

thermo**scientific**

Release Notes

Chromeleon 7 Chromatography Data System

Software Version 7.2.10 MUa • August 2020

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Table of Contents

1	INTRODUCTION	4
2	OTHER DOCUMENTATION	5
3	WHAT'S NEW IN CHROMELEON 7.2.10 MUA	6
3.1	NEW AND UPDATED THERMO SCIENTIFIC INSTRUMENT DRIVERS	6
3.2	NEW AND UPDATED THIRD PARTY INSTRUMENT DRIVERS	7
3.3	IQ/OQ/PQ	7
3.4	OTHER INSTRUMENT RELATED ENHANCEMENTS	8
3.5	DATA EXPORT AND REPORTING UPDATES	9
3.6	CLIENT UPDATES	10
3.7	OTHER ENHANCEMENTS	12
3.8	OPERATING SYSTEM SUPPORT UPDATES	13
4	RESOLVED ISSUES	14
5	LIMITATIONS AND KNOWN ISSUES	25
5.1	LIMITATIONS WITH THERMO SCIENTIFIC INSTRUMENTS	25
5.2	LIMITATIONS WITH THE WATERS DRIVER PACK	28
5.3	LIMITATIONS WITH AGILENT ICF	30
5.4	LIMITATIONS WITH OTHER THIRD-PARTY INSTRUMENTS	32
5.5	LIMITATIONS WITH SETUP	33
5.6	LIMITATIONS WITH SERVERS AND SERVICES	34
5.7	OTHER LIMITATIONS	35
5.8	OBSOLETE DRIVERS	39
5.9	FUNCTIONAL DIFFERENCES BETWEEN CHROMELEON 7.3 AND CHROMELEON 6.8	39
6	BACKWARD/FORWARD COMPATIBILITY ISSUES	40
6.1	CHROMELEON ENTERPRISE COMPATIBILITY BETWEEN CHROMELEON VERSIONS	40
6.2	THERMO SCIENTIFIC VANQUISH CHARGED AEROSOL DETECTOR [CM6-23499]	40
6.3	THERMO SCIENTIFIC VANQUISH AUTOSAMPLER [CM6-23405]	40
6.4	THERMO SCIENTIFIC TRIPLUS RSH	40
6.5	THERMO SCIENTIFIC TRIPLUS 300 HS	40
6.6	THERMO SCIENTIFIC TRIPLUS LS-100	40
6.7	TSQ QUANTIVA AND ENDURA INSTRUMENT METHOD [CM7-18759]	40
6.8	SIGNED SEQUENCES [CM7-16374]	41
7	APPENDIX	42
7.1	RELEASE NOTES	42
7.2	ONLINE HELP	42
7.3	CONTRIBUTED CONTENT	42
7.4	ADDITIONAL DETAILS ON NEW FUNCTIONALITY	42

1 Introduction

The Thermo Scientific™ Chromeleon™ 7 Chromatography Data System (CDS) is a new-generation chromatography data system that provides 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 and secure data management, and spreadsheet-based reporting – Chromeleon 7 features a modern user interface, comprehensive new 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.

Backward compatibility with Chromeleon 6 is maintained to the greatest practicable extent, to provide an easy migration path.

This release features:

- New drivers to support the Thermo Scientific Vanquish Core HPLC and Thermo Scientific Easion IC
- Improvements to the Thermo Scientific TriPlus 500 HS Sampler
- Updated Agilent ICF and Waters Driver Pack installers

Improvements and enhancements have also been made in many other areas related to ease of use, data processing and visualization. Please see below for more details on these and other enhancements present in this release.

2 Other Documentation

Chromeleon is provided with many other documents that will help you to learn more about the software. These documents can also be found in electronic form on the Chromeleon installation disk in the Documents folder.

Please refer to the **Installation Guide** for information regarding:

- System Requirements
- Required Third-Party Software
- Compatibility with Previous Versions
- Installing and configuring the Chromeleon software

Refer to the **Supported Operating Systems** document for information regarding:

- Supported Operating Systems
- Supported Databases

3 What's New in Chromeleon 7.2.10 MUa

Chromeleon 7.2.10 MUa implements a number of new features. This section provides a short overview of all new features; for more details, refer to the Online Help.

3.1 New and Updated Thermo Scientific Instrument Drivers

This chapter lists new and updated Thermo Scientific™ drivers added to Chromeleon 7.2.10 MUa. 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 7.2.10 MUa installation disk.

3.1.1 Thermo Scientific Vanquish Core – New Drivers [28356, 28357, 28358, 28359, 28360, 28361, 28362, 28363, 28364, 28365, 64567, 64568]

This release introduces support for the new Vanquish Core system. The following Vanquish Core instrument modules are supported:

- Vanquish Autosampler VC-A12-A
- Vanquish Autosampler VC-A13-A
- Vanquish Column Compartment VC-C10-A
- Vanquish Binary Pump VC-P10-A
- Vanquish Quaternary Pump VC-P20-A
- Vanquish Quaternary Pump VC-P21-A
- Vanquish Diode Array Detector VC-D11-A
- Vanquish Fluorescence Detector VC-D50-A
- Vanquish Fluorescence Detector VC-D51-A
- Vanquish Isocratic Pump VC-P40-A
- Vanquish Variable Wavelength Detector VC-D40-A
- Vanquish Dual Pump VC-P32-A
- Vanquish Dual Pump VC-P33-A
- Vanquish Multiple Wavelength Detector VC-D12-A

Additional information may be found in the Appendix section 7.4.1

3.1.2 Thermo Scientific Vanquish Solvent Monitor – New Driver [28532]

This release introduces support for the new Vanquish Solvent Monitor (VSM). The VSM allows monitoring solvent levels (or waste levels) on four or eight channels. The VSM monitors the solvent or waste level for the respective channel and displays the current solvent (and waste) level on the VSM ePanel in Chromeleon. For each channel a warning limit and an error limit can be set. When the solvent level reaches these limits a corresponding warning or error is generated. In the Queue Ready Check the system checks if the amount of available solvents (and the waste capacity) measured by the VSM conflicts with the estimated solvent consumption of the queue content.

3.1.3 Thermo Scientific Easion – New Driver [119479]

This release introduces support for Easion, the new entry-level ion chromatography system.

3.1.4 Thermo Scientific TRACE 1300 GC – Updated Driver [114396]

The driver for the TRACE1300 GC has been updated to allow simultaneous use of two AS/AI1310 autosamplers, *both* connected directly through the GC COM ports using the 'Through GC' option in the instrument configuration, rather than requiring one of the samplers to use a separate COM connection to the IPC or 247 Instrument Controller.

Additional information may be found in the Appendix section 7.4.2

3.1.5 Thermo Scientific TriPlus 500 – Updated Driver [117532]

This driver adds the following updates for the TriPlus 500 control:

- Support for a new Transfer Line option
- Demo mode, for demonstration, evaluation and testing purposes
- A ready check to report if vials are selected for a tray holder that is not fitted

3.2 New and Updated Third Party Instrument Drivers

3.2.1 Agilent ICF A.02.06 Update 2

Chromeleon setup includes the Agilent ICF A.02.06 Update 2 package to support installation on Win10 computers with WDAC enabled.

3.2.2 Shimadzu LC (3.00) and GC Drivers (2.10)

Updated Chromeleon drivers developed by Shimadzu for Shimadzu LC and GC hardware are now available on the Chromeleon installation disk.

- The installers for the drivers are located in:
 - \Drivers\Shimadzu Driver Pack\DeploymentManager\ShimadzuLC\ and
 - \Drivers\Shimadzu Driver Pack\DeploymentManager\ShimadzuGC\
- The corresponding Release Notes, Quick Start Guide and ReadMe files are located in:
 - \Drivers\Shimadzu Driver Pack\DeploymentManager\ShimadzuLC\Documents\ENG\
 - \Drivers\Shimadzu Driver Pack\DeploymentManager\ShimadzuGC\Documents\ENG\

3.2.3 Waters Driver Package 2019 R1

Chromeleon Setup includes Waters Driver Package 2019 R1 which also supports Windows 2016 Server installations.

3.3 IQ/OQ/PQ

3.3.1 HPLC Instruments IQ [111135]

New HPLC Instruments IQ tools are available in Chromeleon CDS. HPLC Instruments IQ version 5.5 adds support for Vanquish Core devices. For details, please refer to the document \Documents\HPLC Instruments IQ V.5.5 - Release Notes.pdf on the Chromeleon CDS disk.

3.3.2 HPLC OQ/PQ [111135]

New HPLC OQ/PQ tools are available in Chromeleon CDS. HPLC OQ/PQ version 9.6 adds support for Vanquish Core modules. For details, please refer to the document \Documents\HPLC OQ PQ V.9.6 - Release Notes.pdf on the Chromeleon CDS disk.

3.4 Other Instrument Related Enhancements

3.4.1 Instrument Method Translation for UltiMate 3000 to Vanquish Core [28765]

The Chromeleon Instrument Method Translation Wizard facilitates the translation of instrument methods when assigning an existing instrument method to a different instrument. The Instrument Method Translation Wizard shows module correlations between devices in the source and target instrument. Mapping conflicts are highlighted and can be resolved manually. This release extends this Wizard to support translation from UltiMate 3000 to Vanquish Core.

Additional information may be found in the Appendix section 7.4.3

3.4.2 Vanquish: Method Transfer [28766]

This release introduces Method Transfer capabilities to transfer an instrument method from e.g., an UltiMate 3000 system to a Vanquish system. For the Vanquish Core instrument, Chromeleon allows modifying the Gradient Delay Volume (GDV) via the metering device. In addition, if a larger GDV adjustment is required, the installation of a Method Transfer Kit extends this range by the volume of an additional capillary which is configured for the column compartment.

Note: Running an instrument method with Method Transfer activated leaves the system in a state with modified GDV. To afterwards run a method without the Method Transfer option, the idle volume of the sampler must be manually reset to its normal value. [120000]

3.4.3 Vanquish Core Diagnostics [28773, 64042, 27936, 28767]

This release introduces Diagnostics for the Vanquish Core system, including a number of diagnostic tests: Basic Tightness Test, Intensity Test, Shutter Motor Test, and Grating Motor Test

A "Diagnostic Tests" page provides an overview of those diagnostic tests offered for a given Vanquish Core instrument configuration. This page also provides information on the most recent outcome of the diagnostic test and allows starting a diagnostic test. If a diagnostic test failed, the Queue Ready Check prevents the user from starting the sequence queue. A failed diagnostic test can be overridden by a user with the user privilege "Override Failed Diagnostics". The diagnostic test data are stored as a diagnostic injection in a diagnostic data sequence for the respective instrument and can be reported on using a Diagnostics Report template.

Diagnostic tests that are not available are disabled and a reason why the diagnostic test is not available is provided.

3.4.4 Vanquish Core Health Check [28766]

This release introduces a Health Check for the Vanquish Core instrument. The Health Check allows a user to schedule a diagnostic test (initially the Basic Tightness Test for the Vanquish Core instrument) to run unattended, e.g. after hours.

A user with the user privilege "Schedule Health Check" can schedule a Health Check on the "Diagnostic Tests" page. The Health Check can be scheduled to run every day, once a week on a specific weekday or once a month on a specific day in a user-specified time interval. If the instrument

is busy during this time interval, in addition the Health Check can be scheduled to run after the specified time interval once the instrument is idle.

In case a scheduled test cannot be executed, e.g. because the instrument was busy during the user-specified time interval, the user is informed of this fact on the "Diagnostic Tests" page. The results of the Health Check are presented to the user on the "Diagnostic Tests". The diagnostic test data are stored as a diagnostic injection in a diagnostic data sequence for the respective instrument and can be reported on using a Diagnostics Report template. The schedule creation is recorded in the audit trail of the diagnostic sequence and in the instrument audit trail.

3.4.5 Vanquish Autosampler: User Defined Programs [28571]

This release introduces User Defined Programs (UDPs) for the Vanquish Core, Vanquish Horizon and Vanquish Flex Autosamplers. User Defined Programs allow customizing sampling or sample preparing actions. In some cases, the pre-defined sampling and washing procedures and corresponding parameters are insufficient for an analysis. Also, in some instances, samples need pretreatment before they are sampled for analysis. Users can specify UDP commands to be executed in a defined order. A UDP can replace the standard sampling routine of the 'Inject' command. Alternatively, a UDP can be an additional procedure for sample preparation and liquid handling in advance of an injection.

Note: The use of an out-of-range custom variable in a UDP command does not result in the UDP command being rejected when the UDP is started. An error message is only issued once the UDP command with the out-of-range custom variable is reached and the relevant injection is aborted. The user should ensure that any custom variable used in a UDP command is set up with a suitable range matching the property.

3.4.6 SmartStroke for the Vanquish Horizon Binary Pump [132285]

SmartStroke activates an optimized piston stroke behavior for the Vanquish H Binary Pump (VH-P10), in order to reduce baseline ripples observed in special applications, as for example (but not exclusively) with mobile phases containing trifluoroacetic acid (TFA). The option SmartStroke can be enabled/disabled for an instrument method as well as for the intervals between queue runs.

3.4.7 Vanquish Autosampler: Support for an external sample robot [113968]

This release introduces the option "External Rack Transfer", which provides support for an external sample robot to transport racks from/to the carousel of a Vanquish Autosampler or Vanquish Dual Split Sampler shared between two instruments. An external software controls the queue run(s) and transports the racks. For a Vanquish Dual Split Sampler shared between two instruments, a sequence start / end on one instrument is possible, irrespective of whether the second instrument is idle or running a sequence.

Note: The option "External Rack Transfer" is not compatible with Chromeleon User Defined Programs (UDP's). [128546]

3.5 Data Export and Reporting Updates

3.5.1 New MS and Protein Deconvolution-Related Report Variables [121754, 130235, 133200]

With this release, the following report variables related to MS data have been added:

Report Variable	Context	Description
FT_resolution	ms.spectrum().FT_resolution	Returns the resolution of the indicated mass spectrum
Noise	ms.spectrum(...).Noise,	For HRAM data, returns the noise of the m/z value for the indicated mass spectrum
Baseline	ms.spectrum(...).Baseline	For HRAM data, returns the baseline value of the m/z value for the indicated mass spectrum
SignalToNoise	ms.spectrum(...).SignalToNoise.	For HRAM data, returns the signal-to-noise value of the m/z value for the indicated mass spectrum
AlgorithmType	intactDeconvolution.reSpect.algorithmType	Returns the IPD Algorithm being used
SpectraSelectionType	intactDeconvolution.slidingWindow.spectraSelectionType	Returns the technique used to extract the source spectra for IPD
OffsetType	intactDeconvolution.slidingWindow.offsetType	When the Sliding Windows technique is used to extract source spectra for IPD, returns how the Spectrum Offset is determined

3.5.2 CSV Export for Data and Instrument Audit Trails

This release adds two new commands to export the Data and Instruments Audit Trails to a CSV File. The new commands are available in the Data category of the Chromeleon Console. After selecting the data vault root or any folder in a data vault the context menu in the tree view area offers the two new commands 'CSV Export Data Audit Trail ...' and 'CSV Export Instrument Audit Trails...'. A dedicated new privilege 'CSV Export Audit Trail' provided in the 'Reporting' category controls which users can execute these export commands.

Additional information may be found in the Appendix section 7.4.4

3.5.3 Chromatogram Scaling and Labels based on Peak Report Variables [133607]

Report variables in the report categories for peak and component results can now be used for the time and signal scaling of the chromatogram. Plot titles and labels also offer these report categories. The corresponding report formulas are evaluated in the context of the currently selected peak or component.

In the Chromatogram plot, these new report categories are only available in the Report Designer. In the MS Components plot, these new report categories are available in both the Data Processing and the Report Designer categories.

3.6 Client Updates

3.6.1 Define Units When Extracting 3D Signal [117531]

The Extract Signals dialog now allows the selection of units for the extracted channel. The available options are: μ AU, mAU or AU.

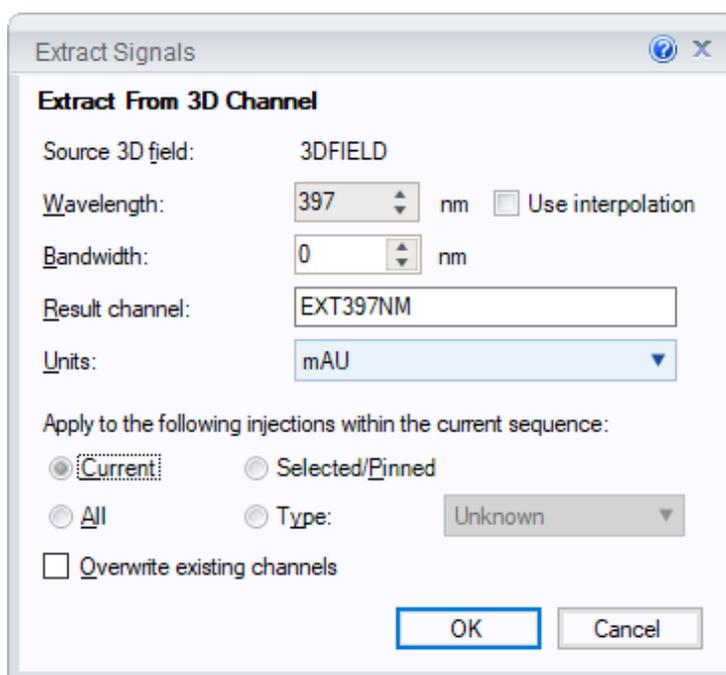


Figure 1: Extract Signals dialog box

3.6.2 Mass Spec Signal-to-Noise [123607]

When working with HRAM MS data, it is now possible to label the MS Spectrum plot with mass spec noise, baseline and/or signal to noise. The option may be found on the 'Label' property page of the pane. A similar option is also available for the MS Spectrum Plot report object.

3.6.3 Option to Show/Hide Composite Scoring for Master Peptides [127260]

When working with peptides, it is now possible to toggle the display of the composite scoring results for the master peptide. The option is enabled by right-clicking on the header of the Component List in the Studio Navigation Pane.

3.6.4 Updated Intact Protein Deconvolution Engine [122676, 122682]

With this release, the algorithm used for intact protein deconvolution has been updated to the same version used by BioPharma Finder 3.2. This algorithm now supports deconvolution of single quadrupole data acquired from the Thermo Scientific ISQ-EM mass spectrometer. In addition, two new default processing method sets have been added: "Native Above One Million" and "Ion Trap and Single Quad ReSpect".

3.7 Other Enhancements

3.7.1 Server-Side Mass Accuracy Calculations [133369]

In previous releases, when Mass Accuracy was part of the criteria for Composite Scoring, the computation of mass accuracy was done on the client, which was a significant performance bottleneck in an Enterprise environment. With this release, the computation is now performed on the Server. Note that this change only applies when On-Demand View Updating is selected.

3.7.2 Manual Sequence Upload [118012, 131201]

In an Enterprise environment, if an automatic upload could not be completed then the user can execute a “Manual Upload” operation to complete the upload.

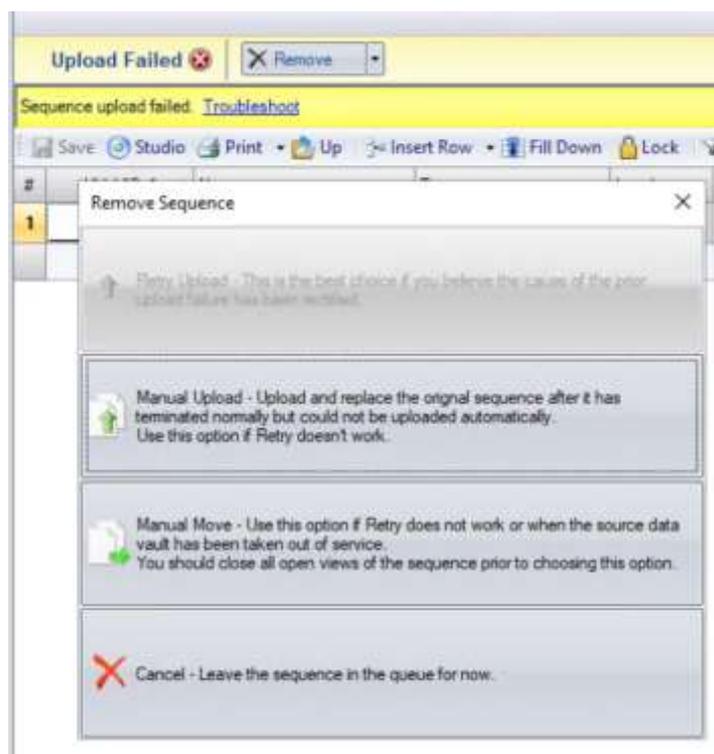


Figure 2: Remove Sequence dialog in case of upload failure

The “Manual Upload” does the same as the previously existing “Manual Move” without the additional step of selecting a new location for the sequence. A record is added to the audit trail of the uploaded sequence to document this “Manual Upload”.

There is a new dedicated privilege “Manual Upload” (and an associated Privileged Action) to control the ability of a user to execute such an operation.

3.7.3 Improved Performance for Versioned Sequences [119957]

When versioning is enabled for a data vault, a unique version of the sequence is archived each time the sequence is saved. In an Enterprise environment, the performance when downloading a sequence to an instrument from a versioned network data vault could degrade significantly after many Save operations (e.g. when repeatedly adding and running additional injections to the sequence).

With this release, download performance for these types of sequences has been improved by as much as a factor of 3.

This improved performance also applies if CMBX files are created for sequences with many versions.

3.7.4 New 'Modify Processing Method – Restricted' Privilege [119849]

A new privilege called 'Modify Processing Method – Restricted' is now available to control the ability of a user to edit processing methods. It differs from the already existing 'Modify Processing Method' privilege in that the new privilege will disable editing of the peak detection parameters.

Note that both privileges cannot be enabled at the same time in a single role.

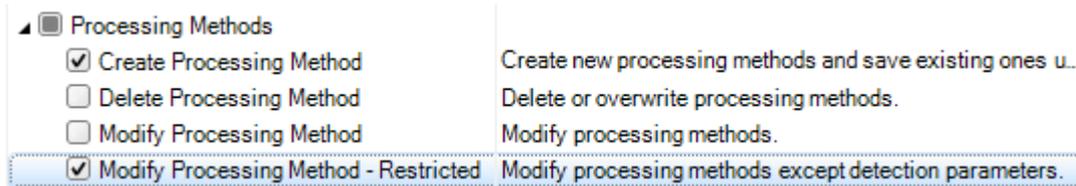


Figure 3: AdminConsole role editor with the new privilege enabled

3.7.5 Wibu Key Update [114860]

Wibu Key is a technology used in Chromeleon to manage dongle-based licenses. Version 6.30b of Wibu Key, which was shipped with Chromeleon 7.2.10, was not compatible with Windows Defender Application Control (WDAC), a security feature introduced with Windows 10, which can be enabled to restrict the applications that a user can run on a Windows 10 computer. The version of Wibu Key shipped with Chromeleon 7.2.10 MUa has therefore been updated to version 6.51, which is compatible with WDAC.

3.8 Operating System Support Updates

3.8.1 Windows Server 2019 (64 bit)

This release adds support for Microsoft Windows Server 2019 (64-bit). Both the Standard and Datacenter editions are supported.

3.8.2 SQL Express 2014 SP3 [143048]

This release adds support for Microsoft SQL Server Express 2014 SP3.

3.8.3 Windows 10 Version 2004

This release adds support for Microsoft Windows 10 Version 2004.

3.8.4 Windows 7

Microsoft ended support for the Windows 7 Operating System on 14 January 2020. Accordingly, with the release of Chromeleon 7.2.10 MUa, official support for Windows 7 has been deprecated.

4 Resolved Issues

This chapter describes the issues that have been resolved with the release of Chromeleon 7.2.10 MUa.

Many trivial and minor issues 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
CM7-20464	Varian 3800 GC: Trying to start a manual data acquisition if the GC is not ready (i.e. all temperatures, pressures and so on are at their set points) will now generate a Ready Check message detailing why the device is not ready.
CM7-20991	Agilent ICF: Occasionally when performing injections with ICF controlled instruments, the injection volume was not correctly displayed, although the injection itself was performed correctly. This has been addressed with ICF A.02.03.
26111 (CM7-25447)	Vanquish Dual Autosampler: If the user adjusted the needle height, this only adjusted the needle height for the left-hand sampling unit, and not for both sampling units as would be expected. The needle height can now be set separately for each injection unit in a Vanquish Dual Autosampler (VH-40A, VF-40A). This functionality requires firmware version 1.23.
CM7-25466	<p>Vanquish Drivers: For a Dual Autosampler in shared mode, where both instrument methods have different temperatures set, the temperature setting of the sequence started first was overwritten by the setting of the sequence started second.</p> <p>During a sequence run, methods must contain the same temperature settings. An error message indicates to the user if this is not the case.</p> <p>If a queue is to be started on instrument 2 while a queue is already running on instrument 1, all methods of the queue to be started must have the same temperature setting as in instrument 1 (including Smart Startup method). An error message indicates to the user if this is not the case.</p> <p>If the temperature setting is defined in the method(s) of the running queue but not in the method(s) of the queue which is about to be started, a warning is issued.</p>
27865 (CM7-24102)	Load Balancing: Under certain conditions, IPCs did not detect when a slave DV server was removed from the configuration of a load balanced DV and tried continuously to use the previously valid and now removed slave DV server, resulting in failed uploads.
28553	Agilent LC system driver: Sporadically when changing the IP address of an Agilent LC system and trying to retrieve the configuration of a different system, the ePanel for the Agilent LC system would show an error message in the Chromeleon Console.
28803	LC Drivers: For a Vanquish Flex Diode Array Detector with the 3DField disabled, the method check would result in an error.
28918 (CM7-25984)	Replication Framework: An IPC will now use the load balancer Data Vault Server only if it is configured to do so.
56458	Vanquish DAD: The configuration of the Vanquish DAD used to allow changing the signal unit and factor for the 3DField. However, any user-entered signal unit and factor were not applied to the Chromeleon Spectra Plot, when extracting a signal, or in an export of the 3D-File. With Chromeleon 7.2.10 MUa it is no longer possible to change the signal unit and factor for the 3DField in the configuration of the Vanquish DAD.
62440	Privilege Checks: When trying to manually assign a component to a chromatogram peak, saving the modification failed if the user lacked the 'Delete Peak Modifications' privilege.

ID	Description
62540	Online Help: The online help for the report template spreadsheet function FIND was incorrect regarding the return value if the search text was not found. Instead of '#VALUE!' the online help text showed 'n.a.' as the return value of the function.
66344	Client: In some conditions, Chromeleon Client stations would report a "License Server Unavailable" error message.
85219	<p>Data Audit Trail: Under some circumstances, when a sequence was manually uploaded to a data vault, the audit trail record for the sequence move could be written to the wrong sequence.</p> <p>In case of an upload failure it is possible to perform a manual move. During that manual move the location and the sequence name can be chosen. If another existing sequence is selected and confirmed to move, the user privilege "Delete Sequence" is evaluated in an attempt to replace the chosen sequence. If that privilege is not available or the target sequence is otherwise read-only, the target sequence is not overwritten. Due to a defect in Chromeleon the audit trail entry about the manual move was written as pre event instead of a post event to the data audit trail of the target sequence. Therefore, the target sequence had an additional audit trail event about an operation which has been rejected.</p>
88546	Multiple Assignment of Components: Automatic assignment of multiple components to a single peak didn't work correctly if the overlapping component windows covered multiple peaks. In this case the components were often not assigned to the most appropriate peak.
88954	Reporting: When Autorepeat was selected for the MS Components Plot and Grouping was enabled, the repeating of plots did not work properly.
107552	Scheduler: It could happen that a Scheduler task remained 'auto-enabled' even though the user disabled it. This occurred when the scheduler was restarted before the cached changes were written to the disk.
108653	Reporting: Incorrect values were reported for a component custom variable (e.g. 'CV') when the component was copied from processing method A to processing method B via copy / paste with subsequent creation of the component custom variable in processing method B. When using processing method B, the report variable component.customVar("CV") reported the original value from processing method A and not the modified one in processing method B. After restarting the Chromeleon Console subsequent reports used the proper value, thus leading to deviations in such reports although nothing had actually been changed. This also happened if processing method B already contained the custom variable CV having the same name but a different ID.
109435	Discovery: In some large WAN environments, switching Chromeleon domains would take a long time or would fail. In addition, resource updates would sometimes take 5+ minutes to propagate, and the Discovery service would not shutdown in a timely manner.
109553 52242	<p>When using a Vanquish Autosampler with Charger in some SII environments it was not possible to run a sequence or add a SmartShutdown method because of a driver message "SamplerModule There is a rack in the 'Yellow' segment. This position is reserved for charger rack transfer and must be left empty when a sequence is started. Remove this rack manually, then close the door. If the error persists, use the 'Reset' command." This driver message would be shown when the SmartShutdown was about to start or between two injections. This message (limited to an SII environment) occurred when delays in the host application exceeded a charge timeout period for optimizing rack changes.</p> <p>Now the user can configure this delay timeout in the configuration dialog for the Vanquish Autosampler, on the "Links" tab. The "SII Environment Settings" allow setting a time interval for the delay of the removal of the rack. The default setting is 10 s. The user can increase the delay to up to 1 hour (3600 s). For Vanquish Autosampler configurations that have been created with a Chromeleon version earlier than Chromeleon 7.3, the value cannot be changed and the default value (10 s) is used</p>

ID	Description
109554	For a Vanquish Autosampler with a Vanquish Charger there is a special mode for some SII environments in which the driver does not move racks from the Autosampler back to the Charger as long as the sequence is running. It was possible to inadvertently activate this mode permanently in a Chromeleon environment. Now the system returns to the normal mode (rack is moved back to the Charger immediately after sampling if no longer needed) as soon as a sequence with two or more injections is run.
110336	ICS-6000: When configured with an SC-CERS 2mm suppressor, the instrument check and sequence ready check would prevent a sequence from running and report the following error: "Suppressor type cannot be changed because it is preset by the attached suppressor."
110414	Chromeleon Admin Console: Email notifications only worked if the recipient was in the Global Org Unit.
111921	User Management: When trying to delete or retire a used account in the AdminConsole an error message popped up that "This would lock the user database, because there would be no active user database administrator left ...". The corresponding security checks have been revised. Now with 7.2.10 MUa an administrator can delete and retire user accounts again.
113065	<p>Chromeleon 6 MS Detection Settings: If a processing method was defined to use the 'Chromeleon 6' algorithm for the MS Default Detection Settings, then if XIC-specific detection settings were later specified for an XIC then although the default detection parameter set was copied to the component specific one, it was not shown in the editor. These hidden detection parameters were still active and could lead to unpredictable peak detection results.</p> <p>NOTE: Sequences where this problem was present might show now different results compared to prior CM versions, although the verification of such a signed sequence might fail with CM 7.3.</p>
113617	Report Designer: After applying the "Autofit Row Height" command in the Report Designer Editor (Home Ribbon, Cells & Sheets Tab, Format Drop-Down Menu) the selected spreadsheet rows were set to an appropriate row height value. However, if the content in some cells of these rows were changed then the row height was not automatically updated.
113623	Report Tables: Row Height: After setting the row height of all rows in a report table to a specific value (e.g. automatic) a subsequent insert of new rows in such a report table didn't apply the specified row height for the inserted rows but used a default value for the row height.
114010 CM7-23293	Reporting: When rendering an Autorepeat Area which was specified "for all evaluation channels", the resulting report also extended to diagnostic channels (not just the evaluation channels).
114423	Import/Export: Xcalibur RAW data import would fail if any comment in the original data contained > 255 characters.
114479	Auto-reporting: If the Export report option was selected for a Sequence without the Print report option also being selected, the export would get performed locally on the IPC rather than being performed on either the DataVault server or a Print server.
114484	Instrument Control: Thermo Scientific Drivers: GC: The default 'shared' mode for the TRACE1300 GC was "OnlyBack" rather than "Shared"
115397	Injection Query: An out of memory error would sometimes be generated when saving the results of an injection query that included MS data
115282	Console: Clicking on the Recycle Bin sometimes resulted in the user interface becoming unresponsive.

ID	Description
115543	Console: The tray nomenclature for sample position for the CTC Pal Sampler would not be accepted by Chromeleon Sequence Wizard. It was not possible to use the Sequence Wizard and eWorkflows with the CTC Pal Sampler. The Chromeleon Sequence Wizard now shows the correct rack layout and uses the correct values for "Start Position" and the rack view of injection table shows the expected rack(s).
115750	LC Drivers: For the UltiMate 3000 DAD, MWD and VWD, and the Vanquish DAD and MWD, if the PC is overloaded, Chromeleon data acquisition may miss data points. Now if an overload on the PC is detected that may lead to data loss, Chromeleon immediately aborts with an error message indicating that data loss was detected, and that the USB buffer has overrun.
116017, 116018	Compliant Tuning: After tuning an MS instrument of the TSQ LC QqQ family, the tune report would sometimes not automatically appear in the list of available tune reports on the ePanel.
118234, 113840	Drivers: Agilent 6890/6850 GC: If an Agilent 6890/6850 GC was configured without an autosampler, then when running a method with valve timed events, the timed events were not downloaded to the instrument if an Inject command was not present.
118235	Drivers: Agilent 6890/6850 GC: When running an Agilent 6890/6850 GC instrument method with valve timed events, occasionally the valve table was not downloaded, due to a timing issue.
118319	eWorkflows: The 'Level' field in the Sequence Layout tab of the eWorkflow editor did not allow a level to be entered for samples of type 'spiked'.
119112	ASE-350: The audit trail for the method status transition from "Static" to "Rinsing" was not being logged. This fix requires ASE-350 firmware version 3.3.0.
119227	Instrument Methods: Executing a in a Method Check or Queue Ready Check when a special character (e.g. "&") was included in a command parameter in the instrument method script would result in a driver crash.
119376	Instruments: 3 rd party GC drivers: Communication between Chromeleon and a PerkinElmer Clarus GC would sometimes fail due to a timeout of a status request for informational purposes only. Now the driver will only request a valve status update if a valve is configured. In addition, a missing or delayed response to a valve status request will not lead to an immediate abort anymore. The driver will accept delays in the communication of up to 30 sec. After 30 sec an abort error is issued because otherwise data loss may occur. If an answer to a valve status request is missing, it is assumed that the operation succeeded because in an error case the GC will respond with a dedicated error.
119414	Report Designer: With some high-resolution video adapters, if the Report Designer window was sized to collapse some Ribbon Bar groups, then closing Chromeleon and reopening the Studio would result in an exception error when the Report Designer category was selected.
119538	Injection Query: When creating a new injection query and using quick search criteria for date/time related fields in the sequence or injection record, the default value for a corresponding comparison value was September 2016. With 7.2.10 MUa the default value is changed now to the current date and time.
119840 125818	LC Drivers: When running sequences on more than one instrument on an Instrument Controller PC, a communication error on the RefractoMax 520 RID would cause an abort error on all running sequences and the Instrument Controller PC would become unusable. For the RefractoMax 520 RID, the entries in the injection/instrument audit trail did not specify the device name. Now a communication error on one instrument no longer affects other instruments on the same Instrument Controller PC.

ID	Description
119916	Chromeleon Server: Auto-reporting: Due to a defect in a Windows component used by the Chromeleon Print Service and the Chromeleon Admin Console to get the status of Chromeleon System Printers, exports could intermittently fail. The status column in Admin Console > Domain Resources > All Resources > System Printers has therefore been removed.
119917	Reporting: When A Sheet of a Report Template Included Charts that Spanned More Than One Injection, exporting the Sheet 'After Injection' Failed to Include the Data for All Injections
119920	Performance Qualification: When executing a performance qualification an unhandled exception occurred. The performance qualification run stopped at this moment and couldn't be completed.
119921	<p>LC Drivers: When attempting to connect any of the modules listed below under Windows 10, the user would be unable to see the USB address, and two error messages would appear in the audit trail. The modules affected were:</p> <ul style="list-style-type: none"> • Dionex Coulochem III • Dionex Corona CAD • Dionex Corona Ultra • Dionex Corona Veo • Dionex ECD-3000RS
119922	AS-AP: Running a sequence in which lines were appended would sometimes result in a double injection in the last row of the sequence.
119923	ICS-6000: In certain instances, for a shared ICS-6000 with two suppressors and two EGCs, a Memory Access error was logged in the audit trial every half second.
119925	Aquion RFIC: When running an Aquion RFIC with a DRS 600 suppressor, the suppressor current could not be set.
110336	ICS-6000: When configured with an SC-CERS 2mm suppressor, the instrument check and sequence ready check would prevent a sequence from running and report the following error: "Suppressor type cannot be changed because it is preset by the attached suppressor."
119112	ASE-350: The audit trail for the method status transition from "Static" to "Rinsing" was not being logged. This fix requires ASE-350 firmware version 3.3.0.
120809	Composite Scoring: When scoring mass accuracy, a negative mass accuracy value was always interpreted as 'passed', when in fact the absolute value should have been used for comparison.
121515	Data Vault: Under rare circumstances, when a sequence containing corrupted MS raw data was opened, it could happen that the data vault service would crash due to an out of memory error, making all data from that vault inaccessible.
121353	LC Drivers: Method Translation from an instrument method for an instrument with an UltiMate VWD-3400RS with the settings WL 1= 850 WL 2= 755, PW = 0,02, DCR = 2Hz to a target instrument with a Vanquish VWD (VC-D40-A) with wavelength settings WL 1= 190 and WL 2 = 750 would result in an error message: "The chosen data collection rate is not accepted for the given acquisition parameters ..."
121604	LC Drivers: For the Vanquish CAD in an instrument configuration with several detectors, deselecting the CAD in the Instrument Method Editor Wizard did not disable the corresponding detector diagnostic channel(s).

ID	Description
122475	Instrument Queue: With the 'Automatically upload finished remote sequences option' set to Off in the Queue tab of the instrument properties dialog, acquired sequences remain in the instrument queue in a 'parked' state. If new injections were added to the sequence, and the Resume button was clicked, the updated sequence would remain in its previous 'parked' position and would only become 'active' if the queue was restarted. Now, when the Resume button is clicked, the sequence is automatically moved to an 'active' position in the queue, after any acquiring or queued sequences and will be acquired once any preceding sequences are complete.
122686	Reporting: The report variable for the NTMS Peak Intensity Threshold returned "n.a." when the parameter was set to 'Autocompute'
122872	Data Vault: Under some circumstances, after viewing MS data which had errors in the Chromatography Studio the Data Vault service would crash, preventing access to all data and requiring a system reboot.
123443	IQ/OQ/PQ: Vanquish instruments containing a VH-C10-A or VC-C10-A with a valve installed would result in a ready check error in the gradient test.
123860	Client/IPC: In some circumstances, after rebooting a PC, some Chromeleon services would not start, and an error beginning with "Service cannot be started. System.FormatException: Input string was not in a correct format." would be recorded in the Windows Event Log.
124005	Shimadzu CBM-20A: When trying to control a Shimadzu CBM-20A HPLC System with a UV detector and a non-UV detector (e.g. a UV and an RI detector) it was not possible to connect due to access violations.
124597 (CM7-26209)	Calibration: Disabled or erroneous calibration points incorrectly affected the confidence, prediction and hubaux vos detection limits displayed in the calibration view or values reported via the peak.confLower/upperLimit, peak.predLower/upperLimit and peak.hvloed report variables
124598	<p>Injection Query: Custom Variables: If a sequence A contains a custom variable (e.g. LimsID) and a sequence B contains a custom variable with the same name as in sequence A but with a different upper/lower case notation (e.g. limsid) a corresponding injection query on a Oracle based data vault did only offer one of the two notations of these custom variables. The SQL-query execution on Oracle based data vaults is always case-sensitive. So corresponding injection queries including conditions for one of the custom variables would only find injections in one of the sequences. The SQL-query execution for Microsoft SQL-Server based data vaults is not case-sensitive and will find injections in both sequences instead.</p> <p>Now with Chromeleon 7.2.10 MUa the injection query editor on an Oracle based data vault will offer all notations of custom variables independent from their notations (e.g. LimsID and limsid). Injection queries can be defined so that injections in both sequences are found. This can be achieved by putting the different notations of the custom variables together with the corresponding comparison (values) into dedicated OR-clauses (e.g. Injection – LimsID – contains – XXX OR Injection – limsid – contains – XXX). For Microsoft SQL-Server based data vaults the query editor still offers only one notation of such custom variables.</p>
124603	Replication Framework: When a MS sequence was downloaded to an IPC and a user modified the sequence during the run in a way that the already acquired XIC chromatograms were automatically reprocessed, it could happen that the completed MS sequence could no longer be uploaded.
124610	Data Audit Trail: Missing Print/Export Record: If a user who did not have the privilege 'Print or Export Unsaved Data' opened a Studio window and then modified the current view settings in the sequence, it was possible to create a sequence printout or a corresponding export with the view settings modifications still pending. However, no audit trail record for the printout or export operation was created.

ID	Description
124611	Console: After upgrading the SQL-Server Express version to SQL Server 2017 or later the Chromeleon Console showed a message bar stating that the database couldn't be checked for its capacity. In addition, the Database Statistics page of the Data Vault Properties dialog showed the error message "Cannot get database information".
124615	Electronic Signature: When removing signature, external report template is re-established even if there was no external report template used before signing the sequence.
124653	Console: When viewing a sequence from an Instrument with two samplers that have different inject volume units, the units displayed for the injection volume could differ depending on whether the user had permission to control the instrument.
124655	Injection Query: An out of memory error would sometimes be generated when saving the results of an injection query that included MS data
124654	Privileged Actions: When the Privileged Actions settings for a method were set to require both authorization and a comment, but copying a folder was set to only require a comment, then attempting to copy a folder containing a method would copy the folder but not the method, even if a comment and authorization were both supplied.
124682	Composite Scoring: Peak Apex Alignment would always report a failed result if an isotope was missing for a charge state.
124896	MS Data Processing: On a TSQ QqQ system, when running an MS Tune Calibration and Report, immediately followed by another MS Tune without waiting for the first Tune Report to be generated, the first Tune Report would be generated on the hard disk, but not stored to the Chromeleon Data Vault.
124898	An LCMS instrument would abort acquisition with an audit trail message "Audit Trail cannot be saved: Invalid high surrogate character". This has been addressed by limiting the length of the audit trail entry and preventing a surrogate character pair from splitting.
125150	Data Audit Trail: If an upload failure occurs it is possible to perform a manual move. During that manual move the location and the sequence name can be chosen. If the name of an already existing sequence is selected but the user lacked the 'Delete Sequence' privilege, then the upload would fail (as expected). However, an audit trail message would incorrectly be logged to the target sequence indicating that it had been moved from the source sequence.
125292	Updater Service: If a user was logged into the Chromeleon Client or IPC while the Chromeleon Updater Service was attempting to install a Chromeleon update during a Maintenance Window, some Post Installation tasks would fail and the Chromeleon Admin Console would show a status of 'Installation Failed' for the affected computers. This is now fixed; however it is still recommended that no one be logged into any Clients or IPCs during a Maintenance Window.
125293	Updater Service: During a Maintenance Window, if the Chromeleon Updater Service attempted to update an IPC, Client or 247 Instrument Controller while there was still a reboot pending from a previous installation (e.g. a Windows Update), the Updater Service task would fail.
125398	Extension Packs: In the GCMS Environmental Analysis Extension Pack, the three ISTD summary reports did not correctly evaluate pass/fail criteria when more than one ISTD was defined. The automatic pass/fail evaluation has been disabled.
125539	Atlas Import: Import would fail with an "Object not set to an instance of an object" error if the Atlas data contained incorrectly set up Internal Standards or contained 'circular' Named Peak references.

ID	Description
125549	TriPlus 300 HS: When a TriPlus 300 Headspace sampler was disconnected (e.g. the network connection was lost), it was not possible to reconnect unless either the PC or the TriPlus 300 HS was switched off and back on. This would occur even though the instrument could be pinged (indicating that the LAN connection had been restore)
125538	Import/Export: AnDI and GAML export would report an “invalid characters” error when {seq.name} was used for the folder name if the Sequence name contained non-Latin Alphabet characters.
125544	Station Audit Trail: Information messages provided by the Agilent ICF instrument control modules were incorrectly reported as Sequence Abort errors in the Station Audit Trail.
125545	Agilent 6850: Using the lower injector connection port on the rear of the 6850 will result in a “Warning: ALS no tower” error message and the Sequence will not start. Only the upper injector connection port should be used.
125546	Instruments: Dual Inlet GC: When two sequences are acquired concurrently on a dual inlet GC, the temperature ramp could only be overlaid onto the chromatogram of one sequence; it was not available in the Gradients/Ramps dropdown list in the Chromatogram Properties dialog for the second sequence.
125547	TriPlus 500: If instrument parameters were modified during overlapped sample preparation, these were not correctly recorded in the Injection Audit Trail.
126749	ISQ-EC/EM: It was possible to execute a Manual Tune from the instrument ePanel without the required user privilege (“Execute On demand MS Manual Tune\Calibration”).
126875	DDK: As a result of a multi-threading issue with the GenericControlContainer, code raising events defined in the IpanelControl interface would possibly result in a deadlock.
126880	DDK V2: GenericControlHost: OnConnectedValue event would not be reliably raised.
126888	DDK V2: For the Generic ePanel Host the evaluation of the user in control was not working.
126905	MS Data Acquisition: If an MS instrument method did not have any scan events at run time 0, it could happen that the MS would repeatedly disconnect and reconnect during a run.
127255	Injection Query: If an injection query identified matches in a data vault folder in which the current user did not have access group permissions, then the following error was generated: “An error occurred during execution of this query. Please rerun this query after the error has been fixed.”
128321	Peak Detection: Chromeleon 6 Algorithm: In very rare cases, when using peak detection with the Chromeleon 6 algorithm, the Chromatogram pane would display the following error message “Can’t read channel Index was out of range.”. No results were reported for such chromatograms.
128535	Data Vault Manager: Renaming a Data Vault in the Data Vault Manager was not possible
128554	Emergency instrument method: It was not possible to trace if and which emergency instrument method had been defined. The URL of the emergency instrument method is now documented in the precondition log.
128558	Waters Acquity: In some cases when communication with a Waters module was not possible, only an error was issued. Following at least one retry, an abort is now issued.
128734	Instrument Controller: In very rare cases, an injection run would be aborted by a false error “The remaining free space on the operating system drive (0.000 MB) is not sufficient. Delete unnecessary data to continue working.”
128778	LC Drivers: A Vanquish Dual Autosampler (VH-A40-A or VF-A40-A) shared between two instruments would abort the sequences on both sampling units when door was opened during the run.

ID	Description
128783	Data Import/Export: When some types of .cdf data was imported into Chromeleon, each channel of data was created as a separate injection, rather than being grouped together under their parent injection.
129047	Waters Driver Pack: A Ready Check for Alliance detectors with blank injections would result in an error even if no acquisition channel was selected.
129299	Shimadzu LC: For a Shimadzu system with a manual injection valve and a Remote Inject driver installed, the synchronization with a remote (manual) inject signal did not work on CBM-20A and CBM-20Alite firmware version 3.30 or newer. The data acquisition started immediately although the sample has not yet been injected. Workaround: To send a start signal to an external instrument, set the ExternalStart property to AllRuns or InjOnly. This is now documented in the Chromeleon online help.
130231	Ad-Hoc Library Search: Although the order of the columns in the result table could be rearranged, the settings were not retained when the Ad-Hoc Library Search window was closed.
130232	Reporting: When printing a report from a template sheet with frozen columns, the first column was repeated at the end of the columns displayed on the first page, along with extraneous information at the end of the report
130233	Sequence Import: Attempting to create a sequence via 'Create from Worklist' would fail if any of the numeric values in the WLEX file (such as weight, amount, etc.) had more than 4 decimal places.
130234	MS Component Table: Attempting to import component data from a raw data created with an TSQ Fortis LCMS would generate an error message: "No data found. Select an input data source."
130235	MS Reporting: The report variable <code>chm.massSpectrum("...").resolution</code> always evaluates to 0.5000. A new report variable <code>chm.massSpectrum("...").FT_resolution</code> is now available to report the actual resolution.
130243	Studio: In the Navigation Pane, the selection for the Component "Group by" Control was not retained In the View Settings
130245	Studio: Selecting the Processing Method Pane and selecting Print or Quick Print would cause an Unhandled Exception error.
130420	Instrument Activity Log: A column called 'User' existed but was not used by any instrument driver and therefore never contained any information. This column has been removed.
130488	MS Components: When copying/pasting peptides to the processing method component table, if a charged component was not part of a peak group then the following error was generated when attempting to render that information in an Interactive Chart: "Object reference not set to an instance of an object"
130783	Closing the Chromeleon Console and Studio was possible while a Station Performance qualification was being executed.
131272	Import/Export: ChemStation data import would fail with "This type cannot be applied - the value doesn't fit the type restrictions" message if any comment in the original data was greater than 255 characters long.
131308	Updater Service: An unhandled exception in the InstallExeDriver could prevent the target computer (247IC or IPC) from automatically rebooting after an update.
131342	TRACE 1300 GC: The ePanel label for PTV Temperature would disappear if the temperature went below zero.
131459	Corona CAD: The user documentation now states that the USB driver for the Corona CAD is automatically installed as part of the USB driver package.

ID	Description
131507	Vanquish Autosampler: On the ePanel, the value for the Total Loop Volume for the 25 µl sample loop has been changed to the correct value (50 µl).
131755	Reporting: When using Autorepeat for the MS Components plot, if a custom condition was specified to filter the components then only one component was reported.
132326	Waters Driver Pack: The online documentation now states that the Waters 2414 RI detector needs to be configured in RIU mode when configuring the Waters 2414 RI detector with the Waters Acquity system driver.
132467	Waters Acquity: The ePanel did not show status information for the TUV detector.
133200	Reporting: When doing Intact Protein Deconvolution analysis, it was not possible to report the algorithm used, the spectra extraction technique or how the sliding window offset was determined. New report variables are now available for these settings.
133202	MS Processing: It was possible to save IPD custom raw data (which contains results information) without also saving the processing method that generated the custom raw data, which could result in a lack of results traceability when the sequence was closed and reopened. Now both must be saved at the same time.
133204	MS Processing: It was possible to save NTMS Frame Results without also saving the processing method that generated the Frame Results, which could result in a lack of results traceability when the sequence was closed and reopened. Now both must be saved at the same time.
133343	Reporting: The IPD source spectrum and IPD deconvoluted spectrum did not use the Mass Precision as defined in the properties dialog
133881	<p>Electronic Signature:</p> <p>The verification of sequences with manually integrated XICs would sometimes fail, depending on how the manually integrated XICs were viewed in the studio session before the submit or verification process was started.</p> <p>Note that in very rare cases the verification of sequences submitted with a previous Chromeleon version might still fail. For all sequences which are submitted with Chromeleon 7.2.10 MUa the verification process now makes sure that it is independent from any user activities in a corresponding studio session.</p>
134031	Client: Console: If an injection was added to a 'parked' remote sequence while another sequence was acquiring on the same instrument, and the running sequence completed before the change to the parked sequence was saved, then the status of the parked sequence would change from 'Finished' to 'Pending'. This status change should only have occurred when the parked sequence was saved.
134401	Audit Trail: For two sequences running sequentially on the same instrument, if the upload of sequence 1 to the data vault was canceled (e.g., user-cancellation after a network outage), an upload error was written into the injection audit trail of the currently running injection of sequence 2. The upload error is now written to the instrument audit trail, and no longer to the injection audit trail of sequence 2.
135559	Import/Export: eWorkflow import: Importing some eWorkflows created from earlier versions of Chromeleon would fail on some systems with some non-English regional Windows settings. The error message was "An error occurred during import process. 1 is not a supported code page"
136394 (CM7-24615)	The user documentation now states that multiple Waters Acquity systems can be controlled on one Instrument Controller PC.
137349	Console: Selecting the 'Lock Client' menu item would cause an error if the 'Client Inactivity' lock option in the Administration Console was not enabled.
137938	E-Mail Notification: Links to instruments and sequences in an email notification message would not work if the sequence name or path contained a space.

ID	Description
144131	<p>Reporting: Custom filter conditions in an integration or consolidated report table have been not applied to not detected components. So if the option 'Undetected Components' has been enabled result rows for not detected components appeared in the report table although a specific custom filter condition (e.g. looking for a certain value in a custom variable in the component record of the processing method) didn't match.</p> <p>NOTE: Running 7.2.10 MUa reports with such report tables, i.e. using the filter option 'Undetected Components' and additional custom filter conditions, will show fewer report rows compared to prior Chromeleon versions in this use case. Electronic reports are not affected; they are still showing the same results as before.</p>

5 Limitations and Known Issues

The following sections list known issues and limitations. The numbers in the first column of the table below refer to the Thermo Fisher Scientific tracking IDs.

5.1 Limitations with Thermo Scientific Instruments

ID	Description
CM7-16851	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.
120000	LC Method Transfer: Running an instrument method with Method Transfer activated leaves the system in a state with modified GDV. To afterwards run a method without the Method Transfer option, the idle volume of the sampler must be manually reset to its normal value.
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 7.2.8 or later does not support Smart Startup, Smart Standby or Smart Shutdown settings for inverse (or tandem) gradient methods. Hence in Chromeleon 7.2.8, 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 with Chromeleon 7.2.8 or later.
52858	Vanquish Drivers: In rare circumstances if a transport error occurs with the Vanquish Autosampler (VH-A40-A or VH-A90-A) with the charger, it is not possible to bring the system into an operational state using the commands "Reset" or "Cleanup". An instrument controller restart is necessary.
121662	<p>The Troubleshooting Guide for the Vanquish Binary Pump VH-P10-A (hardware revision 01) can be found under C:\Program Files (x86)\Thermo\Chromeleon\bin\Troubleshooting Guides</p> <p>English: Man-LC-VQ-PumpH-Operation-DOC4820-4411-EN-1-0 French: Man-LC-VQ-PumpH-Utilisation-DOC4820-4411-FR-1-0 German: Man-LC-VQ-PumpH-Betrieb-DOC4820-4411-DE-1-0</p>
54791	<p>Vanquish DAD: 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>
118714	Vanquish Charger: The Vanquish Charger is only supported with Vanquish Autosamplers which have temperature control.

ID	Description
146544	Vanquish Autosampler: If an inject volume higher than the nominal loop volume is specified, a warning "The specified volume is larger than the nominal loop volume." is issued. If the user overrides the warning, a wrong inject volume is used instead of the one specified.
CM7-24471	<p>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).</p> <p>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.</p> <p>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.</p>
CM7-18098	Accela Open Autosampler: Sequences cannot be run when the sampler does not include the DLW option. This configuration is not supported and requires a custom script.
CM6-21321	Accela Open Autosampler: When using this autosampler, a dot ('.') must be used as decimal separator.
CM7-15457	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.
CM6-22760	TRACE 1300 GC: The autozero function does not work correctly for the FID, NPD, ECD and FPD detector types.
CM7-25600	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)". To avoid this problem, close the Virtual Terminal on GC1 before attempting to start the run on GC2.
CM6-23614	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.
CM6-24043	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.
52712	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.
CM7-25760	MS Drivers: When working with MS devices, the raw file must of necessity 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.
CM7-15632	TSQ Quantiva and Endura: When removing the source from a TSQ Quantiva or Endura in mid-acquisition, the sequence does not abort.
CM7-16030	TSQ Quantiva and Endura: With these instruments the standby state reports that the instrument is on, regardless of the real instrument state.

ID	Description
CM7-16154	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.
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.
CM7-18129	TSQ Quantiva and Endura: After an upgrade of the TSQ Endura/Quantiva instrument driver, an error may occur when opening the Chromeleon Instrument Configuration. To resolve the error, remove the Chromeleon Mass Spectrometer driver from the configuration and then add it again. This will update the configuration information in Chromeleon to match the updated TSQ Endura/Quantiva instrument driver version.
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.
87252	<p>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.</p> <p>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.</p>
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.

ID	Description
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.
114502	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) The workaround is to close and reopen the Chromeleon Console.
CM7-20547	247 Instrument Controller: TDS4: Due to the smaller internal storage space available on TDS4 models of 247 Instrument Controller, and the larger data files created by 3D acquisition, TDS4 models of 247 should only be used to acquire 2D data. To acquire 3D data, a TDS5 model of 247 should be used.
112609	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).

5.2 Limitations with the Waters Driver Pack

ID	Description
CM6-24164	When the Waters Driver Pack 4 is installed in a Citrix environment, the World Wide Web Publishing Service is automatically disabled, so that after restarting the PC, the Citrix web application is no longer reachable. The service should be reset to automatic start, after which the application can be reached
CM7-25782	Waters Acquity: During long-running sequences it is possible that the PDA can get into or remain in a running state, thus preventing further injections from starting. A workaround is to add a post run stage with a delay of 90 seconds after the acquisition stop to prevent this error.
CM7-19830	Waters Acquity: When using the Waters Acquity driver in a Citrix environment, the Acquity console does not update correctly and therefore doesn't show current log file entries. This is due to a problem in the Acquity console and can be mitigated by using the instrument audit trail on remote clients.
CM7-20374	Waters Acquity: If the user attempts to open an Instrument method on a PC where the Waters Driver Pack is installed, but then selects "work offline", an error message will be shown. This is a problem of the Waters Driver Pack, the workaround is to ensure that the instrument can be reached, i.e. work online.
CM7-22872 CM7-15225	Waters Acquity - Console: When using the Waters Acquity driver, some Chromeleon screens may not appear properly, such that text from the previous screen is still visible. This has been observed with the Sequence Properties and the Chromeleon Log on screen.

ID	Description
CM7-23504	Waters Acquity: In rare circumstances when the user configures and then deletes an Acquity PDA, the module will still be shown in the Acquity Console. If a command is then executed (e.g. lamp on), the module disappears from the console, after which the user then needs to reconfigure the instrument in the Chromeleon Instrument Configuration Manager in order e.g. to turn off the lamp.
CM7-23730	Waters Acquity: When using the Waters Acquity Driver Pack4 and trying either to create a new instrument method, or to open the Acquity console from the ePanel a problem sometimes occurs. A message appears informing the user that launching the application had failed, and that the Acquity driver pack may not be installed. If this occurs, the user should contact Thermo Fisher Scientific for further advice.
CM7-24022	Waters Acquity: If the user has two Acquity systems connected to one Instrument Controller, the range for the column temperature in the Waters method editor does not always match the hardware configuration. This is affecting the method editor only, and occurs when opening a method for instrument A while the Acquity console for instrument B is open.
CM6-21112	Waters 2998 PDA: Localization to a non-English regional setting for the PC (e.g., German) does not function correctly for the timed events table, e.g., using a Waters 2998 PDA detector and setting a timed event in the program file (e.g., wavelength change at 5 minutes). The event is recorded, but without the event time.
CM6-21180	After removing the Sample Organizer from the Instrument Configuration, the plate setup is not updated correctly. Manually updating the plate settings in the plate setup configuration dialog avoids this issue.
CM6-24158	Waters 2489 PDA: After changing the Instrument Method from single to dual-wavelength mode (without changing Channel A wavelength), the data rate for Channel B is set incorrectly and incomplete data collection occurs.
CM6-24191	In extremely rare cases the Acquity PDA server stops working, which then causes the running sequence to be interrupted.
44902	Waters Acquity Instrument Method Editor: The Waters Acquity Instrument Method Editor only accepts a comma (,) or a dot (.) as a digit grouping symbol. If the digit grouping symbol in the Windows regional settings is set to any other value, creating an instrument method or opening an existing instrument method (with a pump configured) results in several "Out of Range" error messages and corruption of the instrument method. In particular Windows 10 offers an apostrophe as a digit grouping symbol in the regional settings, which is not accepted by the Waters Acquity Instrument Method Editor.
107305	Waters Alliance 2695: It is not possible to control a column selection valve installed in a Waters Alliance 2695.
138984	Waters Acquity: The Acquity Console doesn't open on Windows Server 2016 terminal server with Waters Driver Pack 2019 R1 installed. The underlying root cause are TCP ports missing from the firewall exception list. When installing a Waters Acquity system, verify that the following TCP ports are added to the firewall exception list: 336: Communication protocols of the Waters Acquity console 135: DCOM communications

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 - Chromeleon 7.2 .pdf, found in the \Documents\ folder of the Chromeleon 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
CM7-22051	Agilent ICF: Aborting an injection after the start of a sequence but before the injection resulted in an error, requiring the instrument controller to be restarted
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: 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: 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>
CM6-23996, CM7-19940, CM7-21324	<p>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 the 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 the 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.</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>

5.4 Limitations with Other Third-Party Instruments

ID	Description
CM7-15293, CM7-18463	Agilent 1100 Obsolete Driver: Occasionally, when using a combination of older and newer modules, the raw data was not correctly acquired.
CM7-25343	Agilent 6850: Instrument Configuration Manager does not report mismatches between the hardware and the Chromeleon configuration.
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> <ul style="list-style-type: none"> Digital acquisition with the 19254 card. This is not supported. Digital acquisition on one detector and analog acquisition on the other. Acquisition needs to be exclusively digital or exclusively analog. <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	Agilent 7890 GC: 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.
CM7-24724	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.
CM7-15400, CM7-15556, CM7-15734, CM7-15736	PerkinElmer LC200 Autosampler: When upgrading from a version earlier than Chromeleon 7.2 SR1, 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.
CM7-15716	PerkinElmer Clarus 400 GC: Some users must select Autosystem XL in configuration in order to communicate with the PerkinElmer Clarus™ 400.

ID	Description
26162	<p>PerkinElmer Clarus GC / Autosystem XL: In some instances, communication errors are seen with a PerkinElmer Clarus GC / Autosystem XL system run without temperature ramps.</p> <p>In the course of improving the PerkinElmer Clarus GC driver we have extensively tested the communication infrastructure and were not able to reproduce this issue neither with the PerkinElmer Clarus GC driver released with Chromeleon 7.2 SR3 MUa nor with the improved driver released with Chromeleon 7.2.10a and 7.2 SR5 MUh. We recommend upgrading to Chromeleon 7.2.10a or 7.2 SR5 MUh, which provides a PerkinElmer Clarus GC driver with improved communication infrastructure. If the problem is still observed after an upgrade to Chromeleon 7.2.10a or 7.2 SR5 MUh, we recommend checking the cabling, in particular the connection between the PerkinElmer Clarus GC and the sampler which triggers the GC start.</p>
CM7-17948	<p>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.</p>
CM6-23947	<p>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.</p>
CM7-23099	<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>For newer instruments/modules, we recommend usage of the driver provided by Shimadzu, which is now available as a separate package on the DVD at Drivers\Shimadzu Driver Pack (see the "List of Supported Instruments" for details of modules/instruments).</p>
28253 CM7-25252	<p>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.</p>
136402	<p>The user privilege "Control Instrument While Queue is Running" does not apply to ICF controlled instruments.</p>

5.5 Limitations With Setup

ID	Description
CM7-21780	<p>Setup: 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 installation disk. 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>

ID	Description
CM7-23341	<p>Setup: When Agilent ICF is installed, un-install of either Chromeleon or Agilent ICF fails if the Instrument Controller is running:</p> <p>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 click Retry.</p> <p>To avoid this issue, stop the Instrument Controller before uninstalling</p>
CM7-24384	<p>Setup: When Chromeleon 7.2 SR5 is installed on a Windows 10 PC, upgrading that PC to Chromeleon 7.2.10 MUa will appear to complete successfully, with no IQ errors or warnings. However, attempting to export a sequence to PDF will fail with an error stating "Printer not activated, error code – 30".</p> <p>To resolve this problem, rerun the Chromeleon 7.2.10 MUa setup, selecting 'Repair' on the opening screen of the setup program.</p>
132698	<p>Setup: Under some circumstances, updating to Chromeleon 7.2.10 MUa on an Instrument Controller may fail. If this should happen, check if there are instrument modules that need longer to disconnect (e.g., slow Ethernet connection). Workaround: Check that all instruments are idle, then manually stop the Instrument Controller before the update.</p>

5.6 Limitations with Servers and Services

ID	Description
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>
CM7-22111	<p>Discovery: Mixed Installations with Chromeleon 7.2 SR5 Domain Controller: If you have an existing installation of Chromeleon < 7.2 SR1, the following limitations apply during an upgrade:</p> <ul style="list-style-type: none"> • Stations that have Chromeleon 7.2 or below installed will not see any data vaults or instruments that have been created with Chromeleon 7.2 SR5, until after those stations are upgraded to 7.2 SR5. • It is not possible for a Chromeleon 7.2 (and below) station to join a Chromeleon 7.2 SR5 domain. • Stations that have Chromeleon 7.2 or below will not receive any updates from the Discovery Service after the Chromeleon domain controller has been upgraded to 7.2 SR5, and will only see resources that were already in existence and cached. <p>Please refer to the Enterprise Documentation for guidance on upgrading an older installation of Chromeleon 7 to Chromeleon 7.2 SR5.</p>
CM7-15588	<p>Discovery: The Discovery service failed to start if the PC name included non-standard characters. Now, the Discovery service will not crash and will log the PC name to help troubleshoot why it is not listed in the Console or Administration Console.</p>

ID	Description
CM7-23033	<p>Legacy Upload: With replication framework disabled, when trying to modify a sequence while the automatic upload is already in progress the upload may fail in very rare cases and it is not possible to remove the sequence from the instrument queue by retry of the upload. To recover the sequence a copy of the sequence has to be stored manually. Chromeleon now adds an audit trail entry to the manually uploaded sequence that refers to the original sequence so that traceability is ensured.</p> <p>We recommend enabling the replication framework with Chromeleon 7.2 SR5 or higher to avoid the problem.</p>
CM7-25633	<p>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 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.</p>

5.7 Other Limitations

ID	Description
48574	<p>User Management: Privileged Actions: The privileged action 'Edit Injection Specific XIC Detection Settings' introduced in Chromeleon 7.2.10 is not evaluated at all. Instead the privileged action 'Modify Peak' is applied. So if the latter privileged action is enabled for Requires Authentication and/or Requires Comment any change (enabled, disable, edit) of 'Injection Specific Detection Settings' will trigger a corresponding authentication and/or (default) comment request when these changes are going to be saved.</p>
CM7-24042	<p>Instrument Configuration Manager: The .NET 4.7 framework is installed by Windows Update. For Windows 7 it is a recommended update, but for Windows 10 it is a mandatory update. This release of Chromeleon has been validated against .NET 4.7. However, under rare circumstances, the installation of .NET 4.7 could lead to malfunctioning or crashes of the instrument configuration manager or configuration plug-ins. If this occurs, please contact your Chromeleon support desk for assistance in correcting the problem.</p>
CM7-11692	<p>Console: Instruments: When monitoring the baseline with an overlay chromatogram added to the signal plot, the overlay disappeared after changing to a different ePanel and back.</p>
CM7-17966	<p>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.</p>
47809	<p>Console: It might happen that when a sequence is directly started from the Console, the sequence "running icon" (green arrow) is not shown in the tree view of the data vault (in the left pane). This is likely a status reporting issue with the Discovery service and does not interfere with actual acquisition. The proper status is still shown in the instrument queue and in the view of the sequence itself.</p>
CM7-25480	<p>Console: Data: If a Data Vault is unavailable, it is not shown as collapsed in the data explorer tree despite its sub-folders and items being inaccessible.</p>

ID	Description
CM7-22738	<p>Console: Data: Empty Inject Time and GUID fields have been seen 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.</p> <p>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>
CM7-21399	<p>Console: Query: 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).</p>
120335	<p>Console: Query: 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.</p>
CM7-19836	<p>Console: 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.</p>
27602	<p>If an eWorkflow specifies a data vault name for sequence storage and more than one machine has a data vault of the same name, then if the eWorkflow is copied to a local data vault the sequence may nonetheless get created on the remote data vault of the same name.</p> <p>It is highly recommended to use data vaults with unique names (independent from its machine name) to launch eWorkflows.</p>
CM7-24058	<p>Console: eWorkflows: The new eWorkflow option "Preserve Layout", introduced in Chromeleon 7.2.6 is not backwards compatible with older versions of Chromeleon. If a client with an earlier version than 7.2.6 attempts to open an eWorkflow for which this option is enabled, the error message "Cannot load, as the data was created with a newer Chromeleon version." Is displayed.</p>
CM7-19336	<p>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.</p>
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.
CM7-25551	<p>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.</p>
CM7-18252	<p>Export MS Raw Data: 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.</p>

ID	Description
36644	Studio: Tentatively Identified Peaks Pane: In Chromeleon 7.2.10, the list of available library hits was increased from 3 to 12. If a hit >3 is selected and the data is opened in a version of Chromeleon prior to 7.2.10, then although the compound name will be available, the SI and RSI will not
CM7-25590	Chromatogram Plot: When creating a Virtual Channel, the Power Factor only increments in steps of 0.5, which does not provide enough flexibility for controlling the scale of the extracted data.
CM7-15455	Processing Method: Without data in the first injection, it is not possible to select the 2nd or 3rd Detector for Dead/Delay Time.
CM7-17465	Processing Method: On the MS Settings page, It can happen the spectral bunching value for Peak Dependent Correction that is displayed as an annotation on the chromatogram plot does 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 the number of MS spectra which fit the filter used for the chromatogram. This is not correctly documented in the Chromeleon online help.
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.
53530	Mass Spectrum Pane: To improve performance when displaying mass spectra with very large profile scans (60,000+ data points) containing very narrow mass peaks, disable the Overview plot on the Interactive Settings tab of the MS pane properties.
26033	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.
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 or later, 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.
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.
CM7-22145	Report Designer: 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.
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.

ID	Description
CM7-21331	Report Designer: The mass spectrum resolution report variable returns an internally used processing value instead of the resolution setting defined in the MS instrument method. It is recommended to not use this report variable. Instead use the "FT_Resolution" report variable.
CM7-23442	Report Designer: In order to display the date and time in the Header/Footer of reports one can use the spreadsheet placeholders &D and &T 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 &D and &T 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> .
CM7-24972	Report Designer: 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.
CM7-23484	Report Designer: 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> .
112934	Report Designer: Having a MS sequence with dedicated XICs in the Processing Method and some of these XICs being manually modified the data audit trail report table shows all XIC modifications for all injections as separate audit trail records (Type 'Chromatogram' and Operation 'Changed'). Yet if the filter 'Current Chromatogram' is applied and the current injection contains such modifications the report table shows only the text "Data audit trail of object MS_Quantitation is empty".
47486	Data Audit Trail: After performing a manual manipulation of an MS component trace and saving the sequence, the first entry in the chromatogram data audit trail for that MS Component trace will show be 'Changed', not 'Created', The lack of a "Created" line in the audit trail means that it is not possible to show the changes of the first chromatogram manipulation, nor to restore the previous chromatogram version. As a workaround, use the injection data audit trail to show the changes of the first chromatogram manipulation and, if desired, to revert the first chromatogram manipulation.
CM-14128	Non-Targeted MS Processing: When performing Non-targeted MS data processing, Chromeleon uses a disk-based cache to increase processing performance. Over time, this cache can grow to consume large amounts of local hard disk space. To flush the cache and release the disk space, a utility is included on the Chromeleon installation disk in the <code>\Tools\CacheCleaner\</code> folder. Double-click on <code>CacheCleaner.exe</code> to manage the content of the cache.
48906	Non-Targeted MS Processing: Due to limitations in the Sieve processing engine, it is only possible to perform NTMS processing on system with <code>en_US</code> localization (i.e. non-US localized systems are not supported) (This is also documented in the Sieve Release Notes)
117796	Composite Scoring: When computing the Isotopic Dot Product, a negative value could be reported when a theoretical mass could not be matched to a simulated mass

ID	Description
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 dialogue with OK will result in an exception being thrown.
125904	Vanquish Autosampler: If the option "External Rack Transfer" has been activated, the Charger option cannot be disabled. In the autosampler configuration, checking the option "Enable Charger", then changing to a different tab results in an error "incorrect configuration error" and it is no longer possible to uncheck the option "Enable Charger".
128546, 65608	Vanquish Autosampler: The option "External Rack Transfer" is not compatible with Chromeleon User-Defined Programs (UDP's).

5.8 Obsolete Drivers

Chromeleon includes a number of obsolete drivers in order to provide backward compatibility of existing installations:

- Agilent/HP 1200 HPLC System
- AI 1310/3000 GC Sampler - 10ul
- AI 1310/3000 GC Sampler - 5ul
- AI 1310/3000 GC Sampler - 5ul - 155 Vials
- AI 1310/3000 GC Sampler - 5ul - 105 Vials
- AI 1310/3000 GC Sampler - 10ul - 155 Vials
- AI 1310/3000 GC Sampler - 10ul - 105 Vials
- PAL Sampler for GC
- PAL Sampler for LC
- TRACE 1300 Series GC (First generation driver that was superseded by TRACE 1300 Series GC II driver)

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.

5.9 Functional Differences between Chromeleon 7.3 and Chromeleon 6.8

Chromeleon 7.2.10 MUa implements the vast majority of Chromeleon 6.8 features, and in general, has a richer feature set than Chromeleon 6.8. However, a few Chromeleon 6.8 features remain to be implemented on the Chromeleon 7 platform and a few will never be implemented, since they are now obsolete or no longer relevant. If a particular missing feature is important to you, please contact your local Thermo Fisher Scientific representative to find out if that feature is in the product development plans.

6 Backward/Forward Compatibility Issues

6.1 Chromeleon Enterprise Compatibility between Chromeleon versions

In general, for customers with Enterprise Chromeleon systems, we do 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, etc. 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 Thermo Scientific Vanquish Charged Aerosol Detector [CM6-23499]

Any Instrument Methods created for the Vanquish Charged Aerosol detector with Chromeleon 7.2 SR2 MUa and earlier may need to be updated due to changes in the driver introduced in Chromeleon 7.2 SR2 MUb.

6.3 Thermo Scientific Vanquish Autosampler [CM6-23405]

Any Instrument Methods created for the Vanquish Autosampler with Chromeleon 7.2 SR2 MUb and earlier will need to be updated if they contain the WashSpeed property. The WashSpeed value needs to be divided by 0.06 in order for the Instrument Method to work correctly.

6.4 Thermo Scientific TriPlus RSH

The current driver for this instrument is incompatible with firmware older than version 2.4.

6.5 Thermo Scientific TriPlus 300 HS

The current driver for this instrument is incompatible with firmware older than 2001.9.0.

6.6 Thermo Scientific TriPlus LS-100

The current driver for this instrument is incompatible with firmware older than version 2.4.

6.7 TSQ Quantiva and Endura Instrument Method [CM7-18759]

Instrument methods created with older versions of the TSQ Quantiva and Endura instrument method editor cannot be opened with newer versions of the method editor. If a large number of instrument methods have already been created for regular use, upgrade of the TSQ Quantiva and Endura driver

is not recommended. Contact your local Thermo Fisher Scientific representative for additional details.

6.8 Signed Sequences [CM7-16374]

Sequences that have been signed within Chromeleon 7.2 SR1 will fail verification after copying within later versions of Chromeleon 7.

7 Appendix

This chapter contains general information about Service Releases, Release Notes, Online Help, and Contributed Content.

7.1 Release Notes

The Release Notes list the new features, improvements, bug fixes and known limitations of this release of Chromeleon. For details about previous releases of Chromeleon, refer to the relevant release notes which can be found on the Chromeleon installation disk for this release.

7.2 Online Help

In general, new features, updates and drivers that are introduced with this release are described in an updated Online Help that is distributed with the release.

7.3 Contributed Content

The Chromeleon 7 installation disk contains a folder titled Contributed Content. This folder contains:

- Demonstration Material
- Localized Documents
- Localized ePanels
- Localized Report Templates
- eWorkflow Templates
- User Management Example
- Charlie Mouse Pointer

Note: The files in the Contributed Content folder have not been tested and validated according to Thermo Fisher Scientific Software Development Cycle guidelines modeled after ISO 9001:2008 standards. Thermo Fisher Scientific assumes no responsibility for any errors that may appear in the content provided in the Contributed Content folder.

7.4 Additional Details on New Functionality

This section provides additional details on section new functionality in this release.

7.4.1 Thermo Scientific Vanquish Core

Vanquish Core modules require a minimum firmware version 2.01 or 2.02. Please also use firmware version 2.01 or 2.02 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 or higher is used for all modules. For existing Vanquish Flex and Horizon modules, firmware version 2.01 or 2.02 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.

Note: The Vanquish Charger is only supported with Vanquish Autosamplers with temperature control. The Vanquish Core Autosampler VC-A13-A does not allow to configure a charger.

The Vanquish Core Autosampler (VC-A12-A / VC-A13-A) supports two new rack types: A 16x Rack for Vials (OD 15 mm) and 9x Rack for Vials (OD 23 mm). The minimum firmware version to use these new rack types is 1.39.33.

7.4.2 Thermo Scientific TRACE 1300 GC Updates

The COM ports used for AS/AI1310 autosampler connection are marked ‘Autosampler’ and ‘Aux Serial’.



Figure 4: TRACE1300 GC rear panel

A single AS/AI1310 sampler can now be connected using either port

Two AS/AI1310 autosamplers can be configured in one of two ‘Gemini’ modes:

- For ‘Confirmation’ mode, the two samplers are connected using a ‘Y-shaped’ RS232/Serial cable to either of the COM ports on the GC
- For ‘High-throughput’ mode, the two samplers are connected using a separate RS232/Serial cable for each sampler, connected to each of the COM ports on the GC

Notes:

- Using the second COM port requires at least version 7.5 of the ‘Main’ firmware to be installed on the TRACE1300 GC.
- For both Gemini modes, a Y-shaped start cable is required between the Autosampler Handshake port on the rear of the GC and the GC port on the rear of each sampler, and a Hardware Synchronization cable is required to connect between the Twin Sync ports on the two samplers.

7.4.3 Instrument Method Translation for UltiMate 3000 to Vanquish Core

This release introduces support for method translation for the following UltiMate 3000 instrument modules to the corresponding Vanquish Core instrument module:

UltiMate 3000	Vanquish Core
LPG 3X00SD	Quaternary Pump VC-P20-A, VC-P21-A
LPG 3X00RS	Quaternary Pump VC-P20-A, VC-P21-A
LPG 3400XRS	Quaternary Pump VC-P20-A, VC-P21-A
HPG 3X00SD	Binary Pump VC-P10-A
HPG 3X00RS	Binary Pump VC-P10-A
HPG 3200BX	Binary Pump VC-P10-A
DGP 3X00SD	Dual Pump VC-P32-A, VC-P33-A
DGP 3X00RS	Dual Pump VC-P32-A, VC-P33-A
DGP 3200BM	Dual Pump VC-P32-A, VC-P33-A
WPS-3000SL	Autosampler VC-A12-A, VC-A13-A
WPS-3000TSL	Autosampler VC-A12-A, VC-A13-A

WPS-3000RS	Autosampler VC-A12-A, VC-A13-A
WPS-3000TRS	Autosampler VC-A12-A, VC-A13-A
WPS-3000TBRS	Autosampler VC-A12-A, VC-A13-A
TCC-3000	Column Compartment VC-C10-A
TCC-3100	Column Compartment VC-C10-A
TCC-3200	Column Compartment VC-C10-A
TCC-3000RS	Column Compartment VC-C10-A
TCC-3000SD	Column Compartment VC-C10-A
DAD-3000	Diode Array Detector VC-D11-A
MWD-3000	Multiple Wavelength Detector VC-D12-A
VWD-3000	Variable Wavelength Detector VC-D40-A
FLD-3000	Fluorescence Detector VC-D50-A, VC-D51-A

7.4.4 CSV Export for Data and Instrument Audit Trails

7.4.4.1 CSV Export Data Audit Trail [44316]

The CSV Export of the Data Audit Trail supports restricting the time range of the data audit trail records to be exported and including the detailed changes of every data audit trail record if available. The export is always restricted to the data audit trail records of the selected folder of the data vault and all subfolders underneath.

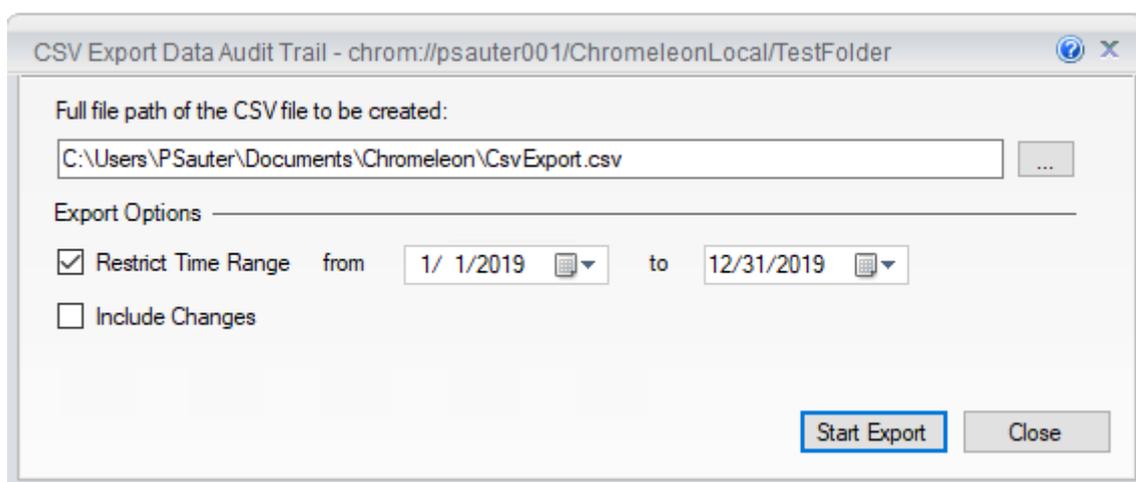


Figure 5: CSV Export Data Audit Trail Window

Note: The CSV export for a very large data vault may take several hours, especially when including the detailed changes. It is recommended that the export be restricted to reasonably time ranges (e.g. months), repeating multiple times to finally cover the complete time range.

7.4.4.2 CSV Export Instrument Audit Trails [65919]

Based on the current folder selection in a data vault the export procedure looks for every instrument (daily) audit trail in the selected folder and all folders underneath. All instrument audit trails for each instrument are exported to different CSV-Files in the specified location. The export supports restricting the time range and the instrument audit trail record level (Normal, Advanced, Expert).

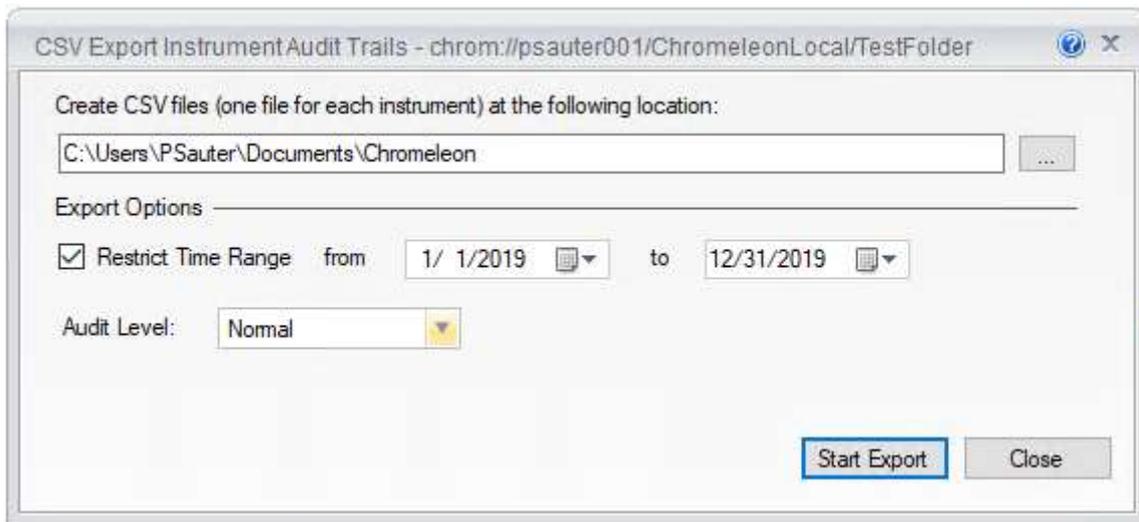


Figure 6: CSV Export Instrument Audit Trails Window

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