error message would appear, requiring users to manually navigate back to the Instrument's ePanel and click the Take Control button. Now, there is an improved dialog that informs the user that the Instrument is currently controlled by another user and asks if they want to take over control. Users thus can take control immediately without additional steps.

3.6.2 Improving support for making folders read-only [829349]

Making folders read-only is crucial to prevent any future modifications to their content. However, this action may be restricted if there are objects locked for pending changes or sequences that are running, queued, or redirected to a remote instrument. The process of resolving such issues has been enhanced with a more informative dialog. When a user is informed that the read-only operation is not possible, the dialog now includes a list of all problematic sequences. This list can be copied to the clipboard for easier cleanup before attempting to make the folder read-only again.



3.7 Administration and auditing

3.7.1 Global Policy – ‘Remove Idle Injection’ [117022]

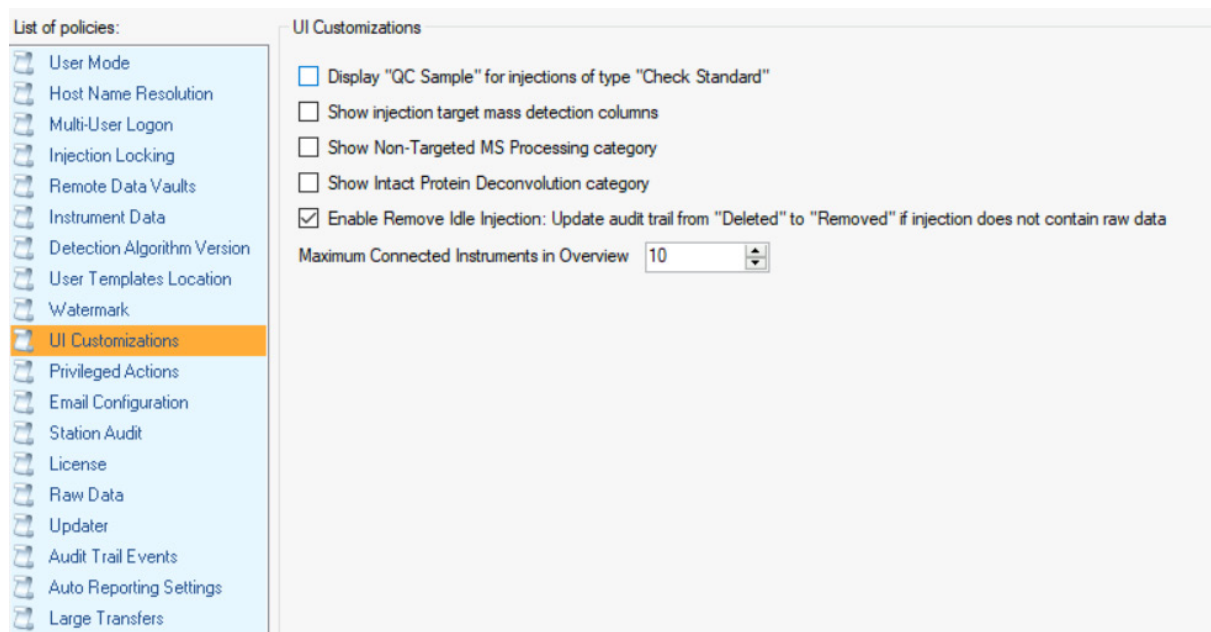
This release introduces a new Global Policy related to updating the audit trail entry for injections that have been deleted from the injection sequence and do not contain raw data to “Removed Idle Injection” with the comment “No raw data contained”.

Enable Remove Idle Injection: Update audit trail from “Deleted” to “Removed” if injection does not contain raw data.

This policy is found in the UI Customizations of the Admin Console (Global Policies > UI Customizations).

By default, this option is unchecked, in which case deleting an Idle injection from a sequence is logged in the data audit trail as a “Deleted Injection” operation with the comment “No raw data contained”.

If this option is enabled, then deleting an Idle injection from a sequence will be logged in the data audit trail as a “Removed Idle Injection” operation with the comment “No raw data contained”.



If the Global Policy; Enable Remove Idle Injection: Update audit trail from “Deleted” to “Removed” if injection does not contain raw data, is enabled, then deleting an Idle injection

from a sequence will be logged in the data audit trail as a “Removed Idle Injection” operation with the comment “No raw data contained”.

#	Name	Type	Version	Date / Time	Operator	Role	Operation	Comment
21	Test Data	Sequence	15	7/11/2024 3:34:08 PM +00:00	cmadmin	Full Access	Removed Idle Injection	No raw data contained
20	Test Data	Sequence	14	7/11/2024 3:28:52 PM +00:00	cmadmin	Full Access	Removed Idle Injection	No raw data contained
19	Test Data	Sequence	13	7/11/2024 3:28:47 PM +00:00	cmadmin	Full Access	Created Injection	

The updates described are defined as a User Interface update, by changing the Global Policy: Enable Remove Idle Injection, all previous entries will be affected that exist within a specific Chromeleon Domain for which this policy is applied.

If such a change is not wanted for previous data, the segregation of this data may need to be considered by the use of Organizational Units (OU). Here, Data Vaults and the overarching Global Policies can be defined within their own OU and therefore negate the application of a policy update.

3.7.2 Privilege – ‘Remove Idle Injection’ [421432]

This release introduces a new privilege related to deleting/removing idle injections:

Delete idle injections

This privilege is granted by default to all existing Roles. Users with this privilege can delete/remove an injection with status 'Idle' from a sequence.

Privilege	Privilege Description
<input checked="" type="checkbox"/> Instrument Configuration	
<input checked="" type="checkbox"/> ePanel	
<input checked="" type="checkbox"/> Instrument Method	
<input checked="" type="checkbox"/> Daily Instrument Audit Trails	
<input checked="" type="checkbox"/> Instrument Control	
<input checked="" type="checkbox"/> Data Vault Basics	
<input checked="" type="checkbox"/> Folders	
<input checked="" type="checkbox"/> Injection Queries	
<input checked="" type="checkbox"/> Audit Trail Queries	
<input checked="" type="checkbox"/> Sequences	
<input checked="" type="checkbox"/> Injections	
<input checked="" type="checkbox"/> Copy Injection	Copy individual injections including data.
<input checked="" type="checkbox"/> Add New Injection	Add new injections to a sequence at the end or between injections that have not run yet.
<input checked="" type="checkbox"/> Insert New Injection Bet...	Insert new injections into a sequence between finished or interrupted injections.
<input checked="" type="checkbox"/> Modify Finished or Interr...	Modify fields of finished or interrupted injections.
<input checked="" type="checkbox"/> Change Status of Injeci...	Change status of injections with raw data including deletion of raw data if reset to idle.
<input checked="" type="checkbox"/> Manually Create or Delet...	Modify a finished or interrupted injection if the only change was to manually create or delete channels.
<input checked="" type="checkbox"/> Delete Finished or Interr...	Delete finished or interrupted injections including the respective raw data and audit trails.
<input checked="" type="checkbox"/> Delete Idle Injections	Delete/Remove Idle Injections
<input checked="" type="checkbox"/> Delete Individual Chann...	Delete or overwrite raw data channel/audit trails for all injections of a complete sequence.
<input checked="" type="checkbox"/> Lock Injections	Lock injections.
<input checked="" type="checkbox"/> Unlock Injections	Unlock injections.
<input checked="" type="checkbox"/> eWorkflow	
<input checked="" type="checkbox"/> Manual Data Processing	
<input checked="" type="checkbox"/> Processing Methods	

3.7.3 Administration Console – Domain Resources [441653, 602912, 744849]

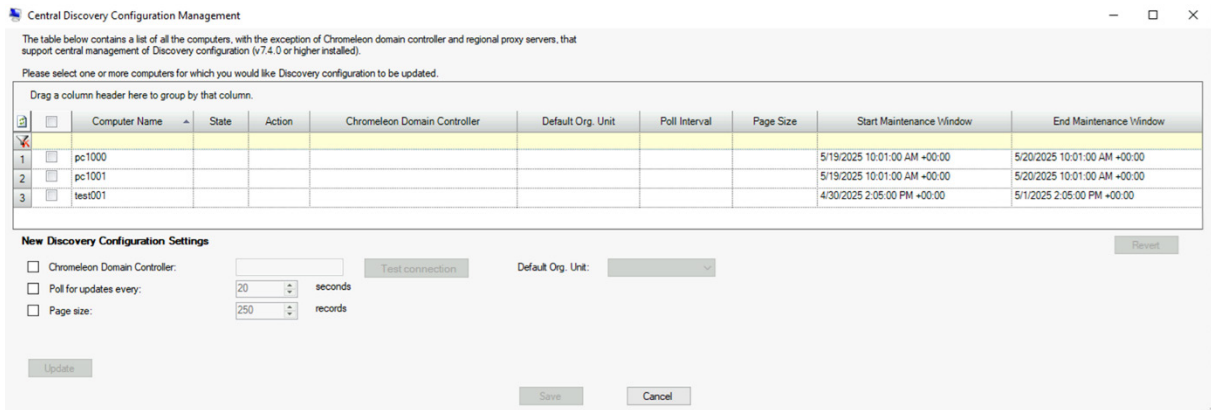
3.7.3.1 Central Discovery Configuration management [441653]

Central Discovery Configuration Management (CDCM) is a new Chromeleon Administration Console feature that allows users manage Discovery configuration of all computers in their Chromeleon domain from one place in bulk.

- CDCM can be open from the top menu:

Installation and Maintenance > Central Discovery Configuration Management

- Access to this feature is granted only to users having the following privilege:
Administration > Manage Discovery Configuration Centrally



3.7.3.2 New column in the grid "Time difference" [602912]

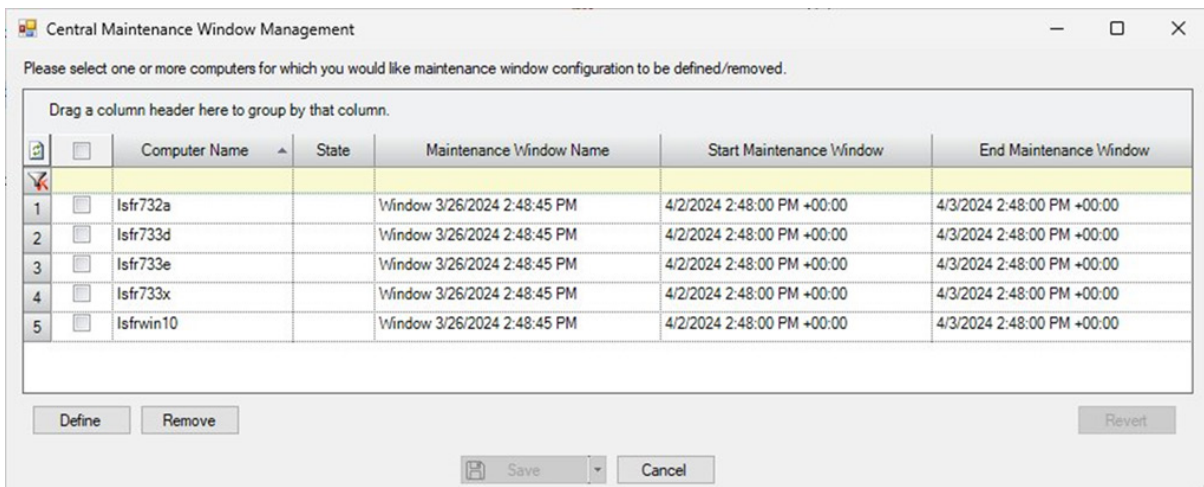
New column labeled as "Time difference" was added into the grid of Domain Resources > Computers category.

For each of the computers listed in the grid, it is now possible to observe the time difference in their set time compared to the set time on the Chromeleon Domain controller. This makes it easier to detect incorrect time and troubleshoot issues related to it.

3.7.3.3 Central Maintenance Window management [744849]

Central Maintenance Window Management (CMWM) is a new Chromeleon Administration Console feature that allows users manage Maintenance Window configuration of all computers in their Chromeleon domain from one place in bulk.

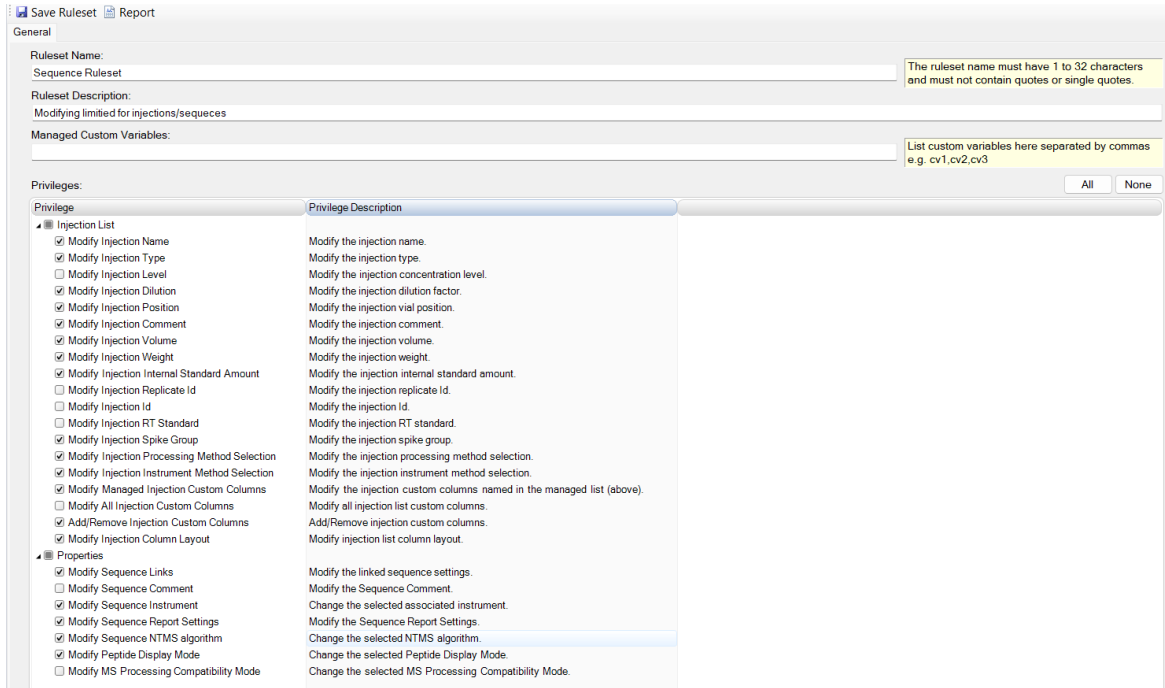
- CMWM can be accessed from: the top menu: Installation and Maintenance > Maintenance Window > Central Maintenance Window Management
- the context menu: Set Maintenance Window - if multiple computers have been selected



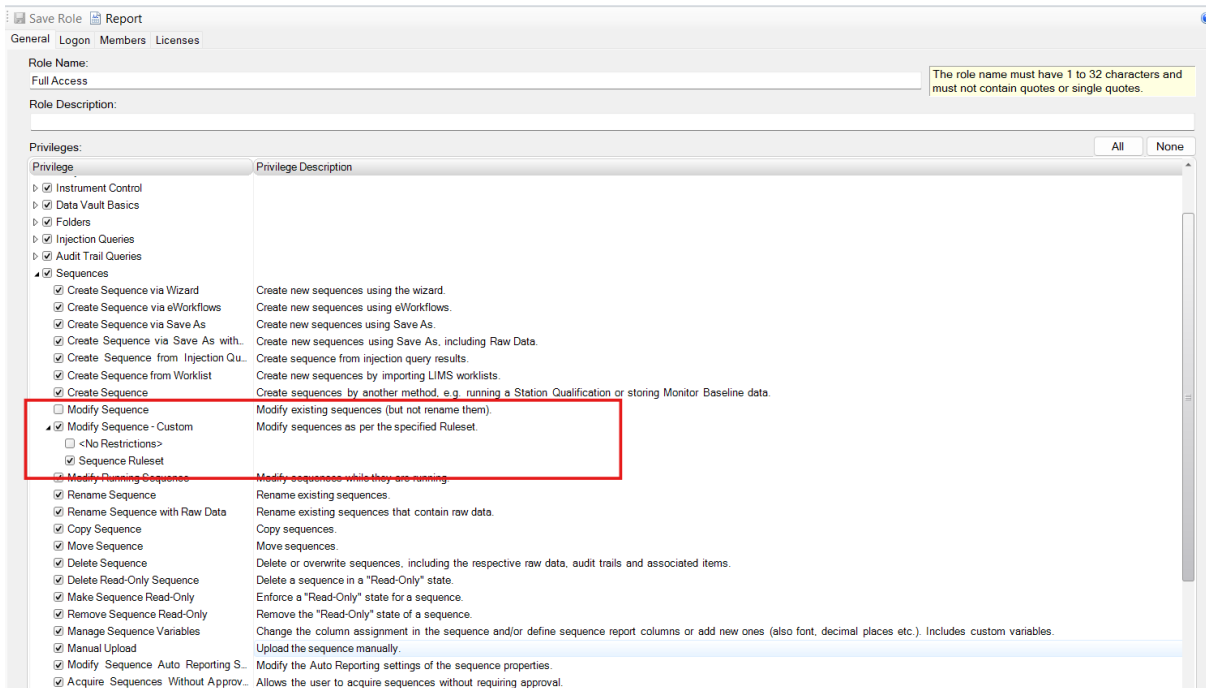
3.7.4 Granular Sequence/Injection privileges [281925]

With this release support has been added to restrict editing of specific portions of the sequence and injection list.

The support is implemented by means of a Ruleset, which is defined in the User Database section of the Admin Console.



The ruleset is then applied to a role using a new privilege, as shown in the following figure. Only one of the two Modify Sequence privileges listed can be enabled at any one time.



3.7.5 License Manager Updates [417769 and 816617]

3.7.5.1 *Waters Instrument Control Add on License [417769]*

This release introduces an instrument controller license for Waters instrumentation running in a Chromeleon environment. In addition to an Instrument Class 3 license, a corresponding Waters Instrument Control Add On license is required for control and signal acquisition of Waters chromatographic instrumentation operating in a Chromeleon environment. For previous Chromeleon versions, the Waters Instrument Add On license is visible, but not required for acquisition.

Note: When upgrading to Chromeleon 7.4 from previous versions, ensure to request a Waters Instrument Control Add-on license for every Waters instrument purchased before 28 May 2021. Please consult with your local sales representative.

3.7.5.2 *High resolution MS Acquisition License [816617]*

This release also introduces an instrument controller license specifically for High-Resolution Mass Spectrometry (HRMS) instrumentation operating within a Chromeleon 7.4 enterprise environment.

To facilitate control and signal acquisition of HRMS instruments in a Chromeleon enterprise environment, users will now require a High-Resolution MS Acquisition License in addition to an Instrument Class 1 license.

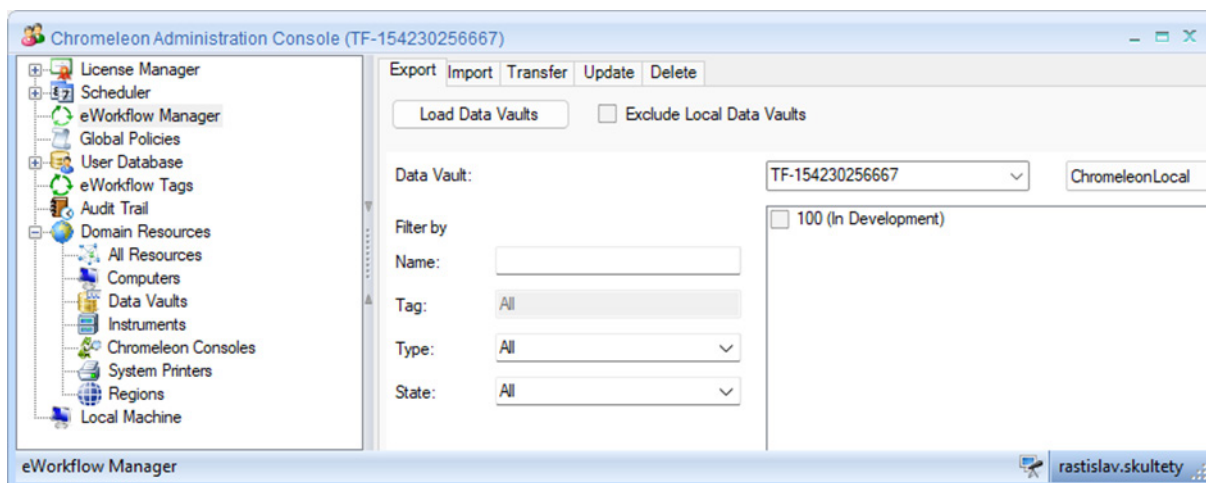
Note: When upgrading to Chromeleon 7.4 from previous versions, ensure to request a High-Resolution MS Acquisition license for every high-resolution mass spectrometer in your upgrade installation. Please consult with your local sales representative.

3.7.6 Bulk management of eWorkflows: eWorkflow Manager [604152]

eWorkflow Manager is a new feature in Chromeleon Administration Console that allows for comfortable management of eWorkflows by introducing possibility to perform the following bulk actions:

- export eWorkflow(s) to EWFx file
- import of eWorkflow(s) from EWFx file
- transfer of eWorkflow(s) between Data Vaults
- update of eWorkflow settings (Sequence General, Associated Items Links)
- deletion of eWorkflow(s)

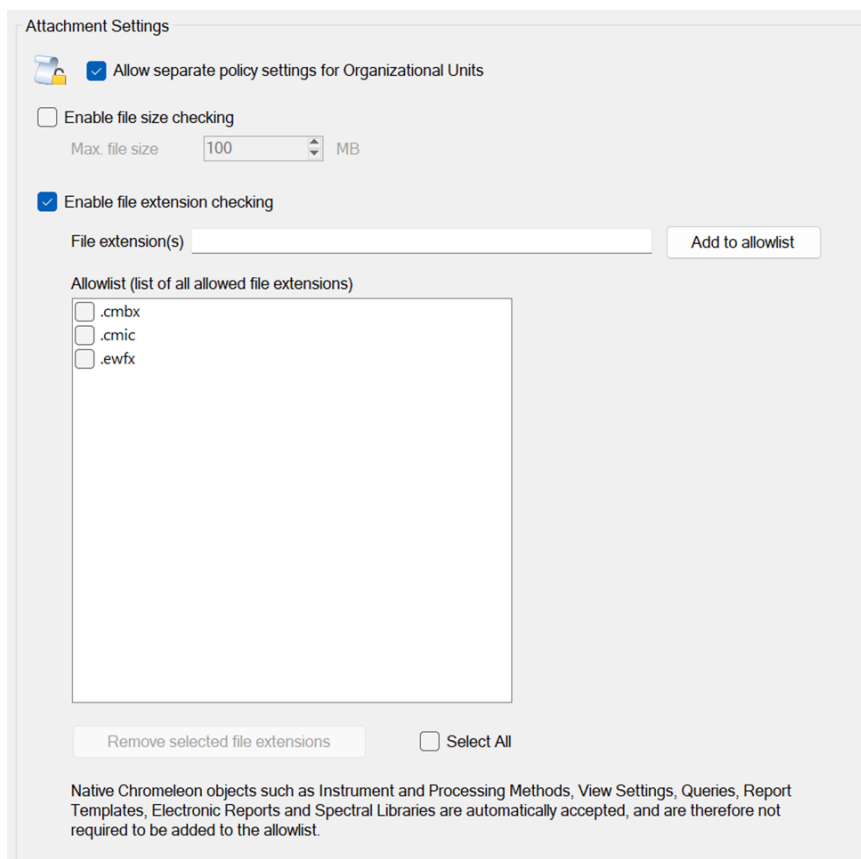
For user to access eWorkflow Manager, "Manage eWorkflows privilege" is required.



3.7.7 Attachment Security [787516]

This new feature introduces control over which files, based on their file extension and file size, can be uploaded, imported, renamed and executed in folders, sequences and eWorkflows in Chromeleon Console.

Please note that by default, this feature is turned OFF, it can be turned ON in the Chromeleon Administration Console via the new Global Policy: Attachment Settings.

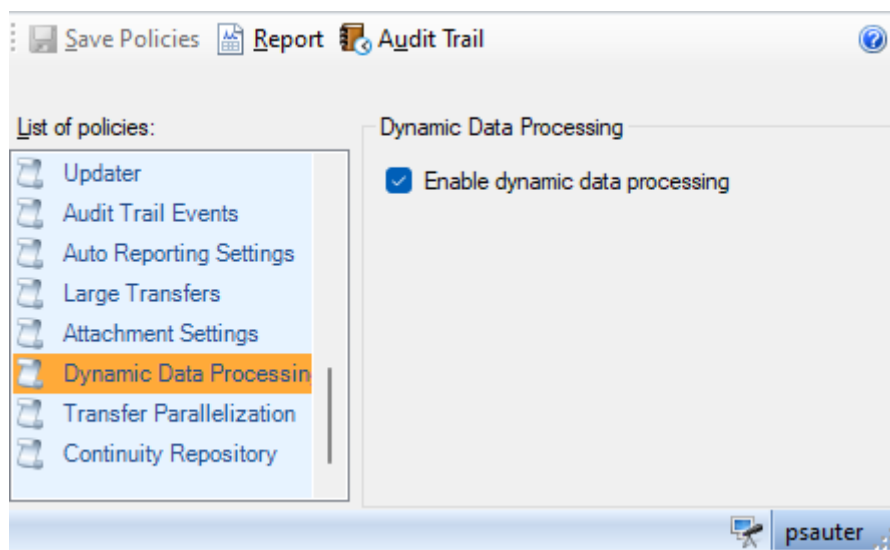


3.7.8 Global Policy to enable/disable Dynamic Data Processing [90550]

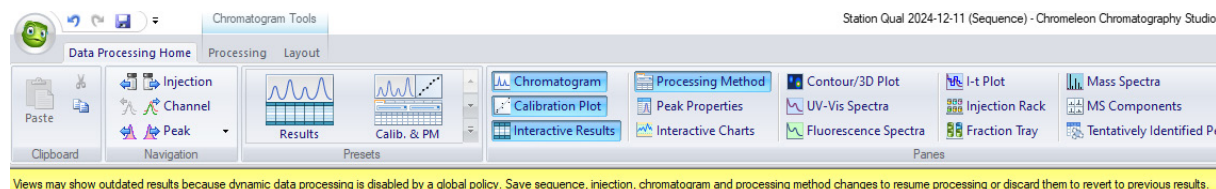
Up to Chromeleon 7.4 the so-called Dynamic Data Processing has been always enabled. Dynamic Data Processing means that users who change some processing parameters in a studio window will see the impact on chromatogram dependent results in any area of the

studio window (navigation area, graphical plot panes, interactive results, report designer) automatically even without saving the corresponding changes.

With Chromeleon 7.4 a new global policy option 'Enable Dynamic Data Processing' is introduced which controls whether Dynamic Data Processing is applied or not.



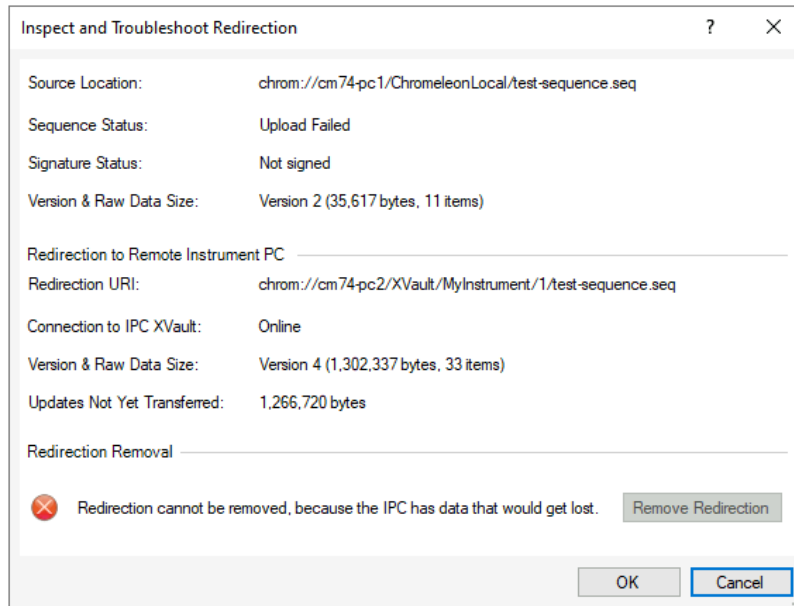
If the new option is enabled (default) you will see the same behavior as before in a studio window. If the option is disabled any change of processing parameters which has an impact on chromatogram dependent results will trigger that such results are either reported as n.a. or not reported at all. As soon as the changes are saved Chromeleon will automatically update the corresponding results. A yellow notification bar in the studio window will tell users about this scenario.



3.7.9 Manual removal of sequence redirection [325855]

Sporadically, sequences can contain information about redirection to a remote instrument because of recovering data from acquisitions that encountered issues. Such situations are rare, but in the past, they could be particularly troublesome to resolve. Chromeleon 7.4 now introduces a new mechanism that helps in these cases by allowing manual removal of sequence redirection – provided that strict conditions are met.

In Chromeleon 7.4, the Locks tab of Sequence Properties does not only inform the User about the redirection URI, but it also includes a new Inspect and Troubleshoot button. This displays a new dialog with a summary of key properties of the original sequence and the data present at the redirection URI, as well as a conclusion whether the redirection can or cannot be safely removed. If the conditions are evaluated as favorable, and the User has the Remove Sequence Redirection privilege, the redirection can be removed by clicking the Remove Redirection button:



In addition to the above, the Locks tab of folders has also been enhanced, such that now it informs the user about the number of redirected sequences present (at any depth) inside the folder. There is also a new View list button, which displays a new dialog listing all the redirected sequences and their respective Inspect and Troubleshoot buttons. This enables the Inspect and Troubleshoot dialogs for any redirected sequences of a folder from a single place, without having to inspect the Properties of each sequence individually.

3.7.10 Chromeleon NFP: Business Continuity Repository [385315]

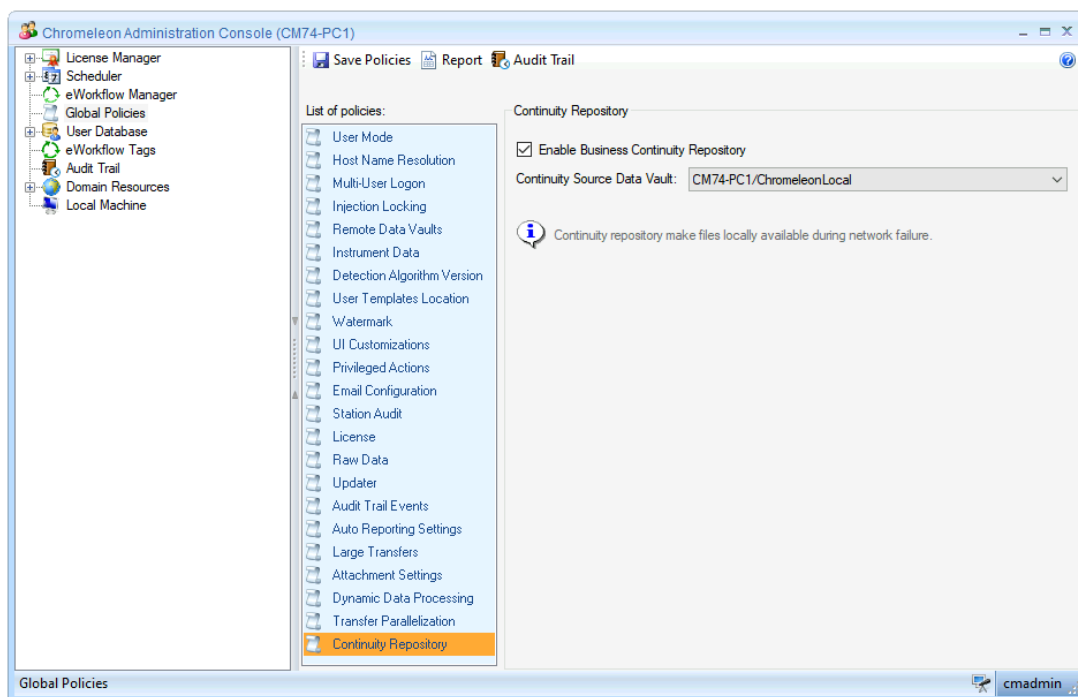
Chromeleon 7.4 introduces the Business Continuity Repository feature, which enhances Chromeleon's Network Failure Protection (NFP) mechanisms by allowing users to distribute local copies of selected items throughout the Chromeleon domain.

In Chromeleon 7.4, the following items can be added to the Continuity Repository:

- Instrument methods
- Processing methods
- Report templates
- View settings

3.7.10.1 Enabling the feature

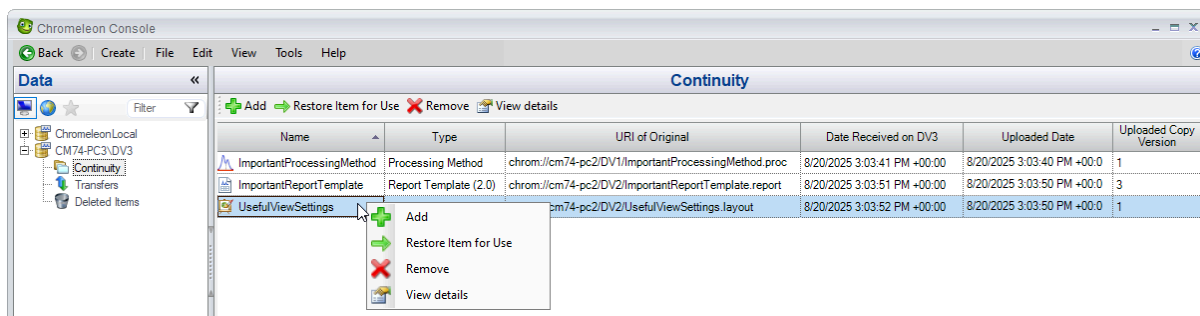
For the purposes of this feature, each data vault includes a special folder called Continuity, where the continuity items are stored. When the feature is enabled through the dedicated Global Policy, one data vault must be designated as the Continuity Source (the purpose of which is explained below):



Note: When a data vault is selected as the Continuity Source Data Vault, it cannot be dismantled, renamed, and its PC cannot be removed from the domain. A different data vault must be selected as the source first.

3.7.10.2 User interface – Continuity controls and operations

When the feature has been enabled, operations with continuity items are initiated through the dedicated controls located in the user interface of the new Continuity view inside the Console's work area, which is similar to a regular folder view, but has a special toolbar and a special context menu:



Chromeleon 7.4 provides the following operations in the Continuity user interface:

- **Add:** Opens the object browser to select item or items to add to the repository. The selected items are first copied into the source Continuity folder. Subsequently, over a period of time, corresponding continuity copies are automatically created and distributed to all other Continuity folders in the domain.
- **Remove:** Removes the selected item or items from the repository. Items are first removed from the source Continuity folder. Subsequently, over a period of time, the corresponding continuity copies are automatically deleted from all the other Continuity folders.
- **Restore Item for Use:** Continuity copies that are in the Continuity folders cannot be modified or used in sequences. To do that, items must be restored for use outside of a

Continuity folder using the *Restore Item for Use* option. This is only allowed if the original item is unavailable (for example, during network failure events), otherwise it is advised to use the original item instead.

- **View details:** Opens the *Continuity Details* dialog box, which lists all the data vaults, and indicates whether the selected item has already been copied into the given data vault or not.

3.7.10.3 Privileges required for Continuity operations

If the User mode is enabled, availability of operations in Continuity folders is controlled by the new, dedicated Continuity privileges:

- **View Continuity:** A user without this privilege cannot view contents of any Continuity folder (and thus cannot perform any operation).
- **Manage Continuity Items:** A user without this privilege cannot add or remove items to the repository (that is, interact with the source Continuity folder). Note that adding items to the repository also requires the corresponding Copy... privilege and removing items from the repository also requires the corresponding Delete... privilege (for example, to add or to remove processing methods, the Copy Processing Method privilege and the Delete Processing Method privilege are required)
- **Restore Items for Use:** A user without this privilege cannot restore continuity items into usable objects. Note that restoring items also requires the corresponding Copy... privilege and in case it involves and overwrite of an existing item, it also requires the corresponding Delete... privilege.

3.7.10.4 Support of Organizational Units

If Org. Units are enabled, the following applies:

- The Continuity repository is common for the entire Chromeleon domain. If Org. Units are enabled, the Continuity Source must be in Org. Unit *<Global>*, such that it is visible for all users.
- For roles from Org. Unit *<Global>*, the Continuity folders display all items in the repository, and the *Continuity details* dialog displays all data vaults in the domain.
- For roles from Org. Units other than *<Global>*, a User inspecting a Continuity folder can see only those items that are copies of objects that have originals on data vaults that are also visible to the user in the Data Tree. That is, original items residing in data vaults in the user's Org. Unit or in Org. Unit *<Global>*. Similarly, the *Continuity details* dialog lists only those data vaults that the User can see in the Data Tree.

3.7.10.5 Current limitations

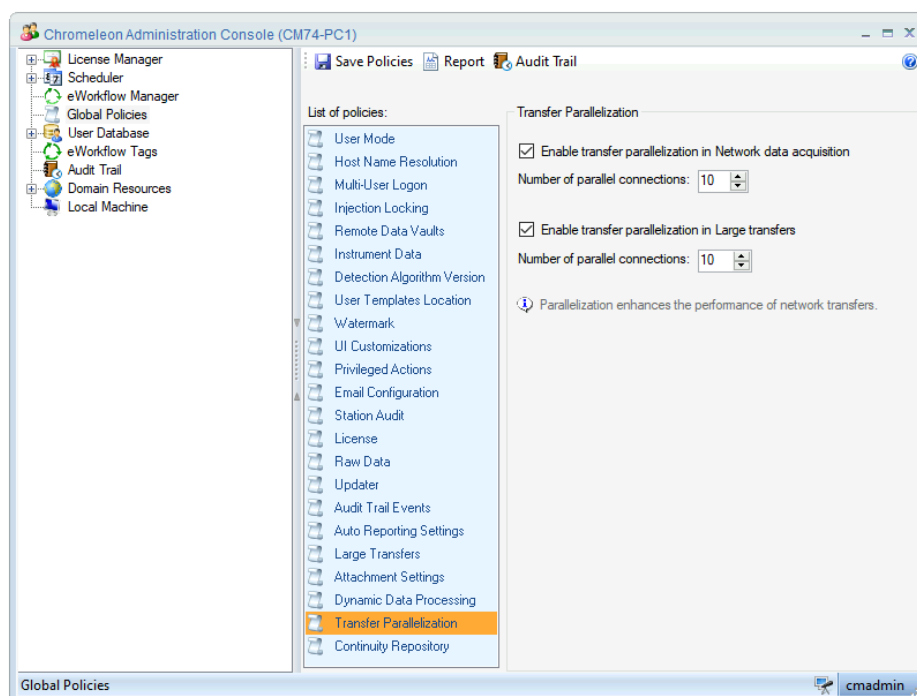
Note the following limitations of the feature in Chromeleon 7.4:

- As in regular folders, Continuity cannot contain two items with the same name. When adding multiple items, all of them must have names that do not match the names of items already present in the repository, otherwise the operation is cancelled.

- After an item is added into the Continuity repository, it is not automatically updated to newer versions if the original changes. To have a newer version of the item in the repository, it is necessary to remove the old version and add the new version manually.
- Items in the Continuity repository have currently no access control mechanisms other than privileges and the support of Org. Units described above. If an item is added into Continuity from a folder with access control, the continuity copies do not bear the same access control as its original parent folder.

3.7.11 Transfer Parallelization [775334, 775354]

Chromeleon 7.4 introduces the possibility to speed up data transfers – provided that there is unused bandwidth – by sending data through multiple connections in parallel. This option is currently introduced for the Large Transfers feature and for uploading MS raw files during remote sequence acquisitions. Both types of transfer parallelization can be enabled through the dedicated Global Policy in the Admin Console:



Under ideal conditions, doubling the number of parallel connections might double the transfer speed, provided that network upload and download capabilities are not exhausted and the transfer is not bottlenecked by other factors, such as memory usage, disk operations, and database operations. Also bear in mind that parallelization incurs several increased costs, such as load on the processor, memory usage, network traffic, and number of open connections. For networks on which data transfers are susceptible to data corruption, the incidence of corruption might increase when transfers are parallelized.

The global settings can be configured independently for each Org. Unit independently, if these are enabled. For the parallelization of uploading MS raw files during remote sequence acquisitions, the global settings can be locally overridden per IPC in the local ServiceHost64.exe.config file. For more details, see Chromeleon Online Help.

3.8 Data Processing and Reporting

3.8.1 New report objects [321398, 332002, 350988]

With this release, we added support for the following report objects into Reporting 2.0 (they already exist in Reporting 1.0):

- Report Plots: Injection Rack View, Fraction Tray View
- Report Tables: Fraction, System Suitability IRC, Tube, Raw Data Table

Note: Raw Data Table is only available within Reporting 2.0

3.8.2 Support of other missing functionality [819722]

The following missing features are now supported in Reporting 2.0:

- General Charts: Modify data series collection
- Trend lines: via option: "Trend Line" in Statistics section of the Layout Ribbon
- Context menu item: "Insert" for inserting a new report object to Reporting sheet
- Context menu item: "Delete Sheet" for deletion of Reporting sheet from the bottom bar

3.8.3 Check for Errors Manager in Report Designer [390395]

With this release, Check for Errors Manager can be launched from the Report Designer ribbon and supports now also Report Template 2.0 / View Settings 2.0.

3.8.4 Custom Formulas Manager in Report Designer [390324]

With this release, Custom Formulas Manager can be launched from the Report Designer ribbon and supports now also Report Template 2.0 / View Settings 2.0.

3.8.5 Reference Component Columns [133510]

In this release the Processing Method Editor in the Component Table grid has been changed to support the usage and editing of reference components in an improved and more efficient way. Instead of having a single retention time column where the relative retention time (absolute or relative distance) to a reference component is encoded (for example **<Ref.Component Name> @ -0.075 [min]**) you will now see 3 separate columns (**Ret.Time**, **Ref.Comp.**, and **Dist.Ref.Comp**) which can be edited independently.

Component Table							
Group Area							
Drag a column header here to group by that column. Run Component Table Wizard...							
#	Name	Ret.Time ▲	Ref.Comp.	Dist.Ref.Comp.	Window	Cal.Type	Eval.Type
1	Nicotinamid	2.100	Pyridoxine HCl	-0.900 [min]	0.100 AF	Lin	Area
2	Thiamine nitrate	2.555	Pyridoxine HCl	-0.445 [min]	0.195 AF	Lin	Area
3	Pyridoxine HCl	3.000			0.100 AF	Lin	Area
4	Calcium pantothenate	4.200	Pyridoxine HCl	140.000 [%]	0.100 AF	Lin	Area
5	Folic acid	6.300	Pyridoxine HCl	210.000 [%]	0.100 AF	Lin	Area
6	Riboflavin	7.600			0.100 AF	Lin	Area
*							

- **Retention Time (Ref.Time):** This column contains always the absolute expected retention time. When updating this value for a reference component the retention time values for all components which refer to the reference component are automatically updated accordingly. The relative retention time (Column 'Dist.Ref.Comp.') stays as it is.
- **Reference Component (Ref.Comp.):** In this new column the reference component is shown. The corresponding cell is empty and read-only for the reference component itself. For other components you can select the reference component via a corresponding combo-box selection.
- **Distance Reference Component (Dist.Ref.Comp.):** This new column contains the relative retention time (Absolute in [min] or relative in [%]) relative to the selected reference component. If the component is not referring to a reference component the column is empty and read-only. Changing the (relative retention time) value in this cell will automatically change the corresponding absolute retention time value and vice versa.

As the reference component is now present in a single separate column you can apply the Fill Column operation for a whole list of components. So far you had to open the component properties dialog and select the reference component for all these components separately.

The new columns (Ref.Comp. and Dist.Ref.Comp.) appear only in the component table grid if at least one component is marked as a reference component.

There are also 4 new report variables in the report category Component which refer to the usage of relative retention times with reference components:

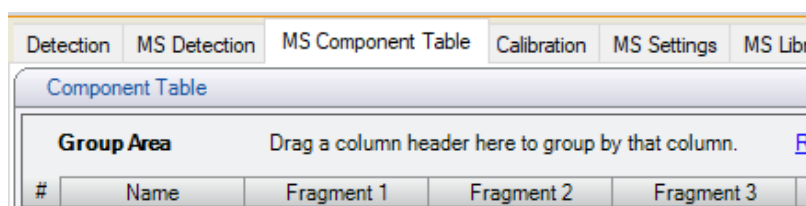
- **component.refComponent:** for components which is linked to a reference component this report variable shows the name of it. It's empty for the reference component itself or for components not referring to reference components.
- **component.isRefComponent:** reports TRUE or FALSE whether the component is a reference component or not
- **component.distRefComponent:** reports the cell value of the new column Dist.Ref.Comp. in the component table grid of the Processing Method Editor.
- **component.requiresRefPeak:** reports TRUE or FALSE whether the property 'Requires Reference Peak' is enabled or not. This component property is not visible in the component table grid in the Processing Method Editor. It can be changed only in the properties dialog of a component (property page 'Retention').

3.8.6 Support for Fragments in Chromeleon [650651, 769370]

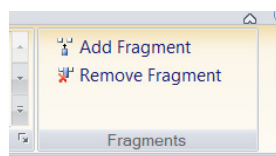
3.8.6.1 Fragments support in the MS Component table

With this release, the data processing model for Chromeleon has been extended. Chromeleon 7.4 introduces support for fragments for a given component that has MSⁿ fragment data associated with it within the MS Component table of the processing method.

Each MS component can contain multiple MSⁿ fragments if fragmentation data has been acquired or imported (via CSV or XML). Each fragment is defined by a precursor mass, product mass, polarity, and filter settings. By enabling the "fragments" column in the MS Component table, users display a column for each fragment within a component (maximum of 10 fragments can be displayed in the MS components table), with each fragment displayed as an individual column.



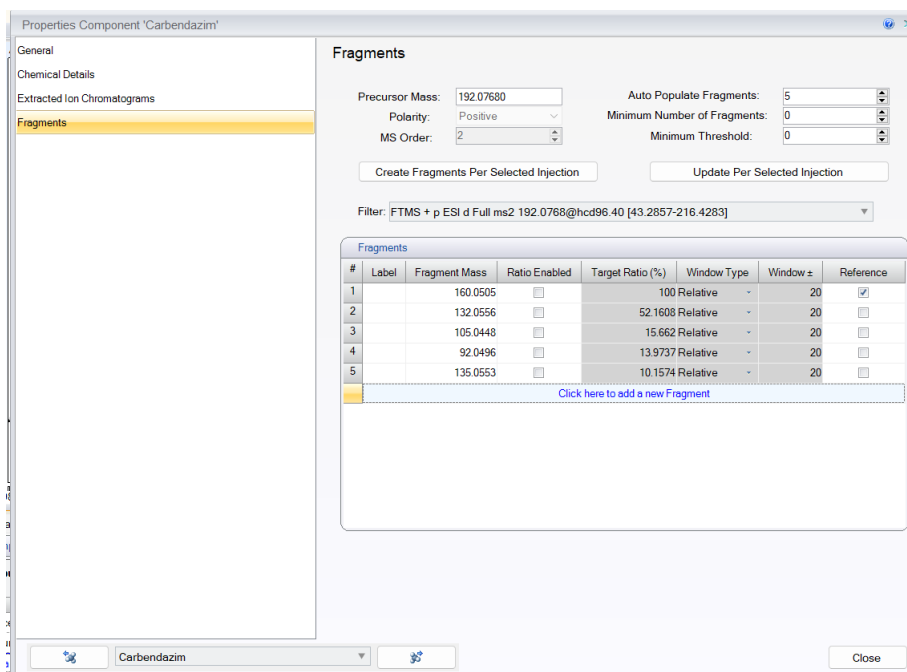
Users can add or remove a fragment column from the MS Component table through the processing method tab of the ribbon UI. This will only be enabled if the fragments column is visible in the MS Component table.



If a user selects the "Remove Fragment" button a confirmation dialog is displayed, selecting yes will remove the fragment.

3.8.6.2 Fragments in the Components Properties pane

A new components property page has been added to allow users to view and edit fragments for a given component. The fragments table allows for the creation, viewing, and setting of data that is relevant for fragments of a given component. A new fragment can be added by clicking the row at the bottom of the table. The values that are related to the fragment can also be set by editing the values in the table.



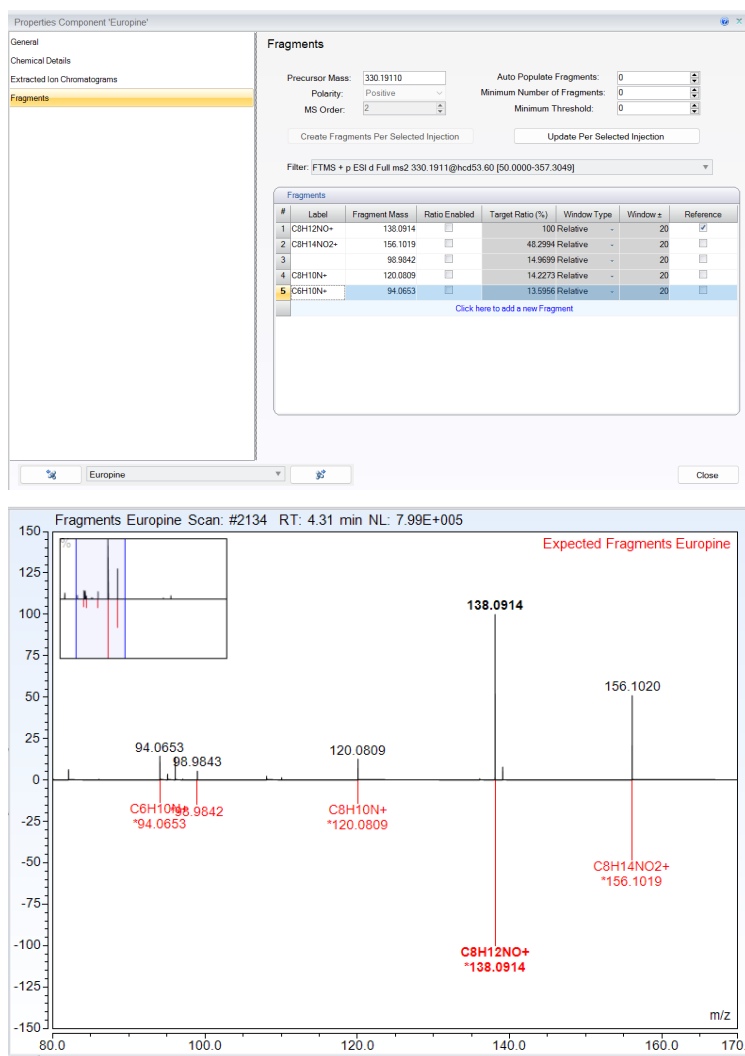
The "Create Fragments Per Selected Injection" button is enabled when the "Auto Populate Fragments" value is above 0. Clicking this button populates the fragments table with the specified number of fragments based on the most intense fragments in the raw data. The peak ratios for each fragment are then calculated based on the reference fragment selected.

The "Update Per Selected Injection" button updates peak ratios using the current list of defined fragments. It searches the raw data for the corresponding intensities of the defined fragment masses and calculates the peak ratios. Note that this does not update the reference fragment to the most intense fragment.

If the reference fragment is changed, the peak ratios of the fragments are automatically updated based on the current ratios. The reference fragments ratio is set to 100%, and the ratios of the other fragments are adjusted accordingly.

Filter selection is based on the precursor mass, the MS order, the polarity and the mass tolerance settings of the precursor mass specified in the MS Settings tab of the processing method. The filter uses these attributes to limit the available filters for selection to the user. Once a filter has been selected the Polarity and MS Order become read-only. These fields will become editable again if there is no filter selected in the dropdown.

The fragments table in the fragments pane also supports custom labelling of fragments. Labels can be added as free text in the fragments table; this is then reflected in the Mass Fragments pane of that component.






3.8.6.3 MS Fragments pane

As already mentioned in the previous section 3.9.3.2 a new graphical pane called 'Mass Fragments' is available in Data Processing category of the Studio Window. A corresponding Mass Fragment Plot object is also available in the Report Designer for Report Templates 1.0 and 2.0.

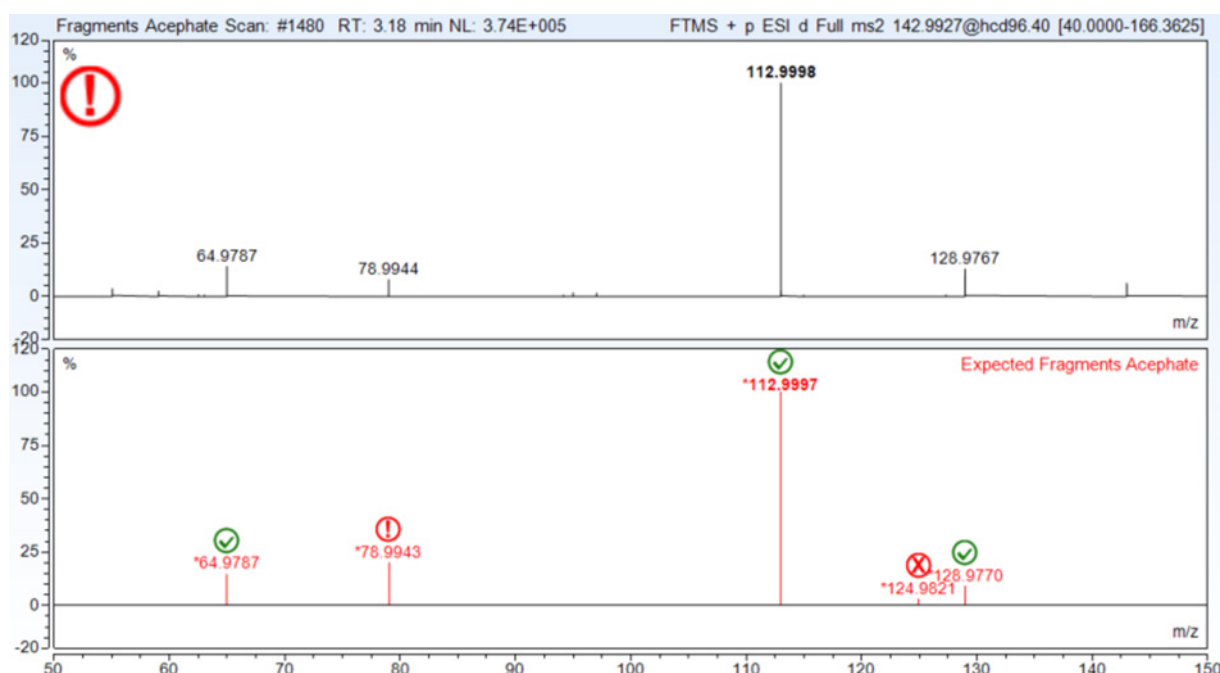
The new pane (plot object) is derived from the Mass Spectra Plot but is automatically using and applying the properties of the component fragment record.

- The m/z-range of the spectrum plot is automatically zoomed into the m/z-range of the components fragment record.
- The expected fragment mass peaks are drawn with a separate color (default: red) and labeled with the Label property of the corresponding fragment record. The expected fragment mass prefixed with an asterisk (*).
- All comparison options of the mass spectra plot (Stacked, Overlay, Mirror Signal) are available.
- 2 label options (Show individual scoring results, Show overall scoring results) provide specific result icons either in the upper left / right corner of the spectrum plot frame (overall) and/or above / below the expected peak mass labels. If you hover over the icons

with the mouse cursor you will see a corresponding text explaining the corresponding scoring / confirmation results. The following icons are possible for the individual scoring / confirmation. For the scoring / confirmation checks mentioned in the description below see also the report variable Fragment Confirmation Results in section 3.8.6.4.3:

-  - All checks for the peak fragment spectrum are passed
-  - The mass peak for the fragment is detected in the peak fragment spectrum but some of the confirmation checks failed.
-  - The mass peak for the fragment is not detected in the peak fragment spectrum.

The following figure shows an example of how the mass fragment plot may look like incl. individual and overall scoring result icons:



3.8.6.4 Fragment Report Variables

The new fragment feature with all the new properties in the component record and scoring / confirmation results are reflected via corresponding report variables in various report categories.

3.8.6.4.1 Report category 'Component'

There is a new report variable called 'Fragment Spectrum Settings' (Formula component.fragmentSpectrum) in the Component report category which leads to a corresponding sub ordered new report category called component.fragmentSpectrum. This new report category allows you to report all new properties of the components fragment record, i.e.:

- Auto Filter (component.fragmentSpectrum.filter): The value for the property 'Filter' which is entered in the fragment properties dialog.

- **Fragment** (`component.fragmentSpectrum.fragment(<nr>)`): Leads to sub ordered category for the fragment record number nr offering report variables for the corresponding grid columns Label, Fragment Mass, Target Ratio, Window Type, Window and Reference. The report variables Target Ratio, Window Type and Window return n.a. if the Ratio is not enabled in the fragment record.
- **Intensity Threshold** (`component.fragmentSpectrum.threshold`): The value for the property 'Minimum Threshold' in the fragment properties dialog.
- **Minimum Number of Fragments** (`component.fragmentSpectrum.minNoFragments`): The value for the property 'Minimum Number of Fragments' in the fragment properties dialog.
- **MS Order** (`component.fragmentSpectrum.msOrder`): The value for the property 'MS Order' in the fragment properties dialog.
- **Number of Fragments** (`component.fragmentSpectrum.fragmentCount`): The number of fragment records in the fragment properties dialog.
- **Polarity** (`component.fragmentSpectrum.polarity`): The value for the property 'Polarity' in the fragment properties dialog.
- **Precursor Mass** (`component.fragmentSpectrum.precursorMass`): The value for the property 'Precursor Mass' in the fragment properties dialog.

3.8.6.4.2 Report category 'Peak Purity and Identification'

A new report variable called '**Peak Fragment Spectrum**' (formula: `peak.fragmentSpec`) allows to report every detail of the measured peak fragment spectrum analogue to the already existing report variable '**Peak Mass Spectrum**'. The corresponding sub ordered report category offers the same list of report variables as for the peak mass spectrum.

3.8.6.4.3 Report category 'peak.compScoring'

This report category is a sub ordered category of the report variable 'Composite Scoring' in the report category 'Peak Purity and Identification'. For the new fragment feature 4 new report variables are added to the corresponding sub ordered report category 'peak.compScoring':

- **Fragment Mass(<nr>)** - formula: `peak.compScoring.fragmentMass(<nr>)`: The variable reports the m/z of the mass peak in the peak fragment spectrum which is closed to the fragment mass value of the component fragment record number nr. If there is no mass peak in the fragment spectrum inside the mass tolerance of the expected mass for the fragment n.a. is returned. The mass tolerance value is used from the global settings of the Processing Method or the component.
- **Fragment Intensity(<nr>)** - formula: `peak.compScoring.fragmentIntensity(<nr>)`: The variable reports the intensity value in counts of the peak fragment spectrum at the m/z-value which is closed to the fragment mass value (inside the mass tolerance) of the component fragment record number nr. If there is no mass peak in the fragment spectrum inside the mass tolerance n.a. is returned.
- **Fragment Ratio(<nr>)** - formula: `peak.compScoring.fragmentRatio(<nr>)`: The variable reports the ratio value in % of `peak.compScoring.fragmentIntensity(<nr>)` and `peak.compScoring.fragmentIntensity(<nrReference>)` where nrReference is the fragment record of the component which is marked as Reference. If no fragment record is marked as Reference n.a. is returned.

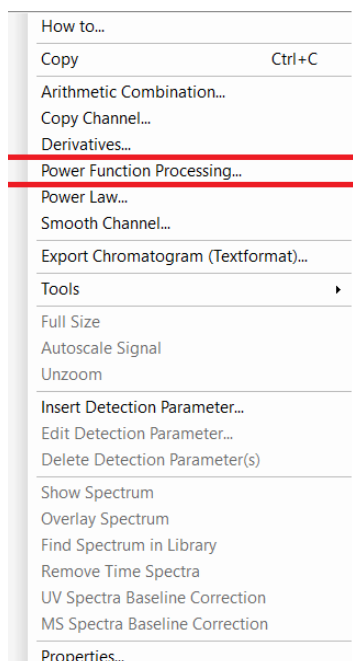
- **Fragment Confirmation Results – formula:**
peak.compScoring.fragmentConfirmationResult: This variable reports the overall confirmation result (Confirmed or Not Confirmed) for the peak fragment spectrum. For every fragment the report variable makes the following checks:
 1. A mass peak is detected for the peak fragment spectrum which is closed (inside the mass tolerance) to the Fragment Mass value of the fragment.
 2. The intensity of the detected mass peak (formula: `peak.compScoring.fragmentIntensity(n)`) is above the minimum threshold specified for the component.
 3. If the Ratio is enabled for the fragment record the corresponding value (formula `peak.compScoring.fragmentRatio(<nr>)`) is inside the corresponding Ratio Window which is specified for the fragment record. If the Ratio is not enabled this check is omitted.

If the checks for at least a minimum number of fragments reveal a positive result the report variable returns 'Confirmed'; otherwise, you see 'Not Confirmed' as a result. The report variable offers an optional parameter <nr> (nr as the number of the fragment) which executes the checks above only for the specified fragment record number and returns 'Confirmed' / 'Not Confirmed' if all the checks are passed / at least one check fails.

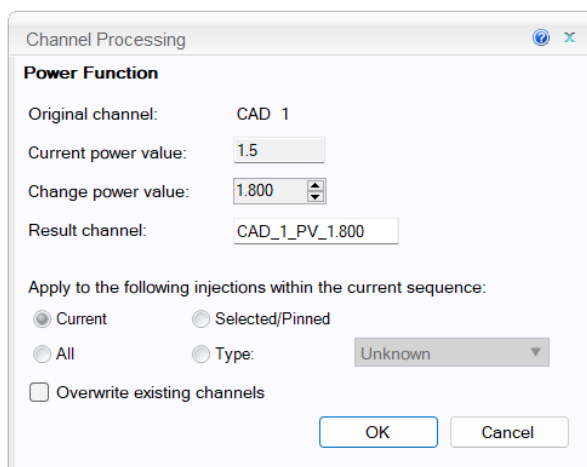
3.8.7 Power Function Processing for Charged Aerosol Detectors (CAD) Data [287290]

With this release, a new feature for lab users processing charged aerosol detection (CAD) data in the Vanquish CAD P Series in Chromeleon has been introduced. This feature allows users to process the acquired detector signal with a new Power Function, enabling the calculation of a new signal channel by adjusting the exponent from the previous value to a new value. The result is output to a new channel with the original channel remaining unchanged. After this processing action is performed, the new channel is listed in the Navigation Pane under Channels.

This feature is accessed via the chromatogram pane of Chromeleon. A new "Channel Processing" option named "Power Function Processing" is introduced, that allows users to enter a new Power Value using a "Change Power Value" data entry field.



The Power Value can be input up to 3 decimal places, with a default value of 1.800 and a valid range from 1.500 to 2.400. The functionality supports channels CAD.CAD_1, CAD.CAD_2, CAD.CAD_3, and CAD.CAD_4. Each acquisition channel will have its own Power Value (CAD.CAD_X.PowerValue).



This functionality is available only with the Vanquish CAD P Series as the new property CAD.CAD_X.PowerValue.

Backward compatibility is provided for older data acquired on a VH-D20-A or VF-D20-A, through a "legacy mode". Legacy mode is activated by the presence of the variable "CAD.ElectrometerPowerFunctionRatio" in the audit trail and has a fixed value of 1.5. In legacy mode, the "Change Power Value" field has a range from 0.670 to 2.000, and the value is multiplied by 1.5 for the calculation. If the necessary information is not found in the audit trail, the "Power Function Processing" option is disabled and greyed out.

3.8.8 Updated BioPharma Finder NTMS algorithm [600398]

With this release, the BioPharma Finder algorithm used for NTMS detection has been updated to the same version that is used by BioPharma Finder 5.3.

3.8.9 Mass resolution calculation from profile mode MS spectra [306616]

The `peak.mspect.resolution` variable was updated to compute the resolution for spectral peaks. The variable will return the precalculated resolution for centroid data. For profile data, the resolution can be calculated for any m/z value within the Spectrum at definable peak height (from 5% to 90%).

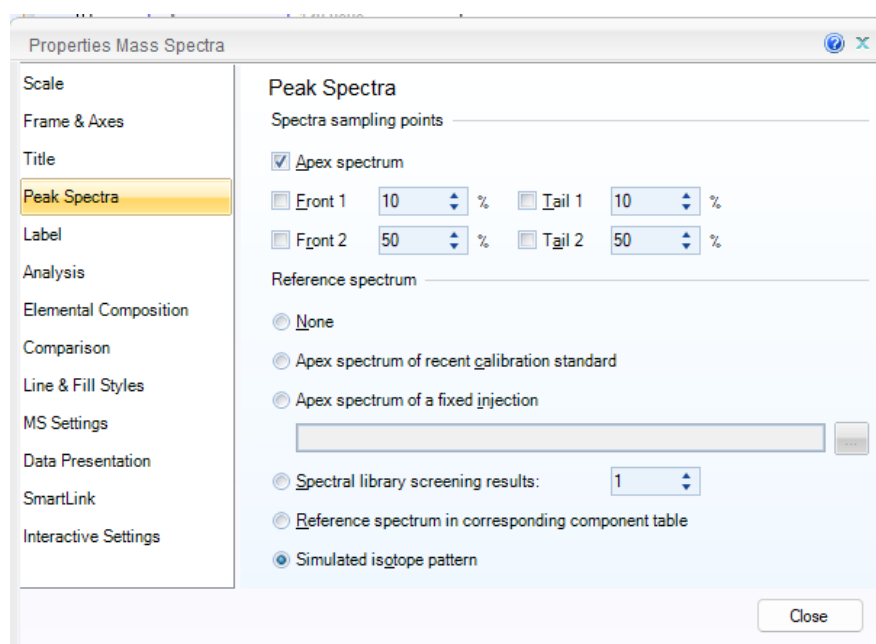
3.8.10 Summation of the values of the peaks within an XIC trace [607215]

In order to support requirements for EPA 1613b methodology, the following report formulae were added to allow summation of the values of the peaks within an XIC trace depending on the peak detection window and ion ratio/ion co-elution settings (if enabled):

- `peak.sumOfXICPeaks.area` - sum of areas of XIC peaks
- `peak.sumOfXICPeaks.amount` - sum amounts of XIC peaks
- `peak.sumOfXICPeaks.included` - is included in `sumOfXICPeaks` calculations
- Chromeleon Online Help is updated to include information about these new report formulae

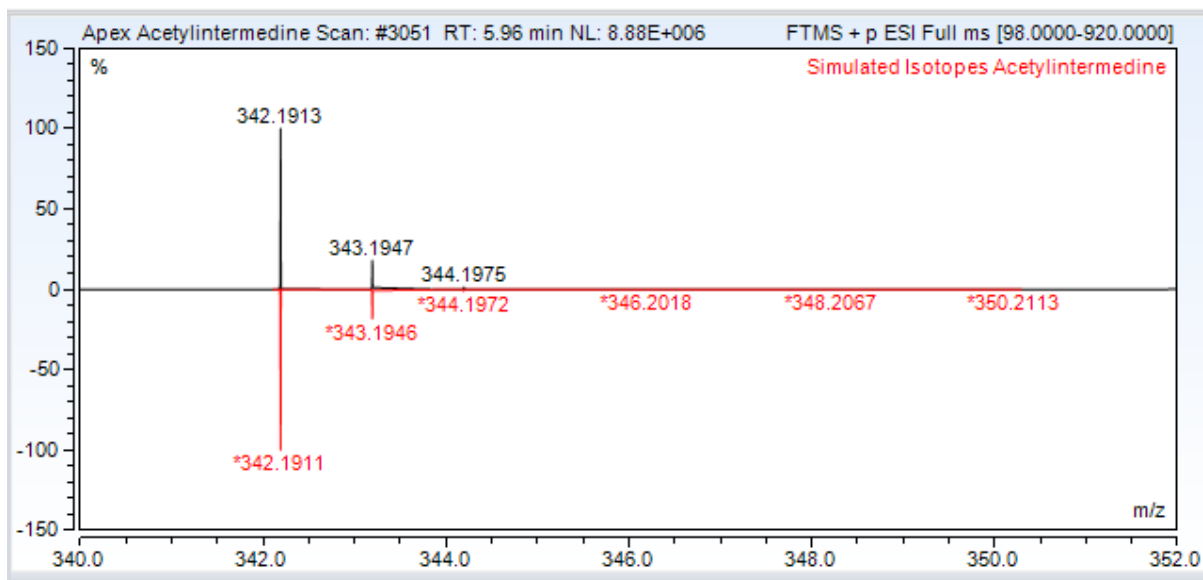
3.8.11 Mass Spectra Overlay of Simulated Isotope Structure [769371]

A new option for the Reference Spectrum in the Mass Spectra plot allows to overlay the spectrum of a component with the theoretical / simulated isotope spectrum.



The new option is called '**Simulated isotope pattern**'. The theoretical / simulated isotope spectrum is based on the chemical formula of the component record or the component name if the component belongs to a peptide group. If the component record contains the reserved custom variable named **CM7:Adduct** and the corresponding value contains a valid list of adduct values (e.g. H;K;Na) Chromeleon will adjust the theoretical isotope spectrum accordingly, i.e. shifting the m/z -values for mass peaks of the simulated isotope spectrum. The component properties 'Charge' and 'Polarity' are also taken into account.

The following figure shows for the component name **Acetylintermediate with Chemical Formula = C₁₇H₂₇NO₆, Charge = 1, Polarity = Positive and CM7:Adduct = 'H'** the mass spectra plot with the corresponding Reference Spectrum option and the Comparison options 'Overlay' and 'Mirror Signal'. The component spectrum is shown in black the theoretical / simulated isotope spectrum in red color.



If the option is selected the mass spectra plot zooms into the m/z-range of the simulated isotope spectrum automatically. The mass peaks of both spectra are labeled with their simulated and measured m/z values accordingly. If Noise Reduction is applied (property page MS Settings) the m/z-range is automatically adjusted to the mass peaks above the noise limit for both the simulated and the measured spectrum.

3.8.12 Support of NIST MS2 libraries [769369]

Chromeleon 7.4 now allows the searching of MS/MS (fragmentation) spectra in addition to MS spectra. This can be enabled via the MS Library Screening tab in the Processing Method. This includes MS/MS, In-Source HiRes and MS/MS in EI.

A new report formula peak.hitFragMassSpec was created to provide a way to report the hit information for the fragment spectra associated with peak.

3.8.13 New Global Report Variable 'Convert to Number' [419275]

A new report variable called 'Convert to Number' in the Global report category (formula value(<text>)) allows to parse the text parameter for a numerical value and returns the corresponding numerical result.

3.8.14 Allow Multiple Internal Standards in a sample [124177]

Chromeleon 7.4 now allows a user to create a custom column in the injection list and use this to define a variable amount for an internal standard using the Component>Properties>Evaluation>Use this Component as Internal Standard>Use Sample Amount as Reference (Variable Internal Standard) function.

In Chromeleon 7.2.9 a "Special" custom variable - "CM7:IntStd" was introduced which allowed multiple variable internal standards to be used. Chromeleon 7.4 allows this workaround to be converted using a custom variable wizard to use the new approach.

3.9 Data Import and Export

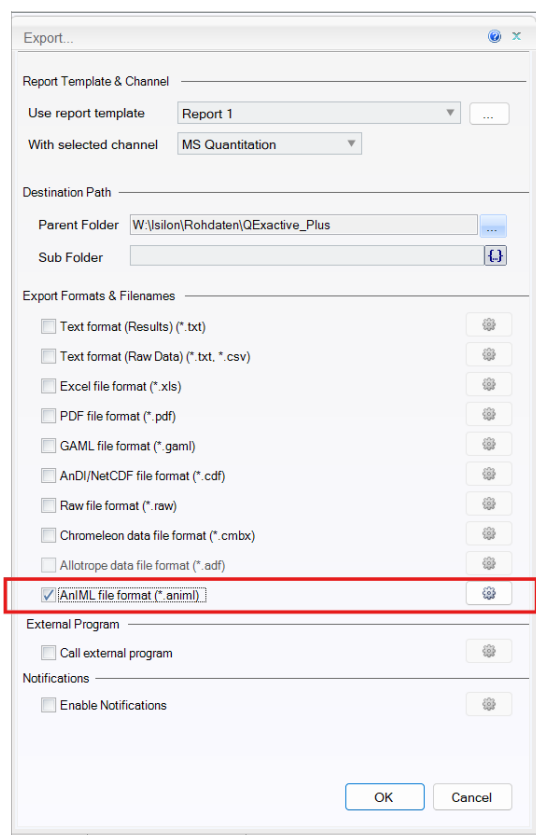
3.9.1 Export to AnIML format [28913]

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.

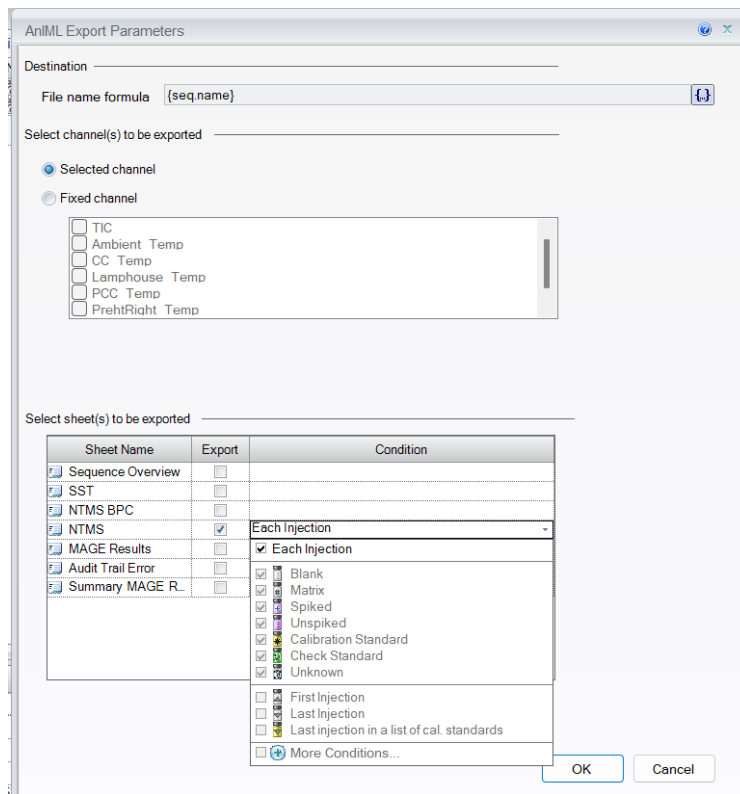
With Chromeleon 7.4 the following information is in the generated AnIML file:

- 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.

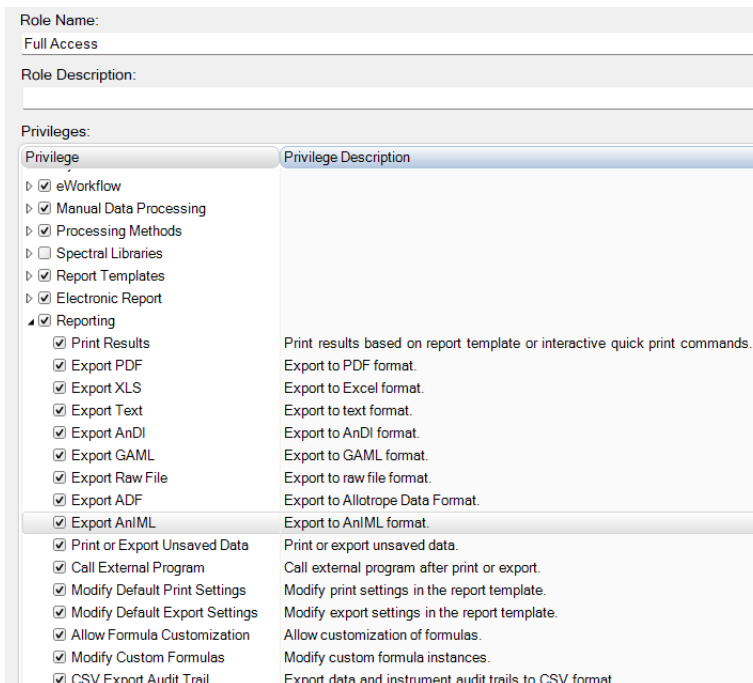


Clicking on the button opens a dialog box allowing users to configure the AnIML export parameters. Users can define the file name of the output AnIML and select the injection(s) and channel(s) to be exported.



3.9.1.1 Privilege for exporting to the AnIML format

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.



3.9.2 Export options for Reporting 2.0 report templates [384831, 424587]

The following non-spreadsheet related Export options are now available on CM Console's Export screen and can be selected in conjunction with Reporting 2.0 report templates.

Export Formats & Filenames:

- GAML file format (*.gaml)
- AnDI/NetCDF file format (*.cdf)
- Chromeleon data file format (*.CMBX)
- Allotrope data file format (*.adf)
- AnIML file format (*.animl)

External Program:

- Call external program

Notifications:

- Enable Notifications

3.9.3 Allotrope Export enhancement [400378]

This release enhances the Allotrope Export feature of Chromeleon to include the following data in the .adf output file:

- Injection custom variables
- 3D data
- Sequence metadata (sequence comment, sequence custom variables, creation date, and last changed date) in the Data Description
- per-component processing results (Peak Relative Area, PeakGroup, Peak Group Amount, and Peak Group Area)

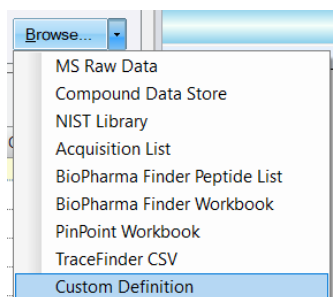
3.9.4 Import/Export Custom Data using a Definition File [769381,781856]

This release of Chromeleon introduces a CSV and XML custom definition mapping tool that enhances the flexibility of importing and exporting compound information from custom CSV or XML files that contain processing method MS component information from and into the Chromeleon MS component table. This then allows users to select specific or all components from the import file.

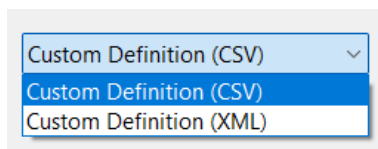
To allow for the import and export of CSV and XML files, a Custom Definition must be created. This definition will contain information about the source or destination file that is to be consumed or produced allowing the mapping of a value field (CSV column header or XML node) to a field in the Chromeleon MS Component table. The Custom Definition is stored as an attachment type of document in the datavault and is formatted as a JSON file. The mapping of an XML file uses an XSD document to define the outline of the document and then in the definition file the node names will be mapped to Chromeleon component fields. The XSD file will be stored in the Data Vault alongside the definition attachment.

3.9.4.1 *Import of Custom Data using a Custom Definition*

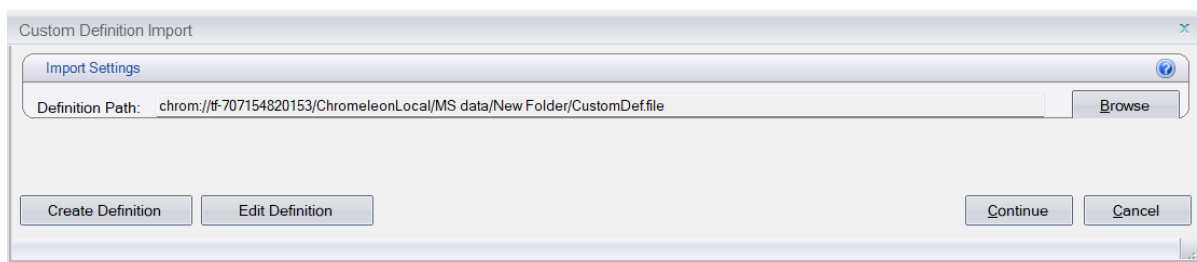
The existing import options have been extended to include the Custom Definition. This feature is accessed via the Compound Data Import button on the Processing method toolbar.



Selecting this option will open a file selection dialog box with the appropriate filter applied.



Following the selection of a file, either CSV or XML, the user is then presented with a dialog box.



Users can then either select the appropriate definition file, edit a custom definition file or create a custom definition file.

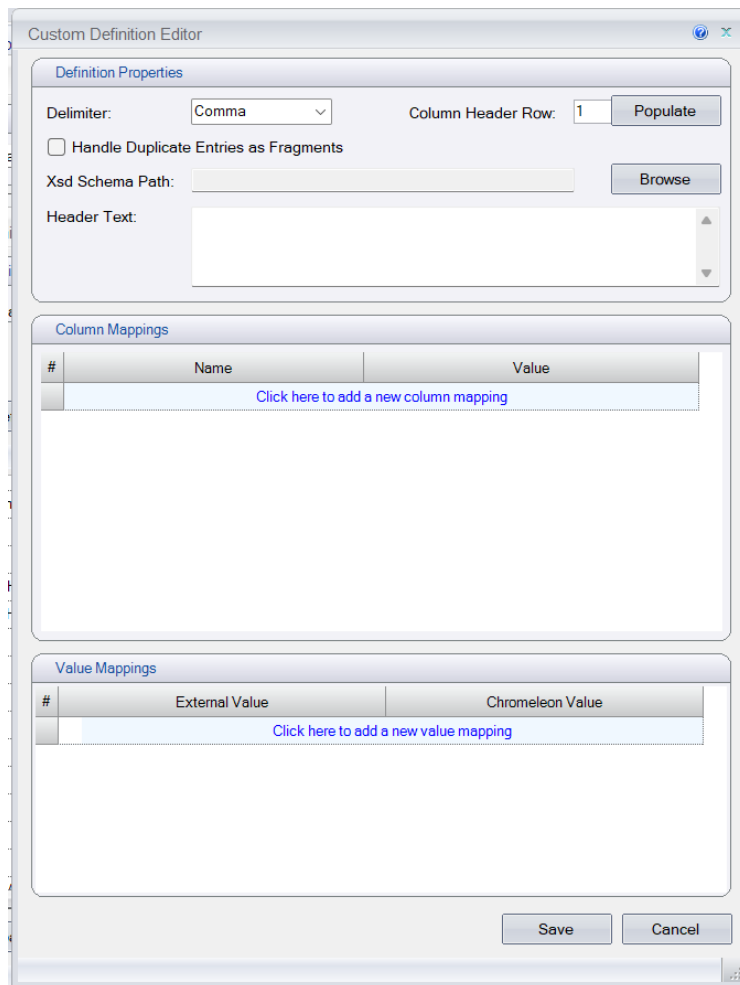
The Browse button allows the user to select the definition file to use from a folder in the data vault.

When a user selects a definition file, this is then validated showing any errors with the definition when applied to the selected import file.

3.9.4.2 *Creating a Custom Definition*

Clicking the Create Definition button launches the Custom Definition Editor to allow users to create a new definition. If the user does not have the “Create and Save a Custom Definition” privilege, a message will be displayed stating that the privilege is missing, and the editor will not be displayed.

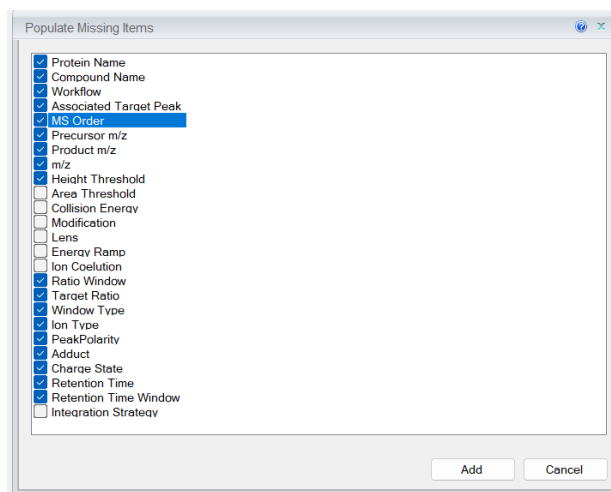
The Custom Definition Editor allows the user to specify the details of the custom definition and is used for both create and edit operations. The Definition Properties section allows the user to configure the common properties of the definition. The column header row is the line number in the CSV file where the editor will look for the column headers. Data is assumed to follow this row.



Populate

Clicking on the Populate button will extract the headers from the selected csv file and add them to the existing entries in the “Column Mappings” grid. The Delimiter and Column Header Row must be correctly specified to ensure the retrieved headers are correct. If no headers are found or all the headers have already been added, an error will be displayed.

If headers are found, a dialog is displayed to show the values in the CSV file. Incorrect delimiter and row values will result in meaningless data being retrieved. In this case, the user will need to press “Cancel” and correct these values before proceeding. Initially, all values will be selected but any which are not required can be unchecked.



Pressing “Add” will then add the selected values to the “Column Mappings” grid. The matching Chromeleon values in the grid will be left blank and need to be mapped by the user. It will be necessary to enter these values before the changes can be saved otherwise a validation error will be displayed.

Value Mappings

For each mapping defined in the “Column Mappings” table, it is possible to define conversions for the values that are in the imported data. For example, the values “+” and “-” for polarity could be automatically converted Chromeleon supported values of “Positive” and “Negative”.

Value Mappings		
#	External Value	Chromeleon Value
	[-] Polarity - 2 Items	
1	+	Positive
2	-	Negative
Click here to add a new conversion to existing mapping		
Click here to add a new value mapping		

To add a new column, click on “Click here to add a new value mapping”. The “Column” dropdown shows all the column names from the “Column Mappings” table that have not yet been added to the “Value Mappings” table. The “External” value is the value that is read from or written to the data file. The “Chromeleon” value is the equivalent value in Chromeleon. Both values must be filled in, otherwise an error indicator will be displayed.

Pressing “Add” will add the new values to the mappings table. When the user clicks the Save button, they will be prompted for a location in the data vault to save the definition as an attachment.

Import

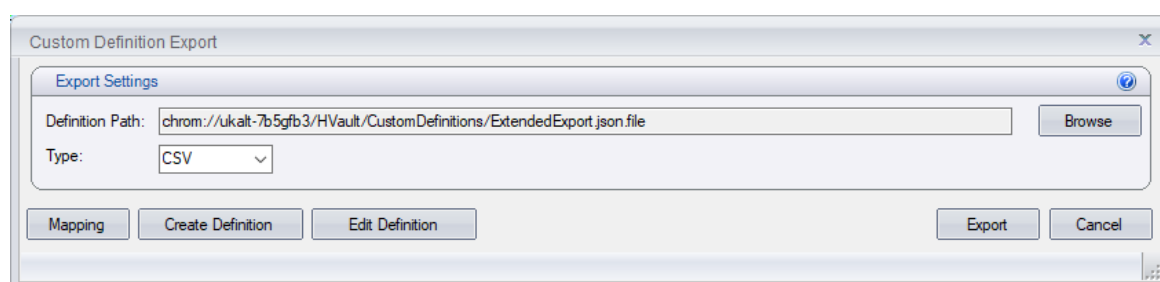
When an appropriate definition is selected, the Continue button is enabled. If the user does not have the “Apply Custom Definition” privilege then, on pressing Continue, a message will be displayed stating that the privilege is missing.

The import file that is expected to have each quantitation and confirmation peak or fragment as separate entries in the file. When importing a CSV file this would be as separate rows, with the same component name, and when importing an XML document this would be as extra nodes in the file and not child-nodes of the component.

After each component is imported, if the autofilter property is not already set as part of the imported data, it will be auto calculated for ions or fragments depending on the type of import. This auto calculation uses MS order, polarity, mass tolerance and mass ranges to select the most appropriate filter that meets the criteria, otherwise it will be left blank.

3.9.4.3 Export of Custom Data using a Custom Definition

Export compound data options contain the Custom Definition option under the 'Save as type'. Selecting the Custom Definition option raises a dialog allowing users to select a custom definition to apply and whether to export as CSV or XML.



Definitions are stored in the Data Vault and users can define the custom definition to use for the export by browsing to the definition path.

The type of dialog box allows users to select whether to export the data in CSV or XML format. If XML is selected, the user must also have defined the path to an XSD schema document (also stored in the datavault) to define the XML structure. This XSD path is defined within the main definition data. This option will also determine the file extension of the destination file that is created.

The custom definition file and its structure are described in section 3.16.3.1. A definition can be used for both Import and Export operations. See section 3.16.3.1 for details on the custom definition editor functions.

3.9.4.3.1 CSV Export

When the user clicks the Export button, the file is exported. For every component, one or more rows are added to the output file. A column header is added for each valid mapping entry in the definition.

If a component contains confirming ions or fragments, and the custom definition is configured to handle those, these will be written as separate rows with the same component data in the component level fields.

3.9.4.3.2 XML Export

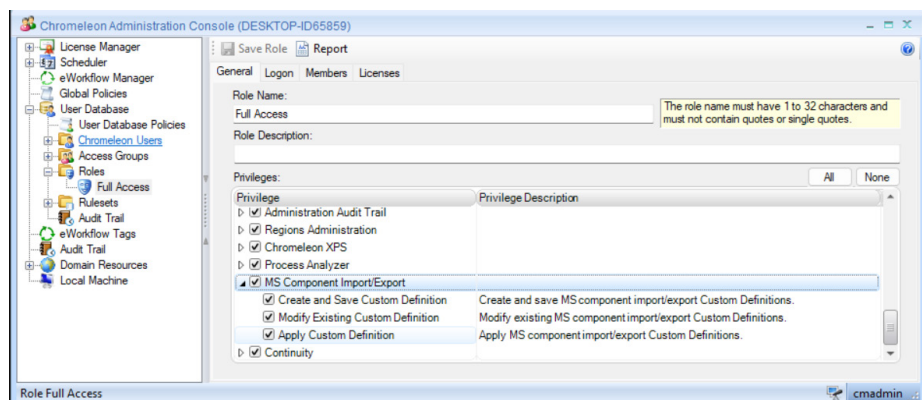
The XML exports occur in a similar manner to the CSV exports. However, instead of mapping columns in a CSV, the data is added to the XML following the XSD schema that must have been specified in the definition.

Note: Mapping names for XML cannot have spaces in the names and must match exactly in both the JSON definition and the XSD schema.

If a component contains confirming ions or fragments, these will be written as separate nodes in the XML rather than nesting in any way. These nodes will have the same component data in the component level fields.

3.9.4.4 MS Component Import/Export Privileges [782106]

The MS Component Import/Export category lets administrators control access to the Custom Definitions used when importing and exporting MS components in a processing method.



3.10 Performance optimizations

3.10.1 Remote Sequence Acquisition Optimizations [443681, 792246]

Chromeleon 7.4 introduces significant improvements and optimizations 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 much faster acquisition turnaround times. For additional performance improvements, see also section Transfer Parallelization.

At the same time, the synchronization of data is now even more reliable. Upload retries have been improved such that uploads can in most cases recover automatically even after prolonged network failure events. In case of issues, improved mechanisms are in place for troubleshooting. This includes better logging and retaining invalid transaction packages during a period of 60 days before deletion, allowing their collection by the System Status Report.

With these improvements in place, the legacy-mode mechanisms for acquisition on remote instruments, used in Chromeleon up to version 7.2 SR3 and retained in later versions as fallbacks, have now been completely removed.

3.10.2 Improved performance of working with remote XIC data [758494]

Chromeleon 7.4 enhances caching of XIC data in the Chromeleon Studio. Previously, specific workflows involving checking XIC data from a remote machine could be time-consuming, as the data had to be fetched repeatedly, especially when all injections of a sequence were pinned and individual components were pinned and unpinned one by one. With improved

caching, each XIC is now loaded from the remote sequence only once, significantly reducing the waiting times of the subsequent views.

3.11 Other client updates

3.11.1 System Status Report (SSR) Improvements [797601]

- Exploris logs
- Logs from Agilent drivers for Chromeleon and Agilent Evaporative Light Scattering Detector (ELSD)
- Additional logs from Thermo Foundation (additional log folders)

3.12 Operating systems

3.12.1 Windows Server 2025

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

3.12.2 Windows Server 2016

With this Feature Release, Windows Server 2016 is no longer supported. Also see Supported Operating Systems document.

3.13 Enhanced HTML5-based Online Help

As part of the Chromeleon 7.4 release, we have significantly enhanced the built-in online help system. The previous CHM-based help has been fully converted to modern HTML5 format, delivering a more accessible, responsive, and user-friendly experience.

Known limitation: The focus of this first HTML5 release is on improved navigation and readability. The CHM-specific bookmark feature is currently unavailable in the HTML5-based system. It is planned to introduce it with a later release.

4 Resolved issues

This chapter describes the issues that have been resolved with the release of Chromeleon 7.4 only. For issues that have been resolved in previous releases, please refer to the Release Notes for the relevant release (version 7.3.2 MUE or earlier).

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 was fixed.
128084	Chromeleon Studio - Reporting: 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 fixed.
137924	Chromeleon Studio - Electronic Report: Pages may be missing depending upon which user views the report. Issue is 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.
164965	Chromeleon 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.
171993 CM7-23033	Chromeleon Architecture - Network Data Acquisition: Issues were previously reported due to legacy-mode uploads and modifying sequences while the uploads were in progress. Chromeleon 7.4 introduces several optimizations and improvements for acquiring sequences on remote Instruments, and as a result, legacy-mode operations are no longer used at any stage of network data acquisition.
172749	Instrument Drivers - Vanquish Binary Pump: The Troubleshooting Guide for the Vanquish Binary Pump VH-P10-A (hardware revision 2) used to be found under C:\Program Files (x86)\Thermo\Chromeleon\bin\Troubleshooting Guides as Man-LC-VQ-PumpH-Operation-DOC4820-4411-EN-1-0 (English), Man-LC-VQ-PumpH-Utilisation-DOC4820-4411-FR-1-0 (French) and Man-LC-VQ-PumpH-Betrieb-DOC4820-4411-DE-1-0 (German). This has been fixed in Chromeleon 7.3.2. Now, the Troubleshooting Guide for the Vanquish Binary Pump VH-P10-A (hardware revision 2) can be found under C:\Program Files (x86)\Thermo\Chromeleon\bin\Troubleshooting Guides as Man-LC-VQ-PumpH-Operation-DOC4820-4411-EN-2-0.pdf (English), Man-LC-VQ-PumpH-Utilisation-DOC4820-4411-FR-2-0.pdf (French) and Man-LC-VQ-PumpH-Betrieb-DOC4820-4411-DE-2-0.pdf (German).
183221	Chromeleon Studio - Reporting: Report Designer: The formula is giving out an error mark "!", with a message "Cannot compare numeric and error". Issue, which caused that table variables showed wrong value when pointing on column with spreadsheet formulas, is fixed.

ID	Description
183709	<p>Chromeleon Studio - Injection Query: In an Enterprise environment, if the results of an Injection Query included injections from a running or recently completed sequence, those injections might not appear when the query results were opened in the Studio, or they might have an incorrect name. In addition, opening the sequence containing that injection from the query results list would sometimes fail. The issue has been accidentally re-published as a Limitation in Chromeleon 7.3.2, but it has been resolved since Chromeleon 7.3.1.</p>
202205	<p>Chromeleon Studio - 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.</p> <p>With CM 7.4 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.</p>
206945	<p>Chromeleon Studio: Message “String too long” displayed in Interactive Results audit trail in Studio. Issue is fixed.</p>
234153	<p>Chromeleon Studio - Report Template, Version Comparison and View Settings: After changing the range settings to 'Autoscale on Peak' or 'Fixed using Formula' for either the Time Axis property page within a chromatogram plot object of a report template or the view settings data object, and saving these changes, the comparison details of the corresponding data audit trail record did not report any changes. Now such changes are shown in the corresponding views or reports.</p>
252967	<p>Chromeleon Console - Copying MS Sequences with previously deleted injections: MS-sequences cache chromatogram results for injections within custom raw items. If a sequence is located in a datavault with versioning enabled, the copy operation for MS-sequences failed with the error message 'Operation is not valid to the current state of object'. This occurred if some of the injections with chromatogram cache results had been previously deleted. With Chromeleon 7.4 such sequences can now be copied successfully.</p>
263390	<p>Chromeleon Studio – Printing, Sheet with scaling factor: Incorrect page numbers are shown in the header. Issue is fixed.</p>
270542	<p>Chromeleon Studio - Tolerance Level Check for Calibration or Check Standards: Within the processing method tolerance limits for calibration levels can be configured. If the response value for the upper tolerance limit is lower than the response value for the lower tolerance limit the peak formula <i>peak.levelCheck</i>, used to check if the computed amount value for the concentration level is within the tolerance limit, reported either Passed or Failed. This was even though the corresponding calibration curve (e.g. quadratic calibration) had an apex between the lower and upper tolerance limit. Chromeleon 7.4 will now report such a case as Invalid.</p>
275608	<p>Chromeleon Console - Sequence: If the sequence name contained a foreign character that was not part of the regional language code page (for example, “α” on an English-US system), the respective sequence could be started, but the sequence bar turned orange and showed “Disconnected”.</p>
280985	<p>3rd Party Instrument Driver – Agilent ADC: Agilent ADC 2.5: For a sampler with a long sampler device name, in the message indicating "waiting for inject response from <samplername>" the sampler's device name was truncated to 15 characters. If two injectors were used on the same instrument both with device names exceeding 15 characters (and equal in the first 15 characters), this would lead to a crash during driver initialization. Now sampler device names exceeding 15 characters are no longer truncated.</p>

ID	Description
290654	Chromeleon Studio - Electronic Reports: 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 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.
370368	3rd Party Instrument Driver – ADC 2.5: With Agilent Drivers for Chromeleon (ADC) version 2.5 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.
346956	Chromeleon Studio - Chromatogram plot with invalid signal meta data: The database record for a raw data signal contains so-called meta data, for example, the minimum and maximal signal values. These meta data are used to draw the time and signal-axis in a chromatogram plot without reading and evaluating all signal data points. If this meta data contained invalid values the chromatogram was not drawn at all or only partially in a corresponding plot object. Chromeleon 7.4 now detects invalid meta data for the signal and computes them again before starting to draw a corresponding chromatogram plot.
360184	3rd Party Instrument Driver – Agilent: 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.
386554	Chromeleon Studio - SST/IRC: In the Injection Audit trail, %RSD using custom formula matches the "Passed" statement displayed in the Processing Method for SST/IRC and displays the value.
402921	Chromeleon Console - eWorkflows: On the Sequence Properties page, the channel list would not be displayed if only one channel existed. Additionally, there were certain circumstances where the channel list would not be retrieved correctly resulting in an empty list, regardless of how many channels there were.
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 7.4 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 fixed.
412719	Chromeleon Console - Bulk Import for Chromeleon 6 data files: The import of Chromeleon 6 data files (*.cmb) did not work when such data files were selected in the bulk import workflow. The import did work when selecting these data files via the Import -> Chromeleon Data menu item. This has been fixed for Chromeleon 7.4. Also, the bulk import now supports Chromeleon 6 data files.
413469	3rd Party Instrument Driver - ADC: With ADC 3.0 (and earlier) it was not possible to set the oxidizer flow below 25 mL/min for FID-SCD detector although the allowable range on the GC starts at 5 mL/min. This issue has been fixed with ADC 3.1.

ID	Description
414352	<p>Administration Console - Ardia Login: Previously, for a Chromeleon client connected to an Ardia-enabled domain, if a user had multiple roles and one of those roles had the logon role unchecked, all roles assigned to the user were displayed on the role selection page of the Ardia login.</p> <p>This issue has been fixed. Now, only roles with the logon role checked are shown in the role selection page of the Ardia login.</p>
416435	<p>Chromeleon Studio - External Program Execution: Previously, when using the export option "Call external program" with the parameter "Wait until external program terminates," Chromeleon could sometimes wait indefinitely even after the external program had terminated.</p> <p>In version 7.4, the procedure to determine whether an external program is still running has been improved, preventing Chromeleon from potentially hanging.</p>
416909	<p>Chromeleon Console – ePanel: ePanel opening takes a long time. Issue is fixed.</p>
421467	<p>Chromeleon Studio - Reporting 2.0: Exporting templates to Excel results in including unselected worksheets as hidden. Issue is fixed.</p>
421485	<p>Administration Console - Licensing: When upgrading a subscription license with the same Serial Number in Chromeleon there was potentially a short period of time where the Chromeleon domain was not licensed which could lead to interruption of acquisition. Now, when adding a new subscription license with the same Serial Number, the user is prompted to approve the license upgrade. By clicking the "Yes" option, the license code is upgraded and remains activated, and the sequence run finishes uninterrupted.</p>
423511	<p>Chromeleon Studio - Disabled Cobra Wizard in the Processing Method Ribbon: The Processing Method Editor ribbon tab 'Wizard' in the Studio Window offers to start the Cobra Wizard if the Detection page is selected. Yet the Cobra Wizard button has been disabled and so the wizard could not be started.</p> <p>With Chromeleon 7.4, the ribbon button is now enabled in this case.</p>
435290	<p>Chromeleon Studio - Reporting 2.0: SmartLink/Autorepeat of a Summary Table does not work for MS Components. Issue is fixed.</p>
436001	<p>Chromeleon Studio - View Settings 2.0, Interactive Results, Peak Summary Report Table: After creating a new view settings 2.0 data object the peak summary report table in the Interactive Results Pane contained aggregation formulas for the rows 'Maximum' and 'Minimum' which does not cover the first result row of the report table.</p> <p>This has now been fixed when creating new view settings 2.0 data object. Already existing view settings 2.0 data object will still contain the spreadsheet formulas with the insufficient cell range.</p>
436036	<p>Chromeleon Studio - Report Designer 2.0, Missing Automatic Update: When selecting the Report Designer category for a Reporting Template 2.0 and subsequently selecting the Data Processing Category followed by selecting a new injection, the Report Designer view did not automatically update when switching back into the Report Designer category. The Report Designer still showed the results of the previously selected injection.</p> <p>The automatic update of the results in the Report Designer category is now executed in this case.</p>
436653	<p>Chromeleon Studio - Chromatogram Plot, Component Windows: Moving the component window for a component linked to a reference component in the chromatogram plot pane did not work correctly. Although the new position of the component window was visible in the chromatogram plot the corresponding update of the retention time property in the component record was not executed. In the Processing Method Editor, the retention time of this component was not updated. A click on a peak in the chromatogram moved the component window back to its original position.</p>

ID	Description
442270	Chromeleon Console - Sequences: The sequence status in the sequence control bar when a delayed start time and date of over 24 hours was specified was not displayed. This has been resolved, and the sequence status is now visible.
442771	Chromeleon Studio - Reporting 2.0: Channel selection does not work correctly for export to text format (raw data). Issue is fixed.
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 is fixed.
444040	Chromeleon Console - Export: For sequences containing MS data, exporting a raw file (*.raw) using a UNC path would result in an error. This has been resolved.
449149	Chromeleon Console - Online Plot: After starting a manual data acquisition it could happen that the online plot still showed the previously acquired manual data for the acquired signal(s). The new acquired signal(s) only appeared after the acquisition time exceeded the time range of the previous one. This is fixed now in Chromeleon 7.4. The online plot will only show the signal data from the current manual data acquisition in this case.
494180	3rd Party Instrument Driver - ADC 2.5: 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.
456264	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 “Moved” 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 copying the sequence and deleting the original. As a result, upon completion of this task, the Sequence displayed a “Copied” entry in its Audit Trail, whereas the parent folder from which the sequence was moved displayed a “Deleted” entry in its Audit Trail. This inconsistency in Data Audit Trails for these two move operations is now fixed, such that the Scheduler task that moves a sequence also creates “Moved” Data Audit Trail entries, analogous to when a sequence is moved by the User.
459247	Chromeleon Console - Audit Trail Details for Custom Variables in the Sequence Layout: Previously, in the details window of an audit trail record of a sequence, all custom variables of the injection record were listed in the 'Table Columns' section. However, each custom variable appeared twice: once with its name and once with the same name prefixed by a '*', with the latter marked as a new custom variable even though it was already present in the sequence. This issue has been fixed in version 7.4. Now, each injection custom variable appears only once in the details window of a sequence audit trail record, with the custom variable name prefixed by a '*' as shown in the column header of the injection list view in the console.
459190	Chromeleon Studio - Reporting 1.0: Difference in updating Report Designer Results between 7.3 and 7.3.2. Issue is fixed.

ID	Description
462235	<p>Chromeleon Studio - Amount Computation for Manual Quadratic Calibration: When using a manual quadratic calibration, the amount computation for a given response value required one value for the amount from one side of the corresponding quadratic parable. If the x- or amount-value of the apex of the parable was smaller than 1 then Chromeleon selected the value from the right side of the parable curve which is typically the side where the slope of the parable is negative.</p> <p>This has been updated. Independent from the position of the apex of the parable curve Chromeleon will always select the amount value from the side where the slope of the parable curve is positive.</p>
463694	<p>Chromeleon Studio - Reporting 2.0: Export to XLSX contains wrong Author information. Author information is now correct.</p>
492176	<p>Chromeleon Studio - Copying Component Records via Copy/Paste in MS Sequences: After copying a component record with XIC-settings (Extracted Ion Chromatogram) via Copy/Paste within the Processing Method Editor, Chromeleon did not recognize the copied component record as a new or different record when showing results for XICs, both in the MS Components Pane or the Report. In these views Chromeleon only showed the results for the XICs of the original component record. The new component record did not appear in the corresponding report tables.</p> <p>With Chromeleon 7.4 the copied component is now correctly identified as a new component with different XIC settings and corresponding results. It will also appear as a separate result row in a corresponding integration report table.</p>
495742	<p>Administration Console - 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. Admin Console's Domain Resources>Computers> table was adjusted and a new column "Time difference" was added to help detect time differences.</p>
503533	<p>Administration Console – Ardia integration: The Chromeleon User Service can be deadlocked if either of the following actions are performed:</p> <p>Enabling Ardia Integration within the Global Polices>User Mode will cause the Chromeleon User Service to deadlock.</p> <p>Adding or modifying a user within the Chromeleon User Database, when the Ardia integration has already been enabled during a previous Chromeleon version.</p>
566128	<p>Chromeleon Studio - Elemental Composition, Identical Calculated Mass for Positive and Negative Charges: When using Elemental Composition in the Mass Spectra Pane (Studio Window) or the report variable component.cal_mass, the result values of the calculated mass were always identical for a positive or negative polarity.</p> <p>The polarity value is now also used when computing the calculated mass.</p>
594219	<p>Administration Console - Privilege 'Modify Processing Method - Restricted' and Detection Parameter 'Fixed Baseline': if a user logs on with a role where the privilege 'Modify Processing Method - Restricted' modifying detection parameter in the Processing Method Editor is prevented. But you could still use the context menu item 'Set Fixed Baseline' in the Chromatogram Plot pane to create two corresponding new detection parameter records 'Fix Baseline'. This missing privilege check is now added in Chromeleon 7.4 and prevents modifying detection parameters without having the corresponding privilege in this case.</p>
598736	<p>Chromeleon Studio - Reporting 2.0: Custom Margins form does not show dimensions. Issue is fixed.</p>
609747	<p>Chromeleon Studio – Reporting: CONFIDENCE.T() spreadsheet function is replaced with __xlfn.CONFIDENCE.T() when navigating away from the Report Template. Issue is fixed.</p>

ID	Description
621046	Chromeleon Studio – View settings 2.0: when users clicked elsewhere, the view did not change. Issue is fixed.
627729	Chromeleon Console - Import CMBX-Files into Datavaults with database scheme 7.3.2.106: trying to import a CMBX-File into a datavault with a database scheme 7.3.2.106 failed sometimes with the error message about a duplicate injection variable. This is fixed now with Chromeleon 7.4. Importing such CMBX-files in such datavaults is now working successfully.
627923	Chromeleon Architecture - Mutual exclusive Privileges to Modify Processing Methods: There are 3 mutual exclusive privileges to modify a Processing Method. 'Modify Processing Method', 'Modify Processing Method - Restricted' and 'Modify Processing Method - Custom'. Only one of these privileges can be enabled in a role. If a user has logged to the Chromeleon Console with a role where one of these privileges (for example, Modify Processing Method) was enabled and a different one (for example, Modify Processing Method – Restricted) was enabled in an Access Control Level (ACL) role in the root of the datavault or in any subfolder (Datavault / Folder Properties -> Access Control) the user couldn't modify a processing method in this datavault or subfolders. When trying to save the Processing Method an error message appears that a Modify Processing Method privilege is missing. This is fixed now. The ACL role at the root of the datavault or in any subfolder is now applied when checking the privileges to modify the Processing Method. In the described use case (Modify Processing Method - Restricted) the user can still modify the Processing Method except the Detection Parameters.
629095	Chromeleon Studio - Export of Mass Spectra - m/z-values have Insufficient Precision: when exporting a mass spectrum via the context menu of the MS Spectra Pane in the Studio the exported m/z-values were truncated at the 1st digit after the decimal point although the mass spectrum has been acquired with HRMS instrument. The exported m/z-values are now extended to 6 digits after the decimal point.
637224	3rd Party Instrument Drivers - DDK Drivers: If with a DDK driver (for example, a Shimadzu driver or Agilent Chromeleon Driver) a sequence was running and the processing method was changed, this would trigger a sequence abort of the driver. Now a change in the processing method for a running sequence no longer sends a sequence change event to the driver.
644545	Chromeleon Studio - Column Width of Detection Settings: the column widths in the Detections Settings page the Processing Method Editor were not stored persistently when the processing method was saved. After reopening the processing method in the Studio Window the Studio Window still showed the previous column widths in the corresponding Detection Settings page. This is fixed now in 7.4.
651219	Chromeleon Studio - Reporting 2.0: Summary table with custom formula displays n.a. Issue is fixed.
747672	Chromeleon Studio - Report Designer 1.0: Unsaved changes to the report template are lost when switching to Injection List and Data Processing. Issue is now fixed - changes are not lost.
756529	Chromeleon Console - Sequence Audit Trail: If a user A started a sequence run and a user B 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: Custom Formula in Summary Table Returns 'n.a.' While Correct in Integration table. Issue is fixed.
766716	Chromeleon Studio - Reporting 2.0: Unable to Redo all changes. Issue is fixed.

ID	Description
766522	Chromeleon Studio – Reporting: Option Hide & Unhide is disabled when using the CTRL key to select multiple adjacent rows or columns. Issue is fixed.
767895	Chromeleon Studio - Reporting: Scrolling upwards increments rows upwards, scrolling down also increments rows upwards. Issue is 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 fixed.
778178	Chromeleon Studio - Overlay of Chromatograms with Plot Option 'Label Undetected Components': When pinning and overlaying chromatograms in the chromatogram plot with enabled option 'Label Undetected Components' and one of the corresponding injections didn't have assigned a processing method the studio window showed the error message 'Object reference not set to an instance of an object'. With 7.4 this does not happen anymore. Chromatograms of injections can be pinned and overlaid even if one of the injection does not have a processing method assigned and the plot option 'Label Undetected Components' is enabled.
782220	Chromeleon Architecture - Services Manager: The Chromeleon Services Manager icon will now display a red exclamation mark and message only when Chromeleon services are set to Automatic and are not running. The message displayed will be "Some local Chromeleon services are unavailable."
781839	Chromeleon Studio - Fixed Calibration using Extracted MS-Channels: If new channels have been created for 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 7.4. Also extracted MS channels can be used for a Fixed Calibration.
783189	Instrument driver - Orbitrap Exploris 120: On an Orbitrap Exploris 120 MS instrument configured with an Orbitrap Exploris Series 4.3 and 4.4 driver sequence interruption 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 fixed and incorrect data is no longer presented in printouts.
790452 798218 809628 847926	Chromeleon Architecture - Out of Memory Exception for Sequences with a high 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, creating an audit trail report with change details) ran into an Out Of Memory Exception Error. Sometimes in this case Chromeleon became nonresponsive or crashed after some time. In Chromeleon 7.4 operations with such sequences which need to load all versions including the ones for associated methods and the corresponding audit trail has been improved in order to avoid unnecessary memory consumption. Note: This does not mean that an Out of Memory Exception does not happen anymore for such sequences. But with 7.4 the probability for this has been reduced.

ID	Description
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>
798254	<p>Chromeleon Console - Sequence: Replicate ID field not filled with the right values when adding injections - behavior different when compared against Vial position. Issue is fixed.</p>
804046	<p>Chromeleon Console – Sequence: Default Value for injection variable 'Auto-Dilution Ratio' was not working as expected. Issue is fixed.</p>
804567	<p>Chromeleon Studio - Atlas Peak Detection - Atlas Peak Detection was not available for MS server-side processing when the MS Processing Compatibility mode of Chromeleon 7.3.2 and later was enabled. This has been resolved.</p>
808720	<p>Chromeleon Studio - Custom Formulas, Memory Leak: When using custom formulas Chromeleon didn't free up allocated memory (RAM) when such formulas were evaluated, e.g. during rendering a sheet in a report template or when creating a corresponding printout or report. In some cases (e.g. sequence with many injections and lots of customer formulas in the report template) Chromeleon could even run into a "system out of memory" state. This is fixed now with 7.4. The use of custom formulas does not trigger memory leaks anymore.</p>
813781	<p>Chromeleon Studio - Data Audit Trail Details for Chromatogram Modifications: The details window for an audit trail record of a chromatogram showed just the channel name of the chromatogram. There was not any information about the injection for which the chromatogram has been modified.</p> <p>With 7.4 the title of the details window for a chromatogram modification and also in a corresponding HTML report is extended now with the injection name and number to show for which injection the chromatogram modification has been done.</p>
813782	<p>Chromeleon Studio - Disable / Enable Calibration for Components in MS Sequences: Having a MS sequence with a processing method containing XICs for components and for at least one of the component the Quan XIC has been manually integrated the dialog to disable or enable the calibration point for this component showed an internal GUID for the corresponding MS Quantitation channel. Also, the TIC channel was not present in the channel list of this dialog.</p> <p>In 7.4 the weird channel GUID is replaced by MS Quantitation channel. Also, the TIC channel appears now in this list.</p>
813784	<p>Chromeleon Studio - Text Export (Raw Data) for MS Sequences: For MS Sequences the parameter dialog for the Text Export (Raw Data) option showed some internal GUIDs in the Fixed channel list if at least one Quan XIC of a component or the TIC has been manually integrated for at least one injection. With 7.4 this is fixed now. Instead of these weird list of internal GUIDs the Fixed channel list will be populated with MS Quantitation and TIC.</p>
813790	<p>Chromeleon Studio - Mass Spectra Plot, Audit Trail Comparison Details: The properties of the property page 'Label' of a Mass Spectra plot object have not been listed in the comparison details window for a corresponding view settings or report template data object.</p>

ID	Description
813791	Chromeleon Studio - Smoothing of icIEF channels: For signals of an Imaged-Capillary Focusing (icIEF) data set a subsequent smoothing operation didn't apply the same signal meta data as the original one. The smoothed signal did not show up as an icIEF channel. Chromeleon treated such signals as "ordinary" channels without the specific data processing capabilities (pI Chromatograms incl. pI markers) for such signals. This is now fixed in 7.4. Any channel created via a corresponding post-run operation (e.g. Smoothing, Copying, Arithmetic Combination) of an acquired icIEF channel will also be treated as an icIEF channel as well.
813794	Chromeleon Architecture - Failure Copying Sequences: During a long running copy operation for sequences (e.g. MS-Sequences with large RAW files) located on a load balanced datavault it could happen that Chromeleon reported a failure. The copy operation didn't succeed. With 7.4 this doesn't happen anymore.
813807	Chromeleon Studio - Reporting 2.0, IPD Chromatogram Plot: In the Report Designer for Report Templates 2.0 the IPD Chromatogram Plot has not been updated automatically if a different injection has been selected in the navigation area of the Studio Window.
813811	Chromeleon Console - Injection Query, Sequence Signature Status: An injection query which looks for injections with the sequence signature status 'Submitted' will also find sequences which are in signature state 'Reviewed' and / or 'Approved'. This is by design. Sequences which are in state 'Reviewed' or 'Approved' need to be submitted first. The Online Help has been updated for 7.4 to explain this dependency. If you want to query only for injections / sequences with signature state 'Submitted' but not reviewed or approved yet you need to add the corresponding search criteria (Signature Status <> Reviewed and Signature Status <> Approved) in the injection query.
813814	Chromeleon Studio - Spectra Plot and I-t Plot, Audit Trail Comparison Details: If the option 'Apply scaling to all plots' on the property page 'Scaling' for any Spectra of I-t plot object is deactivated different scaling can be applied for different components or time spectra. If a view settings or a report template data object containing such a spectra plot object is saved in this state, the comparison details for the corresponding audit trail record showed the error message "An error occurs while comparing the items". Using Chromeleon 7.4 this error message doesn't show up anymore. Instead, the comparison details window shows the status of the option 'Apply scaling to all plots' (Yes or No) together with the status of the other scaling properties.
813833	Instrument Driver - Vanquish pumps: If the values of the flow, pressure upper limit and/or pressure lower limit was changed on the ePanel and " Tab" was pressed after each change, sometimes two entries were written to the audit trail for one change.
813836	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.
813837	Instrument Driver - Vanquish Flex DAD: For the Vanquish Flex DAD (VF-D11-A) the "Slit width" setting was not shown on the ePanel.
814561	Chromeleon Architecture – FQDN: FQDN support and performance issues when trying to resolve hosts. Internal algorithm how Chromeleon handles DNS hostname resolution was adjusted.
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.

ID	Description
816656	<p>Chromeleon Studio - MS Spectra Plot, Automatic Filter Selection: After selecting peaks in the MS Component Pane for Confirmation XICs the MS Spectra Plot did not use the filter property of the confirmation XIC but the filter property of the Quantitation XIC instead if the filter selection in the MS Spectra Plot has been set to <None> which means that the MS-filter is picked automatically.</p> <p>This is now fixed in 7.4. Selecting a peak in a Confirmation XIC will use the filter property of this XIC to extract the corresponding MS peak spectrum from the RAW file.</p>
816957	<p>Chromeleon Architecture - Discovery: Client unpublished from Chromeleon domain which was previously Regional Proxy Server has data from unpublished domain still accessible. Issue is fixed.</p>
817003	<p>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, always the first filter which matches the XIC-Properties 'Precursor' and 'XIC Mass(es) or Range(s)' was used.</p> <p>This is now changed in 7.4. 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.</p>
822782	<p>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.</p>
822784	<p>Instrument driver - Vanquish Charged Aerosol Detector: Although the Vanquish Charged Aerosol Detector was unselected in the SmartShutdown of an instrument method, SmartShutdown was executed. This issue has been fixed.</p>
823555	<p>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.</p>
826552	<p>Chromeleon Console: 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 7.2.10 MUj, but it is now fixed in Chromeleon 7.4.</p>
826879	<p>Chromeleon Architecture - 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 fixed.</p>
827672	<p>Chromeleon Console: 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.</p>

ID	Description
828480 823152	<p>Chromeleon Console – Case sensitivity: Chromeleon 7.4 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>
834532	<p>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.</p>
834845	<p>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></p>
836577	<p>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.</p> <p>In Chromeleon 7.4, 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.</p>
837281	<p>Chromeleon Studio - 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.</p>
845877	<p>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 fixed.</p>

ID	Description
849104	<p>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 "<i>This Data Vault</i>", the default) and displaying the entire queue of all transfers outgoing from the PC (radio button "<i>This PC</i>"). This makes it easy to understand the state of transfers from any given machine without having to inspect multiple different Data Vaults.</p>
850829	<p>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.</p>
851128	<p>Instrument Configuration Manager - Import: Trying to import the configuration *.cmic for a Trace 1600 resulted in an object reference exception. This has been fixed.</p>
852211	<p>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 "Destination Occupied" as the reason for the failure.</p>
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> <p>When deleting an entire folder, in addition to the "Delete Folder" privilege, users must also have the corresponding "Delete [...]" privileges for all child items (including [data item]) in the folder to delete a folder; otherwise, the folder cannot be deleted.</p> <p>When copying an entire folder, in addition to the "Copy Folder" privilege, users must also have the corresponding "Copy [...]" 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 child items might be missing.</p> <p>Users with the "Move Folder" privilege can relocate an entire folder along with all child items (such as sequences, processing/instrument methods, and queries), regardless of whether they also have the corresponding "Move [...]" privileges for the individual child items.</p> <p>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 do not.</p> <p>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.</p>

ID	Description
858553	<p>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 folder. 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.</p> <p>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.</p>
860114	<p>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 fixed.</p>
860160	<p>Chromeleon Discovery Setup: Unable to connect to domain with newly created client and unpublish it. Issue is fixed.</p>
860284	<p>Service Manager: More than only dependent services are stopped/restarted. Issue is fixed.</p>
860287	<p>Chromeleon Console - ePanels: Visibility setting is not distributed properly through the domain. Issue is fixed.</p>
860289	<p>Chromeleon Studio - Reporting: Unable to save certain format functionalities for IPD Component Results Table for Reporting 1.0 and 2.0. Issue is fixed.</p>
860297	<p>Chromeleon Studio - Reporting 2.0: Some settings in Table Properties of Consolidated Table are missing. Issue is fixed.</p>
860298	<p>Administration Console: Station Audit Trail records are not visible outside of CM Domain Controller. Issue is fixed.</p>
860607	<p>Chromeleon Studio - Reporting 2.0: Report Designer does not show dynamic data. Issue is fixed.</p>
860608	<p>SDK Test Harness: Unable to create sequence from eWorkflow section. Issue is fixed.</p>
860609	<p>Chromeleon Studio - Reporting 2.0: Navigating through Injections reports error. Issue is fixed.</p>
860611	<p>Chromeleon Studio - Reporting 2.0: Unable to save linked reporting 1.0 variable as reporting 2.0 variable. Issue is fixed.</p>
860612	<p>Chromeleon Studio - Reporting 2.0: Preview of Report template 2.0 fails in case that user is missing Create electronic report privilege. Issue is fixed.</p>
860613	<p>Chromeleon Studio - Reporting 2.0: Error is shown when saving default reporting templates without any changes. Issue is fixed.</p>
860614	<p>Chromeleon Studio - Reporting 2.0: Reporting variables are duplicated and not properly converted/positioned when they have position below table. Issue is fixed.</p>
860615	<p>Chromeleon Studio - Reporting 2.0: Converting Report template from 1.0 to 2.0 results in error. Issue is fixed.</p>
860616	<p>Chromeleon Studio - Reporting 2.0: Some SmartLink settings are not converted from Reporting 1.0 to 2.0. Issue is fixed.</p>
860617	<p>Chromeleon Studio - Reporting 2.0: Unexpected error during conversion of MAM template from Reporting 1.0 to Reporting 2.0.</p>
860618	<p>Chromeleon Studio - Reporting 2.0: User receives unexpected exception when trying to create print preview. Issue is fixed.</p>

ID	Description
860619	Chromeleon Console: Clicking Save button while creating a new sequence results in error. Issue is fixed.
860620	Chromeleon Console - eWorkflows: Unable to use Chromeleon in case that associated items are offline. Issue is fixed.
860621	Chromeleon Architecture - Discovery: Resource status is not properly updated when services are turned off through Service Manager and PC is assigned to a Region. Issue is fixed.
860847	Chromeleon Architecture - Discovery: Resource status is not properly updated when services are turned off through Services Manager. Issue is fixed.
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.
860914	Chromeleon Console - Import/Export: In some instances, it would happen that when importing a RAW file, the LC channels were incorrectly named and in cases involving multiple detectors the created channel could be assigned to the incorrect detector. This has been resolved. LC channels will now be correctly named according to their source, and channels will be accurately assigned to the appropriate detectors when importing RAW files.
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.
860954	Rulesets: Previously users were able to edit all settings on the Spectral Library Screening tab in the processing method, even if they did not have the necessary privileges. This has been resolved and now, only users with the appropriate privileges can edit settings on the Spectral Library Screening tab in the processing method.
860956	Chromeleon Console - Import/Export: When importing a CSV file containing fragment data into a sequence with suitable injections and raw files, the MS-Filter for the Quan XIC was found to be empty for all imported components. This issue has been resolved. After importing a CSV file with fragments, the MS-Filter for the Quan XIC is now correctly assigned for all imported components.
860958	Administration Console – Global Policies: In the Admin Console, navigating to Global Policies, enabling User Mode and entering an invalid or blank URL for Ardia Integration no longer causes an unhandled exception and an appropriate error message is displayed.
860995	Chromeleon Console - 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.
860996	Chromeleon Studio - Privileges: For several columns in the Processing Method Component Table, it was possible to change the cells by copy & paste, without having the correct privilege assigned. This has been resolved and users who do not have the correct privilege assigned are restricted from making changes by copy & paste.

ID	Description
860997	Chromeleon Console - Data Audit Trail: When deleting an injection, the Additional Info in the data audit trail did not show the injection (s) that had been affected. The entry also did not indicate the number of injections deleted. This has been resolved. The data audit trail now correctly displays the injection(s) in the Additional Info when injections are deleted. The entry also includes the number of injections that have been deleted.
861171	Chromeleon Studio – Charge state: 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.
861295	Administration Console: Privileged Actions: Removal of Computer in Domain Resources does not request Authorization dialog. Issue is fixed.
861297	Chromeleon Discovery Setup: Buttons for switching Chromeleon domain not visible due to scaling issues. Issue is fixed.
861299	Instrument Configuration Manager: Duplicate Baseline Monitor Sequences Created When Using Non-Existent Sequence Name. Issue is fixed.
861303	Chromeleon Studio - Reporting 2.0: Spreadsheets formulas are not converted from Reporting 1.0 to Reporting 2.0. Issue is fixed.

5 Limitations and known issues

New, updated, and recently reported known limitations and issues identified during the development of Chromeleon 7.4 are listed below.

5.1 Limitations with Thermo Scientific instruments

ID	Description
165516	NTMS: Obviously incorrect results (e.g. Ratio = 99999.9, PR Element = -1) may be reported in Chromeleon when The SIEVE engine generates errors. These errors may be seen in the SIEVE log file found in C:\ProgramData\Thermo\SIEVE\
172030	UltiMate 3000 MWD-3000 and DAD-3000: In the Instrument Method Editor for these devices, the script page offers one additional option for the data collection rate (20 Hz) that is not present in the Instrument Method Wizard. This additional option is a valid value for this parameter. Although it is possible to manually type in a value for the data collection rate that is not in the list, these values will be rejected by the Ready Check when a sequence is submitted.
CM7-25370	Vanquish Duo: Instrument Method, Electronic Report: An inverse gradient method created on Chromeleon 7.2.7 (or earlier) can be run on Chromeleon 7.2.8 or later. However, Chromeleon 7.3.2 does not support Smart Startup, Smart Standby or Smart Shutdown settings for inverse (or tandem) gradient methods. Hence in Chromeleon 7.3.2, for an inverse gradient method created on Chromeleon 7.2.7 (or earlier) any Smart Startup, Smart Standby and/or Smart Shutdown settings included in the method are neither executed nor reported.
CM7-25447	Vanquish Duo Autosampler: When adjusting the needle height, this is only adjusted for the left-hand sampler unit, and not for both sampling units as would be expected. Use the property Sampler2.SampleHeight to adjust the needle height for the right-hand sampling unit
148280	Vanquish DAD HL: With a Vanquish DAD HL (VH-D10-A) in very rare cases, the injection is running continuously, and the UV signal is not recorded.
171456	UltiMate 3000: When migrating from Chromeleon 6.8 to Chromeleon 7.4 (under Windows 10), UltiMate 3000 system(s) connected via USB may result in the PC to which these instruments are connected not starting. Workaround: Disconnect the USB cables for the UltiMate 3000 system(s) before starting the PC, start the PC, then connect the UltiMate 3000 system(s) via USB.
171977	Shared Devices: When configuring an UltiMate 3000 DGP or a Vanquish Dual Pump, a Vanquish Dual Autosampler, or Vanquish Column Compartment that is shared between two instruments, make sure to use non-identical device names for the instrument devices (e.g., PumpLeft and PumpRight). If an UltiMate 3000 DGP or a Vanquish Dual Pump, a Vanquish Dual Autosampler, or Vanquish Column Compartment are shared between two instruments with identical device names (e.g., "Pump") in both instruments, removing the driver from one instrument and moving it to the other instrument results in a fatal error. Workaround: Rename the instrument devices to non-identical device names (e.g., rename the pump units to PumpLeft and PumpRight). Save the instrument configuration and restart the server. Alternatively, remove the driver, save the configuration, restart the server and re-add the driver again.

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>Workaround (from Chapter 3.10.3 of the HPLC OQ/PQ Operating Instructions) PGM / Instrument methods:</p> <p>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.
320796	<p>SmartX: If an MS is part of the system, SmartX is not supported.</p>
172041	<p>ESA Drivers: Coulochem III: Before setting the cell state to ON manually, please ensure that eluent is flowing into the detector. Otherwise, the detector can be damaged.</p>
CM6-22760	<p>TRACE 1300 GC: The autozero function does not work correctly for the FID, NPD, ECD and FPD detector types.</p>
CM7-25600	<p>TriPlus RSH / TriPlus 100: When running the TriPlus RSH or TriPlus 100 in Clone mode (Autosampler serves two GCs), if the Virtual Terminal is opened from the ePanel of one of the GCs and a Sequence is started for the other, the Sequence fails with an error; "Sample – Error while validating script. (Trayplate 1: Slot 1:3)". The workaround is to close the Virtual Terminal on GC1 before attempting to start the run on GC2.</p>
CM6-23614	<p>TriPlus RSH: When using the TriPlus RSH in constant double pro headspace mode, starting a sequence that includes a constant double pro method will generate a validation error.</p>
CM6-24043	<p>TriPlus RSH: If firmware version 2.2 is installed on the TriPlus RSH autosampler, then tool changes on the instrument are not immediately recognized in Chromeleon. It is necessary to disconnect and reconnect the instrument after such changes are made; they will then be detected.</p>
172735	<p>TriPlus 500 HS: When acquiring a sequence with overlapping sample preparation, the system may create an audit trail log event regarding a vial/injection that is not the current injection. When this occurs, the event is logged to the current injection rather than the preparing injection to which it relates.</p>
CM7-25760	<p>MS Drivers: When working with MS devices, the raw file must be created prior to the injection taking place. It is therefore expected that the time stamp in the raw file header differs slightly from the injection time noted in Chromeleon.</p>
CM7-16030	<p>TSQ Quantiva and Endura: With these instruments the standby state reports that the instrument is on, regardless of the real instrument state.</p>
CM7-16154	<p>TSQ Quantiva and Endura: When creating an Instrument Method for the TSQ Endura or TSQ Quantiva, the MS run time is not the same as the Chromeleon run time. The user should enter the correct run time on the MS page of the Wizard.</p>

ID	Description
CM7-17668	TSQ Quantiva and Endura: TSQ Endura and TSQ Quantiva instruments are usually shipped with a PC (“Endura/Quantiva PC”) that includes all the necessary instrument data files, such as calibration files, for operating the MS instrument. If you want to control an instrument using a different PC, make sure that the specific instrument data files residing on the Endura or Quantiva PC are backed up and transferred to the new PC. For details on performing this process, please consult with your local MS field service engineer.
CM7-21967	TSQ Quantiva and Endura: The TSQ Endura and Quantiva mass spectrometer method editor is supported on English operating systems with English/United States regional settings only.
CM7-24445	TSQ Quantiva and Endura: Instrument methods written with an earlier version of the method editor cannot be opened with a newer version thereof.
CM7-23138	MSQ Plus: It is recommended to use only the MS driver provided on the Chromeleon installation medium. Other versions of the MSQ Plus driver may not be compatible with Chromeleon. Please consult your local field service engineer for additional details.
CM7-16557	MSQ Plus and Tune Application: When using the MSQ Plus with Chromeleon the user must wait for the Chromeleon Instrument Controller to be in idle mode before opening the Tune application. Without waiting, the MSQ Plus will not be able to change the operating mode (On, Off, Standby), or it will not be possible to run injections. To recover from this error both the PC and the MSQ Plus would have to be restarted.
172740	MSQ Plus: There are known issues where saving or modifying MSQ Plus instrument methods or Tune files fail. This change in operation has been linked to applying monthly Microsoft Quality updates to Windows 10 and Windows 7 operating systems. Removing the Windows KB Updates will resolve the issues in most cases. However, in certain situations, it may be necessary to restore the system to an earlier point before the Windows Updates were applied. It is strongly recommended that automatic updates for Windows be disabled on systems running MSQ Plus instruments. Any Windows Updates that are planned for application on systems running these instruments should be tested at the installation site before they are installed on a system in active use.
CM7-20295	TSQ 8000 and ISQ Series: When a GC-MS instrument method includes a scan event containing multiple SIM ions (e.g. “SIM 115, 152, 188”) then data from matching filters collected at different time ranges will not be combined into a single filter in the data for that injection.
CM7-23669	TSQ 8000 Series: If you attempt to abort an acquisition of multiple timed acquisitions while the MS is acquiring data, the MS will not cycle back to a Ready state and the sequence will not end. It is necessary to stop and restart the Instrument Controller to regain access to the instrument.
CM7-22490	Exactive Series: When setting the divert valve parameters for an Exactive Series MS with a 2-position valve, the valve positions are recorded in the MS raw data opposite of how the divert valve parameters were configured.
CM7-17500	Exactive Series: Exactive Series instruments are usually shipped with a PC (“Exactive PC”) that includes all the necessary instrument data files, such as calibration files, for operating the instrument. If you want to control an Exactive instrument using a different PC, make sure that the specific instrument data files residing on the Exactive PC are backed up and transferred to the new PC. For details on performing this process, please consult with your local MS field service engineer.

ID	Description
172744	<p>MS Tuning: When one or more MS Tune Reports are deleted from their default folder (/Instrument Data/(Instrument Name)/MS Tune Reports) the list of available Tune Reports on the MS ePanel will not be automatically refreshed to reflect the change. This can occur if the reports are deleted manually as well as if they are deleted automatically (when automatic archiving is enabled)</p> <p>The workaround is to close and reopen the Chromeleon Console.</p>
245918	<p>MS Tune: The embedded tune window in Chromeleon can be closed while running a calibration by exiting Chromeleon. The Chromeleon window closes, and the calibration continues. An invalid entry will be added to audit trail e.g., 'Diagnostic run finished with result passed'. Restarting Chromeleon immediately will open Tune to allow the user to start a new calibration while the previous calibration could still be running. This in turn means that the results of both calibrations can be unreliable. This is different from the behavior of the stand-alone Tune application. When closing the stand-alone Tune application, a warning "Calibration is in progress. Do you want to close Tune application?" is shown allowing the user to confirm or cancel closing the stand-alone Tune application.</p>
834233	<p>CurrentSet Property in ICS_6000 IM: When generating an Instrument Method (IM) for ICS_6000 the suppressor Property called "CurrentSet" is sometimes omitted in the generated script.</p> <p>Workaround:</p> <p>To resolve this issue, you can manually add the "CurrentSet" property to the respective suppressor by editing the script after the IM is generated. Once this property is added, the IM will function as intended.</p> <p>Example:DC.Suppressor2.CurrentSet= 2.0</p>
850335	<p>Vanquish Drivers: A Vanquish instrument with two Column Compartments cannot be configured. The underlying cause for this issue may be insufficient USB bandwidth to fulfill the bandwidth reservations made by the instrument modules. When a second Column Compartment driver instance is configured with the USB address that is already used by the first Column Compartment, an error message indicates that the selected USB address is already in use.</p>
854050	<p>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."</p> <p>Workaround: After opening or closing the shutter manually (e.g., via ePanel), disconnect and reconnect the Vanquish VWD before downloading the firmware.</p>
854054	<p>TSQ MS Tuning/Calibration: If the instrument is disconnected while a tune/calibration operation is in progress, the tune will not automatically fail or abort. It may take an hour or more before the instrument audit trail reports that the MS is disconnected. If the instrument is reconnected, the calibration will automatically resume.</p>
854059	<p>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.</p>

ID	Description
162479	<p>Vanquish Driver: For the Vanquish DAD FG/CG and MWD CG, the wellness properties for the UV/VIS lamp operation time limit and warning were transmitted enlarged by a factor of 4 to the instrument. Warnings and limits are now transmitted correctly to the instrument.</p> <p>If you have previously set limits and/or warnings for the Vanquish DAD or MWD lamp operation lifetimes, these will now be read out from the firmware at 4 times the intended value. If you wish to remain with the initial settings, you will need to adapt the values set for the UV/VIS lamp operation time limits and/or warnings in Chromeleon by reducing them to their initial value (25% of new value).</p> <p>Example: With Chromeleon 7.3 (or earlier), 7.2 SR5 MUK (or earlier) or 7.2.10 MUA, a setting of UV/VIS lamp operation time limit of 2,500 hours would be transmitted to the firmware as 10,000 hours. After an upgrade to Chromeleon 7.3.2, the value of 10,000 hours is read out from the firmware and set as the UV/VIS lamp operation time limit in Chromeleon. If the intended limit is 2,500 hours, you will need to adjust the limit in Chromeleon to 2,500 hours.</p>
870251	<p>Vanquish Autosampler: Wash solvent monitoring is currently not supported for the Vanquish Dual Split Samplers (VH-A40-A, VF-A40-A).</p>
163499	<p>UltiMate 3000: In very rare cases the injection status of an injection stays on “Running” and subsequent injections are not started. Proceeding to the next injection requires a restart of the Instrument Controller. Upon restart of the Instrument Controller the status of the injection is changed from “Running” to “Interrupted” (although “Finished” would be appropriate).</p>
167481	<p>UltiMate 3000: Trying to acquire the pump pressure signal for 24 hrs. with a high data rate (100 Hz) results in an instrument crash. This was seen with an UltiMate 3000 pump HPG-3400RS. This is due to the fact that the signal acquired at 100 Hz for 24 hrs. results in 8.64 million points. The console memorizes these points and increases the size of the respective PointList, which leads to System.OutOfMemoryExceptions in the console. The only way to fix this is to stop the instrument controller and close down Chromeleon.</p>
172736	<p>Vanquish Autosampler / Charger: In rare cases if a transport error occurs with the Vanquish Autosampler (VH-A40-A or VF-A40-A) with a charger (VH-A90-A), it is not possible to bring the system into an operational state using the commands “Reset” or “Cleanup”. An instrument controller restart is necessary.</p>
172738	<p>Vanquish DAD HL: Using the command "UV.Shutter Closed" in an instrument method after the Acquisition Off commands, the Method Check does not trigger a warning or error. Using this instrument method in a sequence does not elicit a warning or error in the Queue Ready Check. However, starting the queue fails and Chromeleon reports in the instrument audit trail: "Can't change the 'Shutter' property during data acquisition, or during autozero, calibration and validation procedures."</p> <p>The command "UV.Shutter Closed" can only be inserted after the acquisition off commands using the instrument method script editor by an expert user, who should be aware that the "UV.Shutter Closed" cannot be inserted after the acquisition off commands.</p> <p>Workaround: Use an instrument method without any acquisition or a trigger that waits for the acquisition to end.</p>
172739	<p>Vanquish Autosampler: The option “External Rack Transfer” is not compatible with Chromeleon User-Defined Programs (UDP’s).</p>
172742	<p>IQ/OQ/PQ: For the OQ/PQ for the UltiMate 3000 NCS-3500RS in the warmup and oven test sequence Solvent B shows a wrong value on the specification sheet. Instead of "water + 0.x% acetone" the sheet shows "Caffeine..." as the value for solvent B for gradient (correct reference is line 375 instead of 372).</p>

ID	Description
172746	Vanquish Charger: The Vanquish Charger is only supported with Vanquish Autosamplers with temperature control.
172751	Vanquish Autosampler: The option “External Rack Transfer” is not compatible with Chromeleon User-Defined Programs (UDP’s).
195521	GCMS Single Quadrupole instruments (ISQ and ISQ 7000 families) and GCMS Triple Quadrupole instruments (TSQ 8000/9000 families): GCMS Single Quadrupole instruments (ISQ and ISQ 7000 families) and GCMS Triple Quadrupole instruments (TSQ 8000/9000 families) provide several options (e.g. timed SRM mode) for which the permission to use the option is stored in the flash RAM of the MS hardware. If you purchase the option at the time of the MS instrument purchase, the flash RAM has the option included. If you purchase the option after the MS instrument purchase, Thermo Fisher ships you a small ini file, which you then upload to the MS flash RAM. If a Chromeleon instrument method requires such a GCMS instrument option, but the permission for the GCMS instrument option is not available in the flash RAM of the MS hardware, the Sequence Ready Check and Instrument Audit Trail show an error message. (For example: „Instrument method cannot be run: Timed mode is not allowed under the current license. To enable timed mode acquisitions, please upgrade your software to include time mode.“) This error message is somewhat misleading, as it is the flash RAM of the MS hardware that needs to be updated with the relevant permission, not Chromeleon itself.
198957	ISQ EC/EM or GC ISQ/TSQ: When using either the ISQ EC/EM or the GC ISQ/TSQ series there exists the possibility of sequence interruptions where the injection audit trail records the message "Error initializing the raw file. CouldNotCreateRawFile".
205590	Vanquish Dual Pump (DGP): If a Vanquish Dual pump is configured with the option “shared bottle” selected, it should not be possible to set different eluent monitoring properties (%A/%B/%C_WarningLimit and %A/%B/%C_Level.LowerLimit) for the two pump units. However, it is possible to set the WarningLimit and Level.LowerLimit to different values for both pumps. This results in different RemainTime values for both pumps, which is not possible with a shared bottle. In addition, %A/%B/%C_Level.Value is divided by a factor of 2. That is, the system switches the pump off at half the intended Level.Value. This limitation is not applicable in cases where a Vanquish Solvent Monitor module is part of the instrument. Workaround: Set the same eluent monitoring properties (%A/%B/%C_WarningLimit and %A/%B/%C_Level.LowerLimit) for both pump units.
238872	Vanquish ISQ Family: If the device name of Vanquish ISQ Family is using Unicode characters (e.g. if it is localized in Japanese) the Ready Check fails.
238873	UltiMate 3000 PCM-3000: For UltiMate Detectors DAD, MWD and VWD with the PCM-3000, the automatic gain adjustment of the PCM-3000 frequently leads to wrong conductivity channel values.
254951	MS Method Editor: When trying to open the MS method part of multiple instrument methods Chromeleon Studio crashes with "System out of memory".
279701	Exploris 120: Opening the method editor or opening the Online Help results in an error: “Error in sample changed event handler of object Processing Method Editor. Exception of type 'System.OutOfMemoryException' was thrown.” Workaround: Close and re-open Chromeleon Studio regularly when opening / examining MS methods.
296042	Vanquish Core DAD: In very rare cases, when two Vanquish instruments are configured with a Vanquish Core Diode Array Detector each, switching off one of two DAD detectors may lead to a negative interference with the second DAD. The second DAD may stop sending data, and the chromatogram stops displaying detector data. As a consequence, the sequence may be aborted after a time delay.

ID	Description
282028	UltiMate VWD-3400(RS): In the data collection section for the UV portion of a method, the peak width value will change to 0.02 min if the method is saved and reopened. The Data Collection Rate and Time Constant will change according to the Peak Width entered in the Instrument Method Editor and stay at the desired value after the method is saved and reopened.
344351	Thermo ISQ and TSQ GCMS: Instrument methods developed for the Thermo ISQ or TSQ GCMS using a driver version older than 5.0 will not be readable or usable when version 5.0 or higher of the driver is installed. The workaround is to either downgrade the driver to the older version or re-create them using the version 5 driver.
347230	Thermo Exploris Series ePanel: On the Thermo Exploris Series ePanel the "MS Parameters" panel is missing.
454004	Firmware update: Chromeleon does not prevent a firmware update while an acquisition is in progress.
452557	Vanquish Solvent Monitor: After a solvent channel of the Vanquish Solvent Monitor has been disabled on the 'More Options' subpanel, it can only be reactivated via the command (F8) window.
639922	ISQ-EM Quadrupole MS Driver for GC-IC-LC driver version 5.1: The filters defined in the instrument method are not selectable in the Real Time Plot. Only the TIC is available. Workaround: Install Foundation 3.1 SP9 as a part of an upgrade to CM 7.3.2 (and higher). After installing Foundation 3.1 SP9 on the IPC the filters become available.
789292	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." While the root cause of this behavior is likely a firmware issue, Chromeleon now alerts users to incompletely recorded data by issuing an error in the injection audit trail for missing analytical data and a warning in the injection audit trail for missing diagnostic data.
816108	Licensing: A race condition to apply licenses to the network file protection (NFP) cache on IPCs, intermittently results in the Hardware Monitoring Service (HMS) overwriting the Instrument Controller licenses that should be provided by the License Service. On network failure, the IPC doesn't have the cached Instrument Controller license available to continue operations and may result in failed sequence injections. Disabling the HMS removes the race condition to ensure NFP operation continues as expected.
823168	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. Workaround: For an MS system, do not select the option "Start service on system start" in the "Chromeleon Services manager".
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." While the root cause of this behavior is likely a firmware issue, Chromeleon now alerts users to incompletely recorded data by issuing an error in the injection audit trail for missing analytical data and a warning in the injection audit trail for missing diagnostic data.

ID	Description
857917	MS Systems: With a Tribid 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 Tribid Series driver version 5.0, Stellar Series driver version 1.2 and TSQ Series driver version 5.0.
864816	Orbitrap Hybrid Series: When configuring an Orbitrap Hybrid Series instrument with the Orbitrap Hybrid Series driver version 5.1 and changing the instrument name to a non-default name, pressing the "On" or "Standby" button on the ePanel results in an error message "UnknownSymbol:MSDevice.OperatingMode" in the Ready Check.

5.2 Limitations with Waters instruments

ID	Description
148624	Waters Alliance 2690/2695: In very rare cases, a sequence is interrupted with the error message: "Acquisition finished by Chromeleon before first data point could be transferred. Maybe the run time is too short in case of blank run."
172741	Waters Alliance 2695: It is not possible to control a column selection valve installed in a Waters Alliance 2695.
181345	Waters Alliance 2690/2695 and 2489 UV/Vis detector: Very rarely a sequence interruption with an error message "Acquity System state has changed to error during run." is seen.
256747	Waters 2487 absorbance detector: Changing properties on the Alliance 2487 detector ePanel does not apply in the firmware. It is not possible to set the Data_Collection_Rate, AutozeroOnEventIn , AutozeroOnWlChange, FilterTimeConstant, FilterType or Wavelength from the ePanel or from the Command (F8) window. These properties were removed from the ePanel. Only the property Lamp On/Off can be set from the ePanel and from the Command (F8) window.
279507	Waters eAlliance 2695 HPLC and 2998 Detector: When trying to collect data, after the first injection the acquisition stops with an error message: "Acquisition finished by Chromeleon before first data point could be transferred. Maybe the run time is too short in case of blank run".
299266	Waters eAlliance 2695 with Waters RID 2414 or PDA 2998: In rare cases with a Waters eAlliance 2695 with a Waters RID 2414 or PDA 2998 data acquisition is not possible and an error message "Acquisition finished by Chromeleon before first data point could be transferred. Maybe the runtime is too short in case of blank run." is shown.
317906	Waters eAlliance: The curve parameter is handled differently in the GPIB and LAN driver for the Waters eAlliance. For the eAlliance LAN driver if the curve is set to "6" in the Chromeleon IME, a linear gradient is performed. This is the same behavior seen with Waters Empower. Please note that by default the curve parameter is set to "5". The value needs to be actively set to "6" to perform a linear gradient. Also, instrument methods created with the eAlliance GPIB driver are not compatible with the eAlliance LAN driver with respect to the curve setting.
331239	Waters eAlliance LAN driver: With an instrument method in which the parameter "HPLC_System.Pump.Curve" is placed right after the parameter "HPLC_System.Pump.Flow.Nominal" in the gradient script, Channel %A switches to 100% right after inject. This can only be observed on the eAlliance display. Workaround: Set the parameter "HPLC_System.Pump.Curve" as the last parameter for a given gradient step. This is achieved when using the IME to create the gradient.

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 7.4 installation disk. For Agilent drivers, please refer to Agilent documentation.

ID	Description
CM7-19347	Agilent G1312B DAD: When using this device in combination with an old JetDirect card, problems may occur collecting data at 80Hz. Users affected by this issue should contact their local Thermo Fisher Scientific representative for advice on possible solutions.
CM7-20047	Agilent VWD G1314B: When using a G1314B VWD, occasionally the chromatogram is half the expected length.
CM7-21172	Agilent ICF: If the user has the monitor DPI settings on their PC set at greater than 100%, then some parts of the Agilent LC system device ePanel are not visible.
CM7-21427	Agilent ICF with 1100 or 1200 LC DAD: When acquiring data from an Agilent 1100 or 1200 LC DAD, the signal trace may be shifted to the start of the run, and the end time is inconsistent. No data points are lost with a data rate of 10 Hz and slower (≥ 0.025 min 0.5 sec) 20 Hz and a low number of spectra (all other than ALL Spectra) 20 Hz and spectrum range 190- 400 step 2
CM7-22567	Agilent ICF: When using a Diode Array Detector with the Agilent ICF, it is necessary to enable spectra collection initially (this also allows to specify the wavelength range to be used in this run). If no spectra are needed for a specific time window during the run, use the timetable to temporarily set the mode to “None”.
CM7-23096	Agilent ICF – Fraction Collector: If a Fraction Collector with Thermostat is installed, the channel mapping is not correct. This can be resolved by removing the <Channel name=“FC: Delay Sensor”> node from DefaultConfiguration.xml before adding the driver. After this, the user can configure the mapping for the two channels manually on the Signals (2D) tab of the configuration dialog.
CM7-19540	Agilent ICF - GC: The Agilent GC System Configuration dialog includes entries to configure the 7697A Headspace, G1888A Headspace, 7890 GC, 6890 GC, 68550 GC, and 7820 GC. Currently, it is only possible to configure the 7697A Headspace sampler. Attempting to configure any of the other modules will result in a message indicating that the modules are not supported.
CM7-25781	Agilent 7697A: The “Sample Bar Code Reader with data tracking” option on the Agilent 7697A sampler is not currently supported in Chromeleon.
CM7-19975 CM7-20451	Agilent 7697A: The Soft Config option, available via the ICF for Agilent LCs, is not supported for the Agilent 7697 HS. It should not be added to any custom ePanel as its use can cause issues by allowing configuration changes to be applied to the sampler during acquisition.
CM7-23242	Agilent 7697A: Running multiple 7697A Headspace autosamplers on a single 247 Instrument Controller can cause Windows “Out Of Memory” errors, requiring a reboot of the 247 to resolve. Thermo Fisher therefore recommends that only one 7697A is connected to any 247 Instrument Controller.

ID	Description
CM6-23980	<p>Agilent 7697A: When starting a sequence while the 7697A Headspace Sampler is in an 'Error', 'Running', or 'Not Connected' state, the ready check does not give an error message. After the sequence starts, the following happens:</p> <p>If the sampler is in error state, the sequence starts without getting interrupted.</p> <p>If the sampler is running, the sequence stops with audit trail message "Sequence stopped by user".</p> <p>If the sampler is not connected, the sequence interrupts with audit trail messages "Lost connection to Agilent 7697A Headspace Sampler", and "The instrument is offline. Check power to all modules, cabling between modules and whether the configuration matches the list of modules."</p>
CM6-23992	<p>Agilent 7697A: The 7697 Headspace Sampler has two versions; 111- and 12-vial capacity configurations. The Chromeleon driver is written and tested with the 111-vial capacity version. Though not tested, the driver is expected to work with the 12-vial capacity module. The user should not use vial positions greater than 12 in this case. The rack view always shows 111 vial positions.</p>
CM7-20259	<p>Agilent 7697A: Although the vial position may be assigned in the instrument method script, unless this is done in the Instrument Setup Stage, the sequence table will not be updated. This can result in misleading information in reports and should be avoided.</p>
CM6-24004	<p>Agilent 7697A: Using the instrument front panel, the allowed range for Transfer Line Diameter is 200-600 microns. However, when setting this value in the Chromeleon instrument configuration the limit is 250-530 microns.</p>
CM6-24005	<p>Agilent 7697A: When 7697A headspace instrument method parameters are included in a report, the "fill pressure" parameter is rounded to the nearest integer.</p>
CM6-24007	<p>Agilent 7697A: Some parameters logged to the instrument audit trail are rounded to nearest integer. However, all values are downloaded to the instrument with the proper precision.</p>
CM6-24008	<p>Agilent 7697A: When editing an existing 7697A Headspace instrument method, if the values for Purge Flow, Purge Time or Leak Flow are changed, the Save button is not enabled until the user changes tabs.</p>
CM6-24009	<p>Agilent 7697A: When configuring an Agilent 7697A, there is an option in the user interface to "Upload Config from Instrument". This option does not work. Instead, you will need to manually configure the instrument settings.</p>
148279	<p>Agilent 7697A: When the HS 7697A connects to the software, occasionally the following superfluous error is reported: "An ICF Driver call failed. Ensure that the instrument is connected and powered on". The message does not interfere with data acquisition and may be ignored.</p>
165661	<p>Agilent LC ICF driver - 1290 ELSD: For an Agilent 1290 ELSD controlled by Agilent ICF drivers, the sequence interrupts with an error message: "Error 155: An error occurred during data collection. Data integrity compromised.". The error occurs with a data collection rate of 80Hz or greater if acquisition is running over a slow network.</p>
165966	<p>Agilent LC ICF driver: Using an Agilent LC system with a sampler and the Agilent LC-ICF Drivers on a Japanese, Chinese or Brazilian Portuguese O/S, the sequence wizard does not allow creating a sequence.</p> <p>Workaround: This issue is caused by a language satellite DLL provided by Agilent Technologies (Agilent.LCDrivers.Sampler.BusinessObjects.resources.dll). Removing this satellite DLL addresses the issue, while presenting the user interface in English language. For example, on a Japanese O/S remove "C:\Program Files (x86)\Agilent Technologies\Instrument Control Framework\ja\Agilent.LCDrivers.Sampler.BusinessObjects.resources.dll". Alternatively, use Agilent Chromeleon Drivers instead of Agilent LC-ICF Drivers to control the instrument.</p>

ID	Description
172059	Agilent 7697A: The 7697 Headspace Autosampler has two options for handling missing vials: Pause and Abort. An issue has been observed when the Abort option has been selected. In either mode, the autosampler overlaps sample preparation, i.e.: sample 2 is prepared while sample 1 is acquiring. If the autosampler finds that sample 1 vial is missing, it will Abort or Pause the sequence at the point it discovers the vial is missing. However, if the autosampler finds that sample 2 vial is missing, while sample 1 is already acquiring, and the Abort option has been selected, the entire sequence will be aborted, including the acquiring sample 1.
172753	Privileges: The privilege "Control Instrument While Queue is Running" does not apply to ICF controlled instruments. This privilege only applies to actions through Chromeleon properties or commands (command box or standard ePanel elements). It does not apply to actions through the Agilent Status UI.
192715	Agilent LC ICF driver: Aborting an injection after the start of a sequence but before the injection results in an error, requiring the instrument controller to be restarted.
222538	Agilent LC ICF driver: When reconfiguring ICF-based LC System, then opening the instruments page in the Console, the ePanel no longer shows the status windows for the individual submodules. Clicking on the ePanel control results in the crash. This is also seen with Agilent Drivers for Chromeleon.
259115	Agilent LC ICF driver: Using an Agilent LC system with the ICF driver, a running sequence may be interrupted with an error "Undefined complex Type 'LCMethodBaseType' is used as a base for complex type extension." Workaround: We recommend using Agilent Drivers for Chromeleon.
279914	GC 6890 & PE 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.

5.4 Limitations with Agilent Drivers for Chromeleon

ID	Description
143602	Agilent LC: Agilent LC re-injects the same vial twice instead of going to the next one.
143713	Agilent 12xx LC - Flexcube: If an Agilent 12xx LC configuration includes the Agilent 1290 Infinity Flexible Cube, the Flexible Cube needs to be enabled in the instrument method. When creating an Instrument Method, Chromeleon provides an option (check box) to select if the Flexible Cube is used. If this check box is cleared, the sequence will interrupt. Workaround: Remove the Flexible Cube from the Instrument Configuration to run a sequence for which the Flexible Cube is not needed.
216488	Agilent LC Autosampler: When using pretreatment method for an Agilent LC Autosampler it is not possible to use a command like "Eject 40.0 µL to seat with 200 µL/min" via the user interface as this results in an error message. Agilent confirmed that this is known issue, which has been addressed with LC Driver 3.4. However, LC Driver 3.4 is incompatible with ADC drivers (version 1.x and 2.x) due to .NET restrictions. Workaround: It is possible to set this parameter from within the method script. However, reviewing the method via the graphical user interface different parameters are displayed.

ID	Description
411453	<p>Spectral Plot: With Agilent Drivers for Chromeleon (ADC) version 2.4 it is not possible to view the spectral plot of Agilent FLD emission spectra. An error message "Spectral plot cannot be created. No spectra selected" is shown in the Studio. The FLD spectral data is stored as a 3DFIELD instead of FLField. Hence, Chromeleon Studio shows the spectral data in the UV-Vis Spectra plot, and the dedicated Fluorescence Spectra plot is not populated with the data. This is also documented in the ADC 3.1 Release Notes.</p> <p>Workaround: Use the UV-Vis Spectra plot</p>

5.5 Limitations with other third-party instruments

ID	Description
172044	<p>Third Party Drivers - Agilent/HP 1200 HPLC system: Occasionally, when using a combination of older and newer modules, the raw data was not correctly acquired.</p>
171971	<p>Agilent 6850: Instrument Configuration Manager does not report mismatches between the hardware and the Chromeleon configuration.</p>
CM7-12366	<p>Agilent 5890 DICE Card: Please note the following when using the 19257 DICE card with the Agilent 5890 GC:</p> <p>Control and acquisition using the DICE card is only supported via the serial interface. The GPIB interface is not supported.</p> <p>Digital data acquisition via the serial interface of the DICE card is only supported for a single channel; dual channel digital acquisition is not supported.</p> <p>Currently, it is possible to select certain illegal combinations in the Configuration Dialog such as:</p> <p>Digital acquisition with the 19254 card. This is not supported.</p> <p>Digital acquisition on one detector and analog acquisition on the other. Acquisition needs to be exclusively digital or exclusively analog.</p> <p>When using the DICE card to acquire data digitally, the 5890 INET mode must be set to "GLOBAL" not "LOCAL". Failure to do so will result in a "No response from GC" message following the AcqOn command in the audit trail.</p> <p>Note that when performing analog acquisition, the 5890 INET mode should still be set to "LOCAL" (as described in the Online Help).</p>
CM7-9675	<p>Agilent 7890 GC (legacy driver): There is a backward compatibility issue that affects the Agilent 7890 GC Sampler Positions. When using a 7890 GC in combination with a 7693 sampler, certain positions in the sampler could give a misspelled value to a move command. This has now been corrected and could in rare cases lead to Instrument Method files needing to be updated to avoid errors.</p>
171975	<p>Agilent 7890B GC: With certain firmware versions, the GC does not properly send abort information to the software, meaning that events such as FID flame out, pressure errors, hardware faults and so on, will not be recognized or reported by Chromeleon. The problem is seen in FW versions B.02.01, B.02.04.2 and B.02.05, but not versions A.01.xx.x. The 7890A GC does not seem to have this problem.</p>
854733	<p>Markes TD: If an instrument configuration includes a Kori-xr, then methods created in Chromeleon versions prior to 7.3.2 will fail a 'Ready Check' when submitted as part of a sequence.</p> <p>Workaround: To resolve this issue, open the method in the method editor and on the script page, delete the command(s) that reference the "KoriTrapHeatingRate".</p>

ID	Description				
172035, 172036, 172040, 172043	PerkinElmer LC200 Autosampler: When upgrading from earlier versions of Chromeleon 7 CDS to Chromeleon CDS 7.3.2, it is necessary to reload the PerkinElmer LC200 Autosampler driver and configure the loop size within the configuration. The user should then check all instrument methods using this autosampler to ensure that they continue to function correctly.				
172037	PerkinElmer Clarus 400 GC: Some users must select AutoSystem XL in configuration in order to communicate with the PerkinElmer Clarus 400.				
357361	PerkinElmer Clarus/Autosystem: The Cryo option for the PerkinElmer Clarus/Autosystem GCs is not supported.				
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.".				
161617	<p>Shimadzu LC 20 native driver: If the flow rate for a pump has exceeded upper limit, the sequence aborts with an error "HPLC_System Fatal Instrument Error (-1073708575, 1)." The Shimadzu documentation states the following for the error code C00081E1 (hexadecimal converted from the decimal -1073708575):</p> <table border="1" data-bbox="386 810 1362 990"> <tr> <td data-bbox="386 810 507 990">0x81E1</td> <td data-bbox="507 810 730 990">Pump: Flow rate has exceeded upper limit.</td> <td data-bbox="730 810 1114 990">The binary/ternary gradient system is configured with pumps of different flow rate ranges.</td> <td data-bbox="1114 810 1362 990">Check the instrument configuration.</td> </tr> </table>	0x81E1	Pump: Flow rate has exceeded upper limit.	The binary/ternary gradient system is configured with pumps of different flow rate ranges.	Check the instrument configuration.
0x81E1	Pump: Flow rate has exceeded upper limit.	The binary/ternary gradient system is configured with pumps of different flow rate ranges.	Check the instrument configuration.		
172062	Shimadzu LC-10A, LC-2010: If the user cancels the key lock state of the front panel of the instrument and then, for example, stops a manual acquisition, this is likely to lead to unexpected effects during the next operation such as sudden abort of the sample run.				
171991	<p>Shimadzu LCs: The Microsoft Visual C++ 2005 Run Time component is no longer supported by Microsoft. However, this component is required for the Shimadzu LC-2010A and Shimadzu LC-10A/20A/30A drivers and is therefore installed by Chromeleon.</p> <p>If you don't use these drivers, it is possible to uninstall the Visual C++ 2005 Run Time component from the 'Programs and Features' page of the Windows Control Panel. Alternatively, during the installation of Chromeleon, it is possible to suppress the installation of the Visual C++ 2005 Run Time component by using a response file and excluding the "__MicrosoftVisualC2005_SP1__" package. Please refer to the Installation Guide for details.</p> <p>Several of the Shimadzu devices can be controlled by obtaining an updated driver directly from Shimadzu (see the "List of Supported Instruments" for details).</p>				
141735	<p>Shimadzu Prominence-i Series: A sequence was interrupted with the error "Abort Error: Timeout while waiting for the instrument to finish, the current injection will be aborted."</p> <p>Workaround: The Release Notes provided by Shimadzu describe a workaround for LC driver version 2.20 or later: When the system is waiting to start a blank run, the data acquisition may be interrupted in some cases. As a workaround, please set injection volume to 0.0 and change the type to "unknown".</p>				
171972	Shimadzu LC: For the Shimadzu LC-10, LC-20 and LC-30 the instrument standby can be activated during a run from the instrument front panel.				
172024	Shimadzu LC: Unlike most drivers, some Shimadzu UV detectors require that you select the 'Advanced' filter in the Command (F8) window in order to access the Lamp On/Off command.				

ID	Description
194996	<p>Shimadzu 2030: When collecting UV data, in rare cases the signal drops to a very large negative number.</p> <p>Workaround: In the driver configuration set the signal factor for the PDA_Spectrum signal to 1.000 manually. Seems to be 1000 in some cases (most likely a localization problem on some systems with specific languages, in which separator and thousand separator are swapped).</p>
228857	<p>Shimadzu LC 2030: Setting the instrument method to use "DataAcquisition=False" in the sequence run, may result in sequence interruption on the Shimadzu LC 2030 with an error message: "The following device is blocking the injection run termination: HPLC_System". This is an issue with the Shimadzu LC Driver.</p> <p>Workaround: Set the instrument method to use "DataAcquisition=True".</p>
465692	<p>Shimadzu SPD-M20A DAD: The Shimadzu SPD-M20A DAD driver may scale single channel data wrongly on the time scale if the DCR is changed. This seems to occur in sequences with a blank run and if the DCR in the method is changed from the DCR that was set before the sequence was started. The 1D data for the first injection is wrongly scaled and the acquisition time is wrong. 3D data and 1D data extracted from 3D data have the correct time difference between adjacent data points.</p> <p>Workaround: Change the DCR in advance to avoid the DCR changing for the first injection of the run. Since single channel acquisition is an extract from the 3D field, one possible workaround is to extract 2D channel data from the 3D field, which contains the full, correct data.</p>
256522	<p>Bruker Scion GC: The drivers for the Bruker Scion 430 GC and Scion 450 GC are provided on the Chromeleon installation media. Installing these drivers causes a number of warnings in the Chromeleon IQ Report stating, "The file was not installed by any of the known packages." These warnings can safely be ignored.</p> <p>SCION 450 GC: Warnings for the following files in the directory C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\SCION\450GC: 450GC_20.bmp, 450GC-Help-en.chm, ACE.dll, DDK.dll, DriverCert.xml, ECC.dll, ECC_Client.dll, GC450_Node.dll, General.dll, iconv.dll, libxml2.dll, log4net.dll, lua5.1.dll, lua51.dll, MultiLanguage.dll, Node.dll, Node_Client.dll, NodeView.dll, NodeXML.dll, Observer.dll, OSX_Layer_ACE.dll, SCION450GC.Common.dll, SCION450GC.ConfigUI.dll, SCION450GC.DDKInterface.dll, SCION450GC.Driver.dll, SCION450GC.Shared.dll, and zlib1.dll, and for the following files in the directory C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\SCION\450GC: 450GC-Help-en.chm, DriverCert.xml, log4net.dll, SCION450GC.Common.dll, SCION450GC.EditorPlugin.dll, and SCION450GC.Shared.dll.</p> <p>SCION 430 GC: Warnings for the following files in the directory C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V1\Drivers\SCION\430GC: 430GC_20.bmp, 430GC-Help-en.chm, DriverCert.xml, SCION430GC.Common.dll, SCION430GC.ConfigUI.dll, SCION430GC.Driver.dll, and SCION430GC.Shared.dll, and for the following files in the directory C:\Program Files (x86)\Thermo\Chromeleon\Bin\DDK\V2\Drivers\SCION\430GC: 430GC-Help-en.chm, DriverCert.xml, SCION430GC.Common.dll, SCION430GC.EditorPlugin.dll, and SCION430GC.Shared.dll.</p>

5.6 Limitations with setup

ID	Description
CM7-21780	<p>Setup - NIST: NIST MS Search and Demo Library No Longer Automatically Installed: Incompatibilities of the NIST 2008 MS Demo Library installer with Window 10 could cause the main Chromeleon installer to hang or crash. To address this, the NIST Demo library, and the associated AMDIS and MS Search software are no longer automatically installed when you install Chromeleon. If desired, this package may be installed manually using the setup program found in the /Tools/ folder of the Chromeleon DVD. Alternatively, one may install AMDIS and MS Search using the full (licensed) NIST library installer.</p> <p>Note that MS library searching within the Chromatography Studio is not affected by this issue.</p>
CM7-23341	<p>Setup – Agilent ICF: When Agilent ICF is installed, the un-install of either Chromeleon or Agilent ICF fails if the Instrument Controller is running: “Failed to execute package Agilent Instrument Control Framework A.02.04. Another application has exclusive access to the file “C:\ProgramData\Agilent Technologies\Instrument Control Framework\RCDriver.log.” Please shut down all other applications, then select Retry.”</p> <p>To avoid this issue, stop the Instrument Controller before uninstalling.</p>
226887	<p>MS Edge Webview2: As part of the Chromeleon installation, the Microsoft Edge WebView2 Runtime will be installed, and its installation package is added to the package cache of the machine so that it can be reused for the repair/modify scenarios of Chromeleon. When uninstallation Chromeleon the corresponding package of the WebView2 Runtime component will be removed from the package cache of that machine. It is expected that this package is kept in the package cache as this system component is kept on the system after the uninstallation of the Chromeleon software. Workaround: Select the Microsoft Edge WebView2 Runtime entry of the Add/Remove program dialog of the Windows OS system and click on the repair/uninstall option. Clicking Repair will connect to the Internet. The package cache is NOT recreated, but Microsoft Edge WebView2 Runtime is properly installed afterward. Clicking Uninstall will remove the Microsoft Edge WebView2 Runtime component from the machine.</p>
254867	<p>Global Assembly Cache: Depending on the state of the machine GAC the IQ of Chromeleon 7.3.2 may report the following recommendation: "C:\Programme (x86)\Thermo\Chromeleon\bin\System.ValueTuple.dll: The file is a shared library and a different version (System.ValueTuple, Version=4.0.0.0, Culture=neutral, PublicKeyToken=cc7b13ffcd2ddd51) of it is also installed into the global assembly cache including a binding redirect. The redirected library will always be loaded from the shared file's location and never this one. Please ensure that this is by intent and does not cause any unwanted side effects." The compatibility of these two different "System.ValueTuple.dll" file versions is very high, it is not expected that it causes any issue in Chromeleon, and the recommendation can be ignored.</p>
367826	<p>Waters Driver Pack: Setup in combination with Waters Driver Pack: Chromeleon versions 7.3.1 and older on a system with Waters Drivers Pack preinstalled; try to uninstall the optional component Waters Driver Pack during uninstallation of that Chromeleon version. During the upgrade installation from an older Chromeleon version to Chromeleon 7.4, this uninstallation routine of the pre-installed Chromeleon version (mentioned before) is executed before installing the new Chromeleon 7.4 components. Although the 7.4 setup did not request this component Waters Driver Pack, the uninstaller of the older Chromeleon version removes or tries to remove the Waters driver pack (depending on if the CM7 ISO file is mounted or not). After the installation of Chromeleon 7.4, the pre-installed Waters Driver Pack installation needs to be reinstalled.</p>

ID	Description
858235	<p>Installation: When installing Chromeleon 7.4 on a system where Windows Defender's Real-time Protection (or similar anti-virus software) is active, the system configuration step of the setup may occasionally fail due to the Chromeleon 7 Hardware Monitoring Service not being able to start in time. An error message "Could not start Chromeleon 7 Hardware Monitoring Service. The service did not respond in a timely fashion." is seen.</p> <p>Workarounds:</p> <ul style="list-style-type: none"> Exclude the Chromeleon installation directory from real-time scanning for the duration of the setup. Exclude the Hardware Monitoring Service from starting via a response file. <p>If the setup already failed, manually run PostInstallation.exe from the installation directory to try again.</p>

5.7 Other limitations

ID	Description
CM7-22986	<p>During stress tests with multiple, very long sequences with more than 1000 injections, the queue was aborted with an unexpected error:</p> <p>"Queue End 24.12.2016 16:27:22 +01:00 Stopped the sequence queue run. Sequence End 24.12.2016 16:27:22 +01:00 End of sequence "Simple Vanquish Test 2016-12-21 19_37".</p> <p>Abort Error 24.12.2016 16:27:21 +01:00 The injection audit trail cannot be saved. Error detail: Die Transaktion wurde abgebrochen. The transaction commit operation failed. The save operation failed for data item(s) "chrom://c-germoefelein/Xvault/Vanquish-H/6/Simple Vanquish Test 2016-12-21 19_37.seq/277.smp/Audit.audit". Execution of txp [05f69eb4-c9ed-11e6-9598-005056c00008] failed. Error message: The command 'UPDATE CJ_VERSION SET VERSION_LAST_SIBLINGS_TXN_NO = @P0 WHERE CJ_VERSION.VERSION_INVALIDATE_TXN_NO > @P1 AND CJ_VERSION.PARENT_ID IN (@P2)' failed."</p> <p>As a workaround it is recommended that automatic upload be disabled when running very large sequences and uploading them manually instead.</p>
CM7-25151	<p>Scheduler: Copy/Move Sequences: Scheduler jobs copying or moving sequences to a network data vault might run into a state where the jobs cannot be completed anymore. One has to restart the corresponding Chromeleon 7 Scheduler Service to get this kind of deadlock being resolved.</p>
CM7-23051	<p>Audit Trail: In a few cases, sequences have been reported to abort with messages in the audit trail that were not conclusive, such as: "The injection audit trail / signal "..." cannot be saved. Error detail: The transaction has aborted. The transaction commit operation failed."</p> <p>However, the SQL Server ERRORLOG files of the affected Instrument Controller PCs revealed errors due to slow file operations on the local hard drive. Thus, it is assumed that these failures were caused by poor disk drive performance. Chromeleon 7.2 SR5 introduced additional internal error reporting so that similar errors can be identified more easily in the future.</p>

ID	Description
SWFR-248	<p>Waters Empower Import: The following limitations apply to the import of data from Waters Empower:</p> <ol style="list-style-type: none"> 1. Time zone information is not supplied by the Waters toolkit API, so dates and times will be imported as if they were local. 2. Empower allows injections that are not contained in sample sets. These are not visible to the importer and cannot be imported unless added to a sample set. 3. Some peak results fields show incorrect units in Chromeleon since there is currently no mechanism to change the units on 'core' fields. They are included correctly in custom fields that by default are hidden.
SWFR-2543	<p>Sampling Devices That Do Not Use uL As Units for Volume: Although most liquid injection devices expect volumes to be entered in uL, there are a few devices (e.g., Thermo AS-HV and PerkinElmer GC Autosampler) which do not use μL as their default volume unit. If one of these devices is configured in the same instrument that also includes an injection device that uses μL, problems may be observed with volume validation in the sequence table as well as units associated with volumes in reports.</p>
138190	<p>Instrument Method: Opening an instrument method that is assigned to a non-available instrument takes up to 40 seconds for the first attempt. Subsequent attempts are faster. The issue is caused by DNS resolution of the host name.</p> <p>Workaround: Create an instrument in simulation mode and assign the method to this instrument. Afterwards the instrument can be deleted. The DNS look-up will be faster as the physical PC is still existing.</p>
147417	<p>Report Variables: The report variables peak.evaluate, chm.evaluate and injection.evaluate expect a formula in the invariant format (e.g. ',' as list separator, '.' as decimal symbol). The evaluation does not work if other regional settings (e.g. ';' as list separator, ',' as decimal symbol) are used in the formula text.</p>
168759	<p>Instrument Method Editor: Gradient Plot: If the time stamp of the first line (white background) in the equilibration stage (e.g., t = -3.00 min, Eluent = 100% B) is different from the one of the equilibration stage header line (orange background, e.g., t = -5.00 min), the gradient plot indicates that an equilibration with the eluent combination selected for the first (white) line in the equilibration stage (e.g., t = -3.00 min, Eluent = 100% B) is used from the start of equilibration (e.g. -5.00 min). However, the actual gradient starts at the time indicated (e.g., t = -5.00 min) with 100% A and ramps to 100% B at t = -3.00 min.</p> <p>Workaround: Fully define the equilibration stage. Ensure that the first step of the equilibration stage (white background) has the same time stamp as the equilibration stage header line (orange background).</p>
169879	<p>Sequence table: In rare cases, a sequence completes, and some injections contain raw data, but the status shows "Interrupted" or "Idle" and the Inject Time field is empty. Raw data have been successfully acquired and stored on the local Instrument PC. The Injection Audit Trail on the Instrument PC contains complete information, including the missing details.</p> <p>Workaround: Remediation for this incident is manually re-executing the data upload from the local IPC to the Central Data Vault. Note: If you are affected by this problem, please contact your local Thermo Fisher representative for assistance with recovery of the missing injection details.</p>
170391	<p>Custom Formulas: In order to edit a custom formula, both user privileges 'Modify Custom Formulas' and 'Allow Formula Customization' are required. If only 'Modify Custom Formulas' is granted, it is not possible to edit custom formulas.</p>

ID	Description
171965 CM7-25633	Services: In very rare cases if the Oracle database disk is running out of disk space and in addition an IPC cannot be connected properly, it may happen that a sequence cannot be uploaded automatically. When trying to reboot the IPC a retry of the upload may result in an error message "A transaction package is missing on the hard disk. The order of transaction packages which should be sent to the network data vault can't be accomplished." The sequence can't be removed from queue automatically. It needs to be removed manually.
171967 CM7-25590	Chromatogram Plot: When creating a Virtual Channel, the Power Factor only increments in steps of 0.5, which does not provide sufficient flexibility for controlling the scale of the extracted data
171968 CM7-25551	Import/Export: If two (or more) users simultaneously attempt to export a Sequence to the same location, a "Cannot export <sequence_name>" error is displayed for all.
171969 CM7-25480	Chromeleon Console: If a Data Vault becomes unavailable, it is not automatically collapsed in the data tree despite its sub-folders and items being inaccessible.
171974 CM7-24972	Reporting: When applying a two-level Autorepeat rule with double grouping to a plot object, if the sequence contains a large number of injections and a large number of components, it is possible that software performance will degrade significantly. This has been observed when applying Autorepeat to an MS Components plot for a sequence with 27 injections and 292 components.
171986 CM7-23484	Reporting: In order to display the last updated date and time for a locked injection, it is necessary to use the Chromeleon report formula <code>procMeth.version.time</code> .
171987 CM7-23442	Reporting: In order to display the date and time in the Header/Footer of reports one can use the spreadsheet placeholders <code>&D</code> and <code>&T</code> respectively. During report creation these placeholders are replaced by the current date and time and formatted via the regional settings of the currently logged on Windows user account. However, this doesn't work correctly for every regional setting, e.g., 24-hour time formatting. Instead of using <code>&D</code> and <code>&T</code> one can use the Chromeleon report formula <code>gen.currentTime</code> or <code>gen.reportTime</code> together with the necessary format, e.g. <code>{gen.currentTime; "dd.mm.yyy hh:mm"}</code> . Note: the formula <code>gen.currentTime</code> is replaced by the current date/time during the electronic report creation. If you want to display the date/time when the electronic report is really printed or exported, you have to use the formula <code>gen.reportTime</code> .
171976 CM7-24600	Spectral Library: If a Chromeleon version older than Chromeleon 7.2.7 is used to create and name components from library screening results, then upon selecting the folder reference attempts to close the dialog with OK will result in an exception being thrown.
171994	Console - Data: Empty Inject Time and GUID fields have been observed in a few single injections. Raw data have been successfully acquired and stored on the local Instrument PC. The Injection Audit Trail on the Instrument PC contains complete information, including the missing details. Too few instances have been reported to identify the root cause of this problem. Note: If you are affected by this problem, please contact your local Thermo Fisher representative for assistance with recovery of the missing injection details.
171997 CM7-22145	Reporting: Discrepancy in "Last Modified" Time: Owing to differing rounding methods used, it is possible that the value of the "last modified" time for an object in a sequence has a difference of 1 second between the client display and the value shown in a report. For more details, please see the Online Help.
172001 CM7-21783	Processing Method: Performance When Importing Fixed Calibration Standards for MS Sequences: When working with sequences of MS data, importing injections for use in a fixed calibration can take 1-2 minutes to complete, depending on the data.

ID	Description
172004 CM7-21399	Queries: Injection Variables ‘Auto Dilution Ratio’ and ‘Retention Time Standard’: Auto Dilution Ratio and Retention Time Standard columns are not available in the custom filter conditions for injection records (e.g., in the IRC editor or summary report).
172011 CM7-20335	Comparison of Old Report Versions Shows Change in CmbxExportParameters: If a report which was created in Chromeleon 7.2 SR2 or earlier, and modified in SR3, has its history compared in SR4, the history will appear to show that the “Cmbx Export Parameters” value has changed from True to False. This is due to a change in the default value of this field and does not represent any user modification of the report.
172016 CM7-19836	eWorkflows: The eWorkflows wizard fails with a message “Failed to retrieve the required Data Vault” when there is more than one Data Vault with the same name in the Chromeleon Domain.
172018 CM7-19336	Import Chromeleon 6: Due to changes in Auditing between Chromeleon 6 and Chromeleon 7, when a Chromeleon 6 Sequence is imported into Chromeleon 7, some of the text displayed in the Instrument Audit trail will not appear exactly as it did in Chromeleon 6. Refer to the topic “Viewing Chromeleon 6 Data” in the Online Help for further information.
172020 CM7-18252	Export: When acquiring MS data, Chromeleon acquires MS data and all other signal data, such as UV, FLD, and pump pressure signals, in separate formats. As a result, when MS data is exported, non-MS data is not exported with the MS raw data file.
172023	Console – Instruments, Online Plot: For the Vanquish CAD, some properties and two channels are recorded where the data is transmitted as aA, and scaled to pA with 6 digits resolution. The online plot displays these numbers for the current signal value with 2- digit precision only.
172025 CM7-17841	Report Designer: If using a non-Chinese format as the regional setting in Windows, and Chinese as the setting for non-Unicode programs, then the header on a Chromeleon report is not correctly displayed for variables. If the format is changed to Chinese, then everything is correctly displayed.
172028 CM7-17465	Processing Method: On the MS Settings page, the spectral bunching value for Peak Dependent Correction that is displayed as an annotation on the chromatogram plot may not match the value entered in the processing method on the MS setting page. This is by design because the method setting defines the maximum number of spectra for averaging. The actual number of spectra used is determined by the number of MS spectra which fit the filter used for the chromatogram. This is not correctly documented in the Chromeleon Online Help.
172029 CM7-17203	Report Designer: With some date/time formatting settings in the report, the order of month and day changes for some formats automatically. The settings in the Report Template can change based on the Windows regional settings. For example, it is not possible to set m.d.yy as format with German regional settings. The Report Template replaces this with d.m.yyyy. The substitution occurs for report variables and non-report variable entries.
172047 CM7-11692	Console: Instruments: When monitoring the baseline with an overlay chromatogram added to the signal plot, the overlay may disappear after changing to a different ePanel and back.
172727	eSignatures: For sequences containing manually manipulated XICs saved in a software version older than 7.2.6, if the sequence was signed in a later software version without viewing the manually manipulated XICs, then verification could fail if the XICs were subsequently viewed before the verification. To resolve this situation, remove the signature, view the manipulated XIC, and re-sign the sequence. Then view the manipulated XICs once more before verification.
172734	NTMS: Due to limitations in the Sieve processing engine, it is only possible to perform NTMS processing on a system with EN US localization (that is, non-US localized systems are not supported). (This is also documented in the Sieve Release Notes.)

ID	Description
172748	Queries: When using Oracle as a data vault server, text-based queries (e.g., searching for an injection name) are case sensitive. So, for example searching for "Extract" would not return matches for "EXTRACT" or "extract". This limitation does not apply to SQL Server data vaults since SQL Server text searches are case insensitive.
174091	Console - Data: When a sequence is being added to the instrument queue, there is a brief period of time when it is possible to rename the parent folder while the operation is still in progress. When this happened, the automatic upload at the end of the acquisition failed and the sequence got stuck in the instrument sequence queue. This is because the original folder name could no longer be resolved, and so the data transfer link to the central data vault was broken. The folder name also could not be reverted to resolve the situation because once the sequence is queued, it is marked as redirected, and the parent folder becomes locked, preventing renaming. Workaround: In this case, a manual move operation needs to be executed to remove the sequence from the queue.
185378	Injection Audit Trail: When a chromatogram is modified and saved, a new audit entry, related to the modification, is created for the injection and sequence data objects. The audit trail for the injection will also begin to display an entry for the creation of the chromatogram with a version number of 1. In cases where changes are made to injections before they are acquired and then modifications to chromatograms occur later, the version ordering in the injection audit trail may appear out of sequence. Specifically, version 1 of the chromatogram might be shown after previous versions of the injection. Despite this, the timestamp and placement of the chromatogram creation entry in the injection's Audit Trail remain correct.
195555	Spreadsheet Function TRUNC(): the 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.
215589	NTMS: When processing NTMS data using the SIEVE algorithm, at times the molecular weights of similar samples may differ, even though the molecular masses are very similar. This is a consequence of how the SIEVE algorithm analyzes the data and is to be expected.
231359	Data Import: Import of CMBX files by previous Chromeleon releases or into data vaults with an old database scheme: Chromeleon 7.3.2 is using a new database scheme for data vaults which records the logon role in the data audit trail. If a data object (e.g., sequence) contains data audit trail records with a role and the data object is exported to a CMBX file, the import of such a CMBX file by a previous Chromeleon release is still possible. Yet the imported data object cannot be modified anymore. Any attempt to modify it runs into a corresponding error message. A similar scenario is also present if you import the CMBX file by the Chromeleon 7.3.2 into a data vault with an old database scheme.
231464	MS Plot: When viewing profile mode mass spectra, Chromeleon labels peaks with the actual apex m/z of the profile data. In contrast, the FreeStyle and Qual Browser software will label profile mode mass spectra with the centroided m/z. This can result in minor differences in the data displayed between these applications.
231883	eWorkflows: The sequence layout in an eWorkflow for a pair of linked instruments must only contain a Sample Block. If the eWorkflow contains Header, Footer or Bracket blocks, then the eWorkflow can only be run in 'single instrument' mode.
232285	Queries, and NTMS Frame/Results Filters: Rules that compare floating point parameters to a fixed value using the "=" condition will not round or truncate values when performing the comparison. This means for example, that the rule "mass = 123.4" will not match a mass of 123.42.

ID	Description
234256	Queries: If a user is not a member of an access group assigned to a folder, attempting to create an injection or audit trail query will fail with a misleading error message about a missing privilege, even if the user does indeed have the required privilege.
236172	Discovery: Chromeleon 7.2x and Chromeleon 7.3.0x client machines need to disable the option "Receive push notifications" in the discovery configuration dialog to be able to join a Chromeleon domain of Chromeleon version 7.3.1 or higher. Chromeleon 7.2x and Chromeleon 7.3.0x client machines that are already part of a Chromeleon 7.3.1 domain and have "Receive push notifications" enabled will not receive any push notifications, as this feature has been removed with Chromeleon 7.3.1.. Enabling "Poll for updates every <number> seconds" is required to receive the latest discovery information.
238857	Network Data Acquisition: If a sequence is interrupted, the following error message might be observed: " <i>Could not connect the replication service. A TCP error (10051: A socket operation was attempted to an unreachable network) occurred while transmitting data. A socket operation was attempted to an unreachable network.</i> " This message has nothing to do with the customer network, and it means that data cannot be saved locally. To remove the confusion, this error message was changed to: " <i>Connection to local communication stack failed.</i> "
240632	Interactive Results: Trying to insert a report table without header rows (e.g. MS Instrument Method (XRAW), Instrument Method / Overview) in the Interactive Results pane leads to an error message 'invalid cell reference' in the upper left corner (A1) of the inserted new sheet". Such report tables can still be successfully inserted in the Report Designer.
245276	DDK Drivers: An injection may not terminate when an Abort error happens at AcqOn time for 3D channels.
250819	CMBX-Files and Peak Group Calibration Levels: if a CBMX-File has been created by a Chromeleon Version 7.2.10 MUa(b,c,d) for a sequence containing a processing method with peak groups, the amount values for the calibration levels of the peak groups were not saved into this CBMX file. If such a CMBX file is now restored by any Chromeleon version being able to read this CMBX file, the amount values for the calibration levels of peak groups are reset to 1.0.
254003	Custom variables: A sequence with the invisible character 0x1F (unit separator) in a custom field text of a custom injection variable aborts with an error message "hexadecimal value 0x1F, is an invalid character". Workaround: Do not use the invisible character 0x1F (unit separator) in a custom field value.
257813	Chromeleon Studio - Reporting 1.0: Report Designer + Issue with Rounding "away_from_zero". Workaround: in Reporting 2.0 this issue is not observed, please use it instead.
262823	Electronic Report: Electronic Report contains outdated information, mismatch with Report Designer. Three available workarounds: 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, e.g. 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 , e.g. =AnotherSheet!A1
267233	Chromeleon Console - ePanels: ePanels spontaneously change the background color of Edit Field controls to LightPink and sometimes the Edit Field controls look empty.

ID	Description
276956	Instrument Controller: OnlineExtract for MS Channel does not perform smoothing when programmed in a script. While the command "OnlineExtract" provides smoothing parameters, these are not applied to MS mass trace signals created with the "OnlineExtract" command.
282151	Instrument Method: If the chromatographic portion of an instrument method is changed without changing the MS portion of the method, the instrument method and MS instrument method can show a different date/time modified. This is due to the nature of the integration of the MS Instrument Method Editor into the overall instrument method and is to be expected.
287972	Excel-Export: When exporting Chromeleon Reports to Excel-Files incl. graphical objects (e.g. Chromatogram Plot) and using a computer screen scaling greater than 100% at the same time when the export is executed the graphical objects in the created excel files will not display the complete graphic which you see in the Chromeleon report designer but only a part of it or even nothing. This only happens when using legacy report templates. Report Templates 2.0 do not show this behavior. Using the Chromeleon excel export we strongly recommend using Report Templates 2.0 which are available since Chromeleon version 7.3.2. Otherwise, your exported excel files might contain graphical objects with incomplete content or even no content at all.
299483	Special characters: A special character (e.g., the Unicode control character "Record Separator") in the comment for an injection (in the injection table) will cause a Ready Check error. A sequence run aborts with an error message "hexadecimal value 0x1F, is an invalid character".
315678	Network Data Acquisition: It was observed that sequence upload can fail with the following error message: " <i>Client received an invalid WCF command result type.</i> " To prevent this issue, it is required that the Temp folder of the raw data storage location is excluded from scans or usage by other external tools.
336304	Local Data Vault: On a system where the data vault "ChromeleonLocal" is not present or not accessible and a local data vault is mounted, but not accessible, trying to import an instrument configuration shortly after the start of the Instrument Controller results in an error: "Chromeleon Instrument Configuration: Remote instrument controller can't save configuration. The Instrument Controller does not respond. It is probably very busy." Workaround: Wait several minutes after the start of the Instrument Controller before saving or importing an instrument configuration.
356523	Unicode characters: Unicode characters (such as Greek letters or special characters) are not properly displayed in the Console and in the Instrument Configuration. However, Chromeleon can handle Greek characters on a Greek system and Chinese characters on a Chinese system, but e.g., not Greek characters on an English system.
372730	IPD: If the Output Mass Range on the Algorithm Parameters page exceeds the range of the data, the x-axis range of the Deconvoluted Spectrum plot will be limited to that of the available data.
375765	Processing Method: If a processing method created in version 7.3.1 or earlier is opened in version 7.3.2, repeated edit and save operations within the same Studio session may cause the UI of some tabs (e.g., MS Settings, Calibration or Advanced) to be incorrectly scaled, obscuring some of the controls on the tab. To prevent this from occurring: <ol style="list-style-type: none"> 1. Select 'Processing Ribbon' >> 'Layouts' >> 'MS Quantitation'. 2. Add or remove any tabs as desired. Save the method.

ID	Description
377930	Instrument Audit Trail: Driver issues (and possibly using Triggers) can lead to huge Instrument Audit Trails if messages are logged repeatedly in the Instrument Audit Trail at high frequency (several thousand messages per second). This results in the (Daily) Instrument Audit Trails growing to a size of several dozen MBs. Trying to open such a large Daily Instrument Audit Trail crashes the client, e.g., with a System.OutOfMemoryException and can even lead to the Chromeleon client crashing immediately after start.
391203	Large File Transfer: Copying of sequences carried out by large transfers feature enabled in Global Policies doesn't work well when source or destination data vault become dismounted.
412695	Atlas: When an Atlas workbook using Internal Quantitation is imported into Chromeleon, previously an exception was thrown, and the import would fail. Now, the workbook is successfully imported. The Atlas Internal Quantitation mode isn't supported, but the Atlas results are available for viewing. A warning message is logged for each component indicating that the Internal Quantitation for the component cannot be set and is set to External Quantitation.
417332	Chromeleon Studio Ribbon: 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 clicks more slowly.
429916 459845	Queries: 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.
437606	Chromeleon running on an IPC with Palo Alto Networks® Cortex XDR®: When running an Orbitrap Exploris 120 results in a failed Ready Check with the error message "ValidateMethod timed out". Workaround: Disable Palo Alto Networks® Cortex XDR®.
446842	Studio: The Elemental Composition calculator does not support non-US regional decimal settings. Calculated compositions in non-US regions may be inaccurate. This is a consequence of the regional setting to use "," (comma) for the decimal separator and is to be expected.
451895	Reporting 2.0: Spreadsheet functions with a certain stack-level is not working after saving the report template. Workaround: use Intermediate results in separate cells to avoid stack levels above 8.
452168	Intact Protein Deconvolution: In rare instances, as a result of overlapping isotopic envelopes in the data, mass shift discrepancies of 1 Dalton can occur when using deconvolution algorithms due to some of the complexities that are involved in deconvolution. This is a relatively well-known limitation of deconvolution algorithms.
467367	Intact Protein Deconvolution (IPD): It is not possible to run Intact Protein Deconvolution on Shimadzu CDF files with a sliding window processing method as some data formats for importing do not provide enough information about the data to then allow a preferred scan filter to be generated by the deconvolution engine resulting in an error message "Deconvolution Error. Preferred scan filter is not found in the raw data file." This error is not seen with the Average processing method.
491669	Atlas: If the End Trend value is set to 1 in the Atlas processing algorithm, there is a small chance you may see a crash. Change the End Trend value in the Atlas processing algorithm to 2 and reprocess.

ID	Description
587083	Instrument Configuration Manager: If the Instrument Configuration Manager is terminated while an instrument configuration is in progress, after a restart of the Instrument Configuration Manager another instrument configuration may be rejected with an error message "The instrument controller service appears to be busy. Cannot change configuration. Try again later."
633403	Ribbon Customization in the Chromeleon Studio: If a User selects the Chromatogram pane and opens the ribbon customization dialog, then after clicking OK, unexpected "Insert" controls appear on the Processing tab of the ribbon (regardless of whether customizations were performed or not). This state is temporary. To restore the state with a single "Insert" control, close and re-open the Studio.
746721	Import/Export: In some cases, it would happen that whilst importing Empower data sets into Chromeleon, the import process would not complete, and no error messages would be observed. The import process now provides appropriate status updates throughout the import process and Empower sequences can now be imported successfully, however, while the import process has been improved, errors may still occur when attempting to import larger multiple sequences.
752180	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.
758318	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 out of memory application crash happens. Workaround: 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.
792566	Instrument Method: Sequence of instrument methods shows only layout of last configured module.
795921	Chromeleon Studio - IRC: When adding injections to the processing method from the network data vault using the IRC, all data items located in a network data vault must be downloaded by either the scheduler or the replication framework before the execution of the queue or sequence starts.
802927	Data Audit Trail: Data Audit Trail does not show changes correctly (cell range references) of an external Report Template when applied to a sequence. There is a partial workaround - 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.
810225	Instrument Method: With the regional format in Windows set to a format that uses a comma as a list separator, e.g., English (Germany), creating or editing a Virtual Channel in the Instrument Method Editor Script Editor is not possible. When entering the parameters an error message "Unexpected character(s) at end of line." is shown. Workaround: Option 1) In the regional settings the list separator to ';' (semicolon). Option 2) Enter the parameters directly in the value field and use ';' (semicolon) to separate the individual command parameters.
810249	Instrument Method: In some instances, if an instrument method is modified by creating a virtual channel Chromeleon closes without an error message. Workaround: 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.

ID	Description
816957	Regional Proxy Server: When a Chromeleon Regional Proxy Server is unassigned from the Region and becomes a Chromeleon domain controller for a new Chromeleon domain, it will provide incorrect information about the available Resources data (resource data will come from the previous Chromeleon domain). The workaround is to stop all Discovery related Chromeleon services running on it and delete the DiscoveryResource.sqlite file.
816965	Chromeleon Studio: Ensure that the Definition Path field is populated before attempting to export a custom definition. If the Definition Path is left blank, an unhandled exception is displayed.
825657	Reporting 2.0: Raw Data Table does not have 'Table Filter' context menu option available. Partial workaround: Use 'Table Properties' filter option. This allows you to set up range filtering at least for the 1st column (Time) of the Raw Data Table. There is no workaround for filtering of remaining columns.
827341	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 to 15 characters. This will cause the DNS check against this value to fail as no DNS records exist for the truncated value. Workaround: Ensure the computer name/fully qualified domain name is less than 15 characters in length.
827907	Data Audit Trail: When using a custom injection list column in Internal Standard Options, the Data Audit Trail stores the 'IntStd Column Name' as a GUID (globally unique identifier) instead of its actual name, preventing users from identifying the original IntStd column name.
849767	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. If you want to export sequence data into another format, you need to do it subsequently after the previous export.
859020	Online Mass Spectra Plot: During a sequence run it is not possible in Chromeleon 7.4 to view any mass spectra of the currently running injection in a corresponding mass spectra plot in an instrument's ePanel. You will need to open the currently running injection in a Studio Window and either click on a peak or use the Time Spectra Tool to pick a retention time for which you like to see the mass spectrum at this time.
859118	Ardia Instruments app: Ardia Instruments 1.1 application is not compatible with instruments configured in Chromeleon 7.4. Workaround: To view the instruments configured in Chromeleon 7.4 in the Ardia Instruments app, update to Thermo Scientific Ardia Platform with Ardia Instruments 1.1.1 and install Ardia Platform Link 1.2 on the instrument PC.
860112	Chromeleon Studio - Reporting 2.0: Old version of report template cannot be saved via 'Save Report Template As'.
861132	Chromeleon Console: If a sequence is displayed in the Console while it's downloaded for acquisition to a remote instrument, then in some cases the Console is expected to switch automatically from displaying the original data to displaying the data located on the Instrument (whence the Sequence Editor displays the name of the sequence appended with the name of the Instrument). This is the case for sequences downloaded to MS instruments viewed from any Client in the domain, and for sequences downloaded to non-MS instruments viewed from the Instrument PC itself. In Chromeleon 7.4, this automatic switching is correct if the sequence is firstly queued and only then started, but the switching is broken if the sequence is started immediately. The User then needs to either navigate to View > Refresh, or press F5, or navigate to a different item in the Console and then back to the running sequence to perform the switch of the displayed data manually. Without this manual refresh, the running sequence will display the original data, and the sequence cannot be modified. However, this is just a User Interface issue, and it does not in any way threaten integrity of the data.

ID	Description
861240	Chromeleon Studio - Reporting 2.0: Out of memory exception during creation of electronic report containing large raw data table. Partially the memory issue can be remediated if the number of displayed rows in the Raw Data table is reduced. In order to do so, please use time range filtering in Properties settings of Raw Data Table.
861301	Chromeleon Discovery Setup: Discovery Configuration: Unhandled exception when changing domain.
861302	Chromeleon Studio - Reporting 2.0: Using any variable from the formula "Report Template" category always returns "n.a." value.
861307	Chromeleon Studio - Reporting 2.0: Conversion from Reporting 1.0 into 2.0 gives different values when sheet is protected. Workaround: unprotect report sheets before converting Report Template (1.0) into Report Template (2.0).

6 Backward/Forward compatibility issues

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.

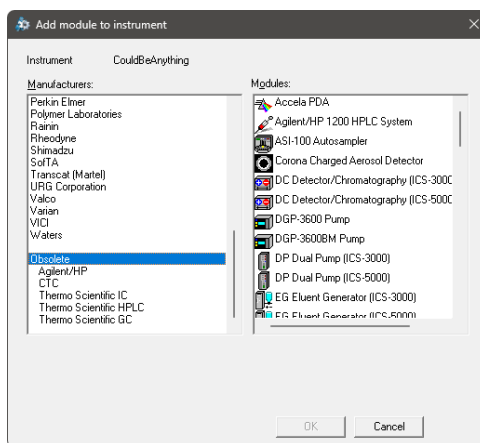
CMBX files may be considered “forward compatible,” that is, a CMBX file generated by an earlier Chromeleon software release is always readable in newer releases of the software.

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 Obsolete instrument drivers

Chromeleon includes a number of obsolete instrument drivers which are included to provide backward compatibility with existing installations. The complete list of drivers may be found in the Obsolete category of the ‘Add module to Instrument’ dialog in the Instrument Configuration Manager:



Please note that issues reported for any of these drivers will no longer be addressed. If you are using one of these drivers, Thermo Fisher Scientific recommends migrating to a supported driver as soon as possible.

7 Legal notices

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7.2 Revision history

Revision	Date	Comment
1.0	24 Sep 2025	First issue
2.0	01 Dec 2025	Addition of note to Section 3.5 – LC-ICF and CE-ICF Drivers Addition of Section 3.12 – Operating systems, Section 3.1.6 – Generic Fraction Collection – Driver update [85378], wash solvent monitoring for the Vanquish Dual Split Samplers [870251], and support for the Cindion with the Integrion. Update to Section 5.2 title – “Limitations of Waters Instruments”. Update to Section 5.4 title – “Limitations with Agilent Drivers for Chromeleon”. Removed AI 1310/3000 GC Sampler from Section 3.4 - Removed Thermo Scientific instrument drivers. Addition of Section 3.13 Enhanced HTML5-based Online Help
3.0	09 Mar 2026	Correction to version numbers of Shimadzu GC Drivers for Chromeleon 7 and Shimadzu LC Drivers for Chromeleon 7.