

thermoscientific

## Release Notes

### Chromeleon 7 Chromatography Data System

Software Version 7.3 • Feb 2020

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# 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 data retrieval, 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.

This new version, Chromeleon 7.3, comes with a variety of new features including:

- **Control of Vanquish Core:** This release introduces control of the new Thermo Scientific Vanquish Core UHPLC System and the new Vanquish Solvent Monitor. In addition, Chromeleon 7.3 provides diagnostic tests, the ability to schedule a diagnostic test (Health Check) and Method Transfer for the Vanquish Core instrument, as well as User Defined Programs for Vanquish UHPLC instruments.
- **Smart Audit Trail Review Framework:** Chromeleon 7.3 facilitates the review of data audit trail, by introducing audit trail events for the data audit trail of sequences, including corresponding report tables and a SQL-based data audit trail query.
- **Dongle Free Licensing:** Licensing in Chromeleon 7.3 has changed from a dongle-based system to a key code system. Customers purchasing a new Chromeleon 7.3 system, or upgrading from an earlier version will receive a Chromeleon 7.3 license key. This license key must be entered and activated using the Licenses section of the Chromeleon Administration Console.
- **Instrument Overview:** The Instrument category of the Chromeleon 7 Console includes a new view which shows a status overview of all or of a subset of all the instruments in the Chromeleon domain. For each instrument, the instrument status includes details of any currently acquiring sequence(s), and the status of the instrument queue. Toolbar options allow you to quickly launch eWorkflows for the currently selected instrument or directly access the Queue and ePanel.
- **Chromeleon 7 Process Analyzer:** Chromeleon 7.3 introduces a new Process Analyzer (PA), which has previously only been available in Chromeleon 6. The Chromeleon 7.3 version of PA has been designed to be similar in user interface and functionality to the Chromeleon 6 based application.

Further Improvements and enhancements have been made in various 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.

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

## 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 installation disk in the Documents folder.

Please refer to the Installation Guide for information regarding:

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

## 3 What's New in Chromeleon 7.3

Chromeleon 7.3 implements a number of new features, including an Audit Trail Review Framework and dongle-free licensing. This document will only give a short overview of all features; for more details, refer to the Online Help.

### 3.1 Licensing [50645]

The way licenses are delivered and entered in Chromeleon has changed in Chromeleon 7.3. In previous versions, Chromeleon required a 'dongle' and a Chromeleon7.cmlc file to add Client and Instrument Controller license 'features' in the Chromeleon Administration Console. In Chromeleon 7.3, license features are now added using a key code based system rather than a dongle.

When you receive your Chromeleon 7.3 DVD, you will also receive a License Certificate containing a "License Initialization Code" (LIC) key. You may also receive the LIC key in an email from your Thermo Fisher Scientific sales representative.

**Note:** If upgrading an Enterprise system from an earlier version of Chromeleon to Chromeleon 7.3, the Chromeleon Domain Controller should be updated to Chromeleon 7.3 first, and a valid license installed, before updating any other components of the system. This will ensure that Clients and IPCs can continue to be used during the system upgrade process.

#### 3.1.1 Adding licenses during installation

During initial installation of Chromeleon 7.3, instead of being prompted to plug in a dongle, you will now be prompted to add a license, join a Chromeleon Domain, or skip this step:



Figure 1: New license prompt during installation of Chromeleon 7.3

If you choose to click the Add button to add your LIC key during installation, the Manage Licenses dialog box will guide you through that process:

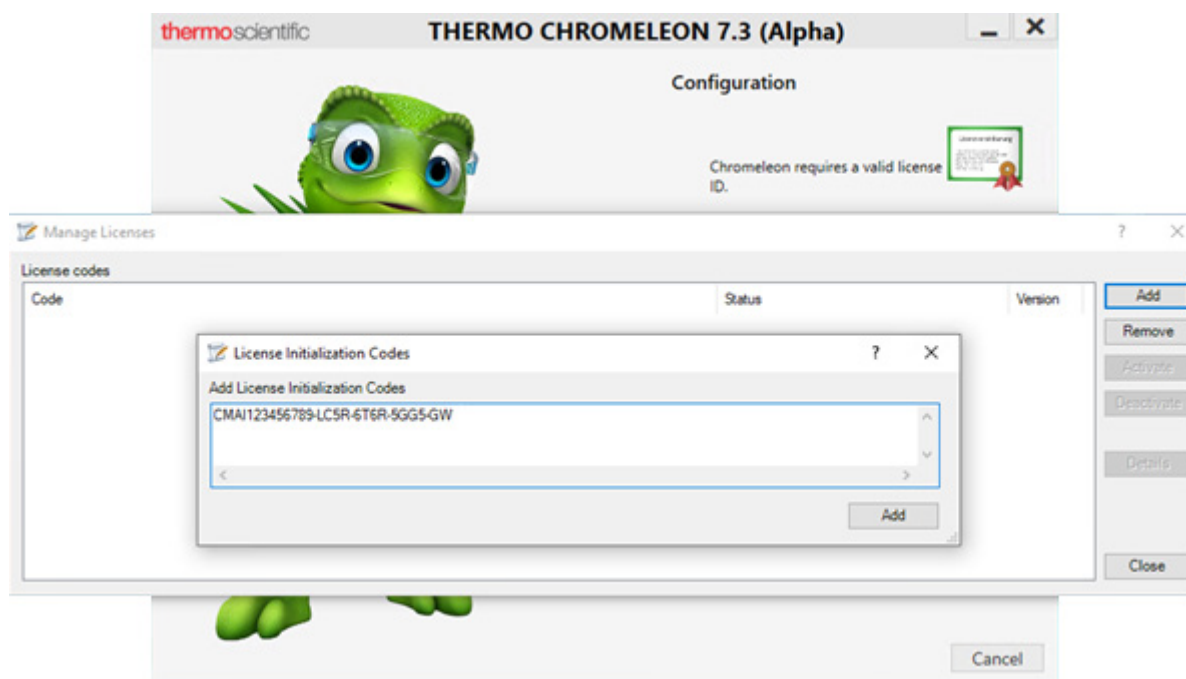


Figure 2: Using Manage Licenses dialog box to Add a License Initialization Code

Type or Copy-and-Paste the LIC key in the License Initialisation Codes dialog. Click the Add button to store the key. The LIC key will be displayed in the Manage Licenses dialog and will have the status “Pending”. It will also show a “Grace Period” expiry date. At this point in the installation process, you can Activate the license immediately, or continue with the installation and activate later.



Note: In order to complete the installation of a LIC key, the LIC key needs to be Activated (see section 3.1.3 below). This can be done at any time during the Grace Period, which lasts 60 days from the date that the LIC key is first entered in Chromeleon. If the grace period expires before you have activated your LIC key, your licences will become unavailable for use by your Instrument Controllers or Clients. At this point, you would then have to activate your LIC key in order to use the licences it contains.

### 3.1.2 Adding Licenses in the Chromeleon Administration Console

Licenses can be added, removed, activated and managed in the Chromeleon Administration Console using the Manage Licenses option:

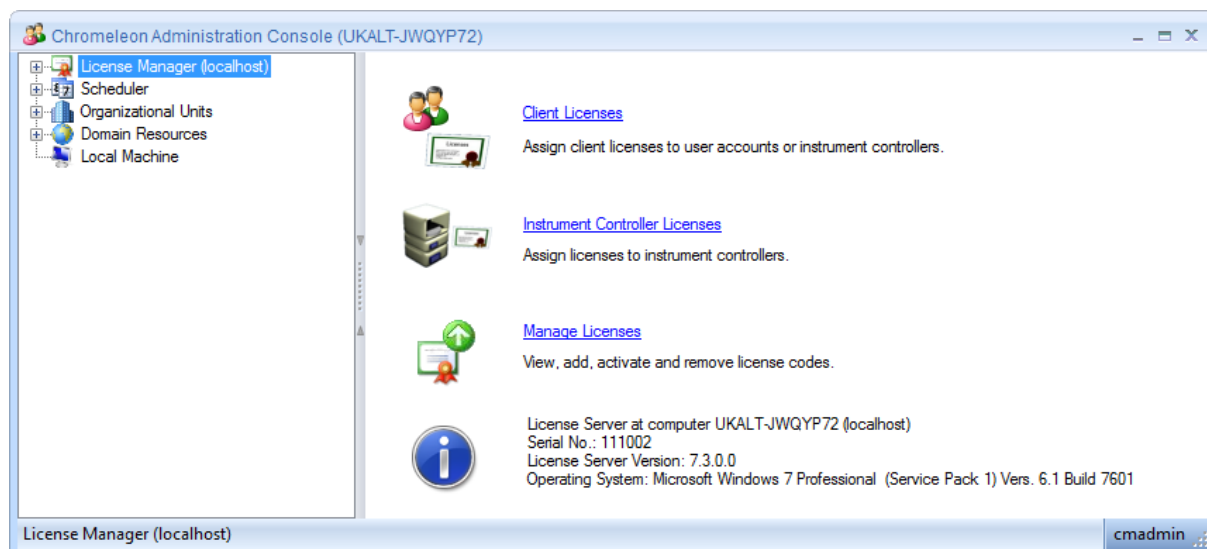


Figure 3: Manage Licenses option in Chromeleon Administration Console

The process for Adding licenses in the Administration Console is the same as the process for adding licenses during installation, as described in section 3.1.1 above.

### 3.1.3 Activating Licenses

After a LIC key has been added in Chromeleon, it needs to be “Activated” to complete the license installation process. This requires a two-step communication with Thermo Fisher Scientific and can be done in a fully automated action, or via one of several manual processes. These options are described below. Once a LIC key has been activated, the licenses are available in the License Overview section of the Administration Console, and can be assigned and managed in the same way as in previous versions of Chromeleon 7.

#### 3.1.3.1 Automated Web Activation

On an internet connected computer, the easiest way to activate a LIC key is using the automated Web Activation option.

In the Manage Licenses dialog box in the Chromeleon Administration Console, select one or more LIC keys with the status of Pending, and click the Activate button. From the License Activation dialog box (see figure 4), click the Web Activate button. Enter the user details of the person activating the LIC, tick the checkbox if you would like to receive email messages about Thermo Fisher Scientific products and services and, if you wish to, view the End User License Agreement. Finally click the Activate button and Chromeleon will communicate with the Chromeleon licensing website and will automatically activate your LIC key:

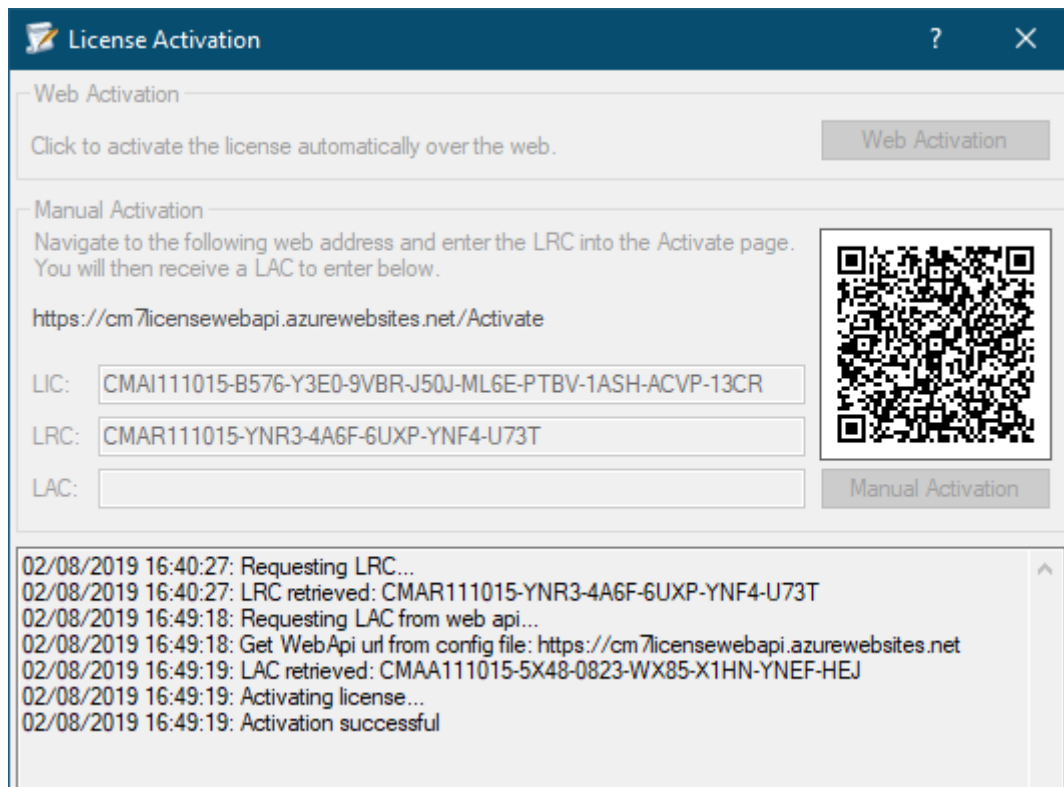


Figure 4: Automated Web Activation

### 3.1.3.2 Manual Activation using QR code

Use an internet connected device with a camera (tablet, phone, etc) to read the QR code in the License Activation dialog box. This will take you to the Chromeleon License Activation website (see figure 5 below) and will pre-populate the "License Request Code" (LRC) field. Complete the user information fields and click the Activate Licenses button to generate a "License Activation Code" (LAC). Enter this LAC in the License Activation dialog in Chromeleon Administration Console to complete the activation process.

ThermoFisher  
SCIENTIFIC Activate Deactivate Admin sign in

## License Activation

### Enter Activation Details

License Request Code (LRC)  
CMAR123456-W1XY-PJTS-MSEB-JEJO-8WCY-2

Country\*  
Choose Country...

Name

Email

Company

Phone

Activate License

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Figure 5: Chromeleon License Activation website

### 3.1.3.3 *Manual Activation using URL*

Use any internet connected device (PC, tablet, phone, etc) to open the Manual Activation url. This will send you to the Chromeleon License Activation website (see figure 5 above). Enter the “License Request Code” (LRC) from the License Activation dialog in Chromeleon Administration Console, complete the user information fields, and click the Activate License button to generate a “License Activation Code” (LAC). Enter this LAC in the License Activation dialog in Chromeleon Administration Console to complete the activation process.

### 3.1.3.4 *Other Activation options*

If you do not have an internet connected computer, tablet or phone on which to perform Automated Web Activation, or either of the Manual Activation options, please contact your Thermo Fisher Scientific representative to discuss non-electronic methods of registering your LIC key.

## 3.2 New and Updated Thermo Scientific Instrument Drivers

This chapter lists new and updated Thermo Scientific™ drivers added to Chromeleon 7.3. For details on supported options, required licenses, installation, and control, refer to the Online Help or the List of Supported Instruments document found on the Chromeleon 7.3 DVD.

### 3.2.1 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

Vanquish Core modules require a minimum firmware version 2.01. Please also use firmware version 2.01 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 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.

### 3.2.2 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.

### 3.2.3 Thermo Scientific TRACE1300 GC – Updated Driver [109632]

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.

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



Figure 6: 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.

### 3.2.4 Thermo Scientific TriPlus 500 – Updated Driver [48502, 28320]

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

### 3.2.5 ICS-6000 AutoPrep [71679]

AutoPrep is designed to allow analysis of anions and cations at levels lower than 500 ppt by minimizing the environmental factors, material compatibility and contamination that often plague trace analysis. It does this by:

- Automatically calibrating the ICS-6000 system
- Automatically concentrating and analyzing samples
- Removing the need to perform manual sample preparation and standard dilution
- Improving consistency

This feature is meant to be used with the Dionex AutoPrep and ICS-6000 Systems. The Chromeleon 7 installation DVD includes a sequence template, ePanel and other information to help in using this feature.

## 3.3 IQ/OQ/PQ

### 3.3.1 HPLC Instruments IQ

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

New HPLC OQ/PQ tools are available in Chromeleon CDS. HPLC OQ/PQ version 9.5 adds support for Vanquish Core modules. For details, please refer to the document \Documents\HPLC OQ PQ V.9.5 - 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 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

### 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. Chromeleon provides a number of diagnostic tests for Vanquish Core instruments: 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.

## 3.5 Audit Trail Review Framework

In recent years, data audit trail review has become more and more important. Users working in some environments are faced with more detailed questions from auditors of regulatory authorities. To assist these users, Chromeleon 7.3 introduces new audit trail events and a dedicated data audit trail query to facilitate data audit trail review.

### 3.5.1 Audit Trail Events [64119]

Chromeleon has four main audit trail areas:

- Data Audit Trail
- Injection Audit Trail
- Instrument Audit Trail
- Administration Audit Trail

In the past, these audit trails were completely separated, making it difficult to easily follow events that cross these audit trail boundaries. The main purpose of the new audit trail events is to connect these different audit trails in order to facilitate the overall audit trail review.

Chromeleon 7.3 introduces audit trail events for the data audit trail of sequences.

#### 3.5.1.1 *Audit Trail Event Configuration and Activation*

In order to enable Audit Trail Events, you must both (a) enable the events on a data vault level and (b) specify the Audit Trail Events you wish to record.

The Properties page of the Data Vault includes a new option to enable Audit Trail Events:



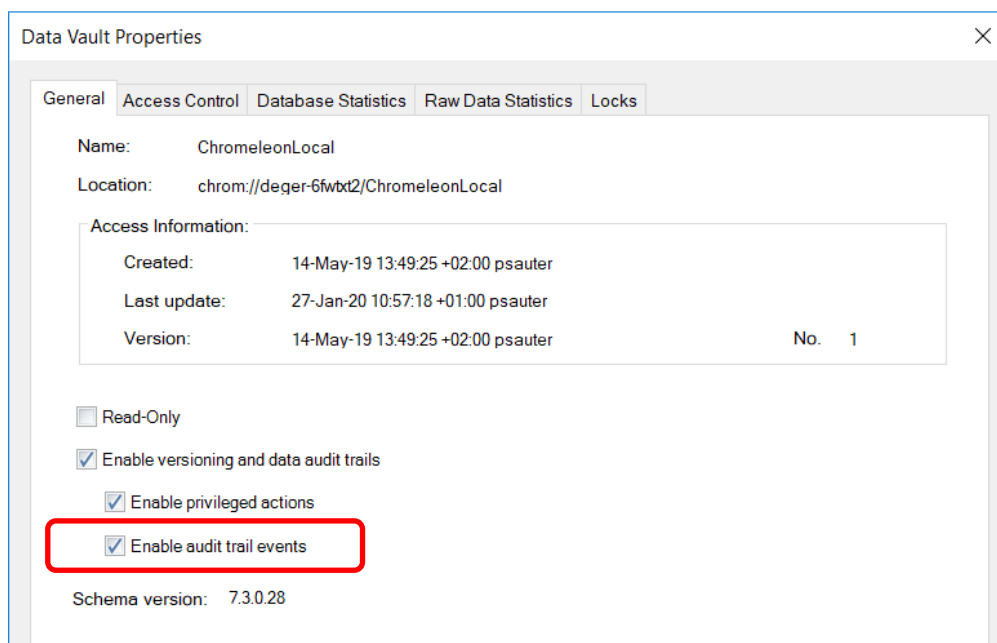


Figure 7: Audit Trail Event Activation in the Data Vault Properties

In the Global Policy section of the Chromeleon Administration Console, a dedicated list of audit trail events can be configured. These Audit Trail Events may be enabled or disabled on an individual basis.

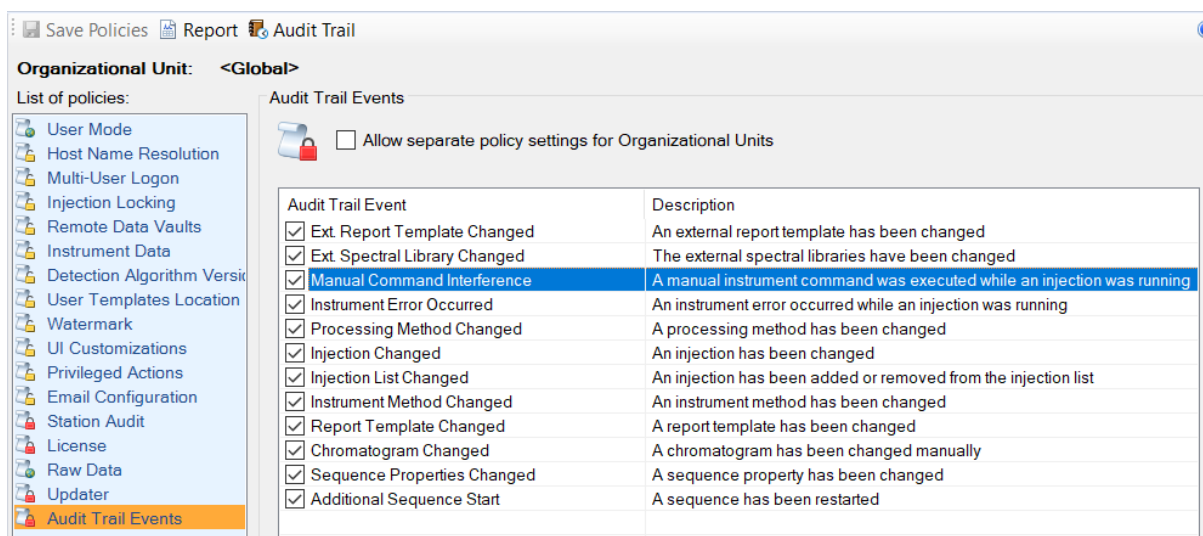


Figure 8: Audit Trail Event Configuration in the AdminConsole

Once audit trail events are activated for a data vault, every new sequence created in the data vault will copy the current audit trail event configuration at this time to its own properties. From this point forward, any activity for this sequence which creates a corresponding data audit trail record is compared to the list of enabled audit trail events. Every additional audit trail event record is saved together with the data audit trail record of the sequence.

### 3.5.1.2 Audit Trail Events in the Data Audit Trail Window

Audit trail event records can be viewed in the data audit trail window of the sequence. Every data audit trail which has an associated audit trail event record is highlighted by a dedicated icon (⚡).

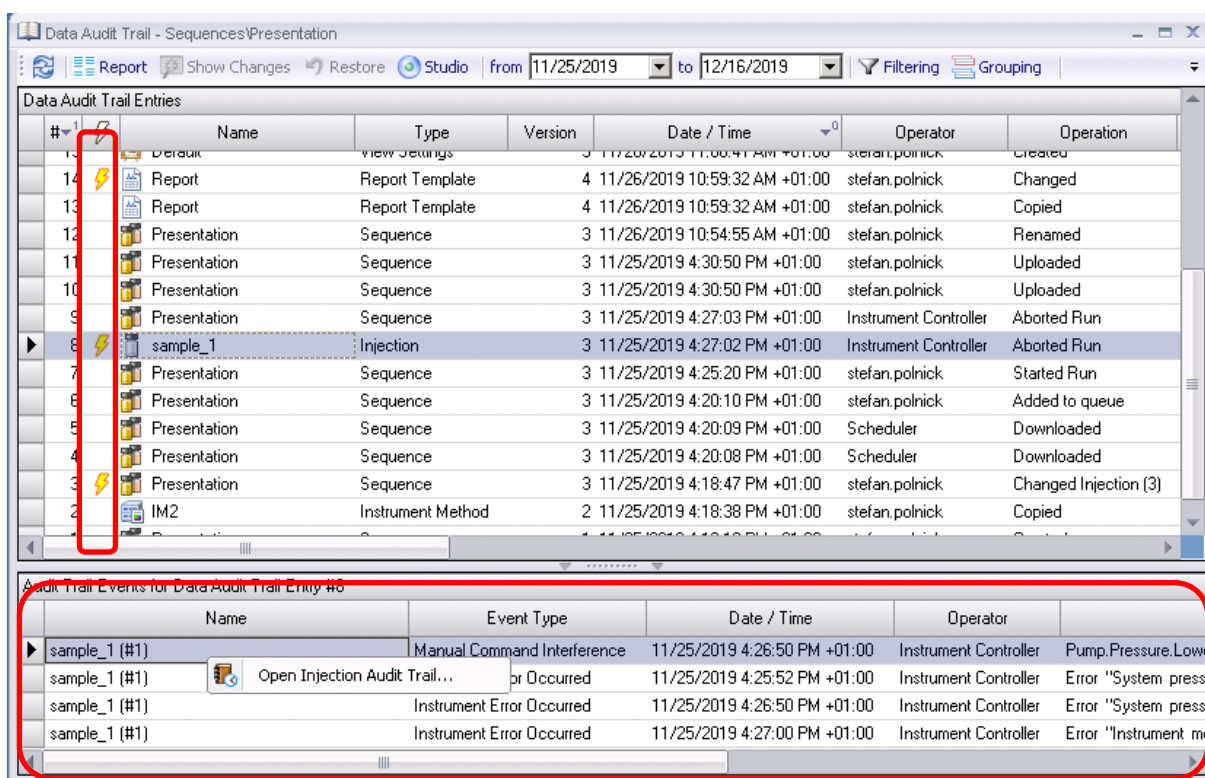


Figure 9: Data Audit Trail Window incl. Audit Trail Events

Filtering and Grouping is supported for the new flash column of the data audit trail table.

Each time a data audit trail record is selected, the corresponding audit trail event records are listed in the lower area of the data audit trail window. The audit trail event record contains columns for the data object name, the event type, the date/time when the event was raised, the corresponding operator and a detailed description about the event itself.

For data audit trail events referring to an audit trail than the sequence data audit trail itself, i.e. **Ext. Report Template Changed, Ext. Spectral Library Changed, Manual Command Interference and Instrument Error Occurred**, the context menu of the audit trail event records may be used to open the corresponding data or injection audit trail directly.

The Data Audit Trail Report dialog accessed from the data audit trail window also allows the audit trail events to be added to the corresponding HTML report.

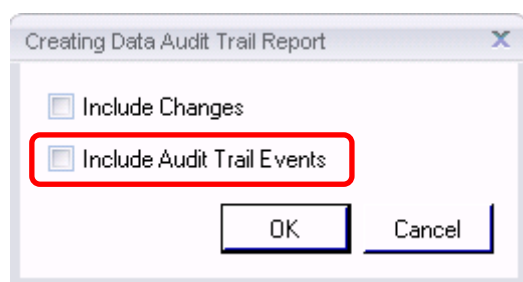


Figure 10: Data Audit Trail Report Dialog

### 3.5.1.3 Audit Trail Event Report Tables

In report templates, audit trail events can be reported in various ways.

**Data Audit Trail Report Table:** In the report table for the data audit trail, the number of audit trail events for each data audit trail record can be reported via a dedicated new report formula ('DataAuditTrail.NumberOfEvents').

**Audit Trail Events Report Table:** A new report table called ‘Audit Trail Events’ may be used to list all audit trail event records of a sequence. The columns of this new report table are configurable via dedicated variables (Category ‘Audit Trail Event’) which refer to the audit trail event columns in the data audit trail window. The report table can either list all audit trail events or just audit trail events of a specific type.

**Audit Trail Event Configuration Report Table:** The audit trail event configuration which was copied into the sequence properties when the sequence was been created can be reported via a dedicated new report table. This table supports filtering of the events, if desired. The report table columns are fixed. The first column lists the event type, the second column the number of occurrences for every event type. The latter column can contain the value 0 if the corresponding event type didn’t occur in this sequence.

### 3.5.2 Data Audit Trail Query [48611]

The data audit trail window on a folder or data vault root level has been enhanced to better support targeted searches. Beneath the query options to include subfolders and a specific date/time range, a new pane allows entry of custom search conditions (Advanced Search Criteria).

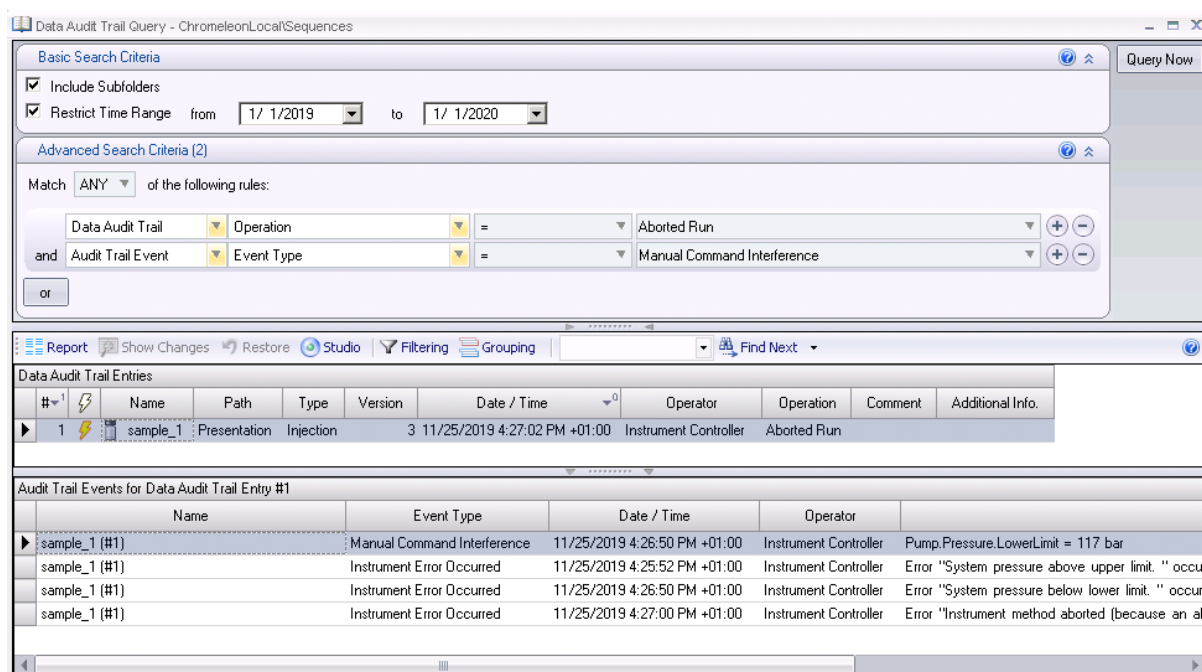


Figure 11: Data Audit Trail Query Window

For the data audit trail record query, conditions can be defined for **Type, Operation, Operator and Comment**. For the audit trail event record query conditions can be defined for **Name, Event Type, Operator and Description**.

The results of the query are listed in the table below the query conditions.

### 3.5.3 Data Audit Report Table With Detailed Changes [48684]

With this release of Chromeleon, the data audit trail report table is now able to also list the details of data audit trail records with old and new values for every single data item (**except the instrument method**). The detailed changes for instrument method are still only available in the data audit trail window and the corresponding HTML report.

This closes a feature gap compared to Chromeleon 6.

## 3.6 Data Export and Reporting Updates

### 3.6.1 Option for CSV Raw Data Export [54948]

This release adds a new option to allow the export of Raw Data to comma separated values (\*.csv) file format in addition to the tab separated (\*.txt) option previously available.

### 3.6.2 New MS-Related Report Variables [11677, 27683]

With this release, two additional report variables related to MS data have been added:

Report Variable	Context	Description
Saturated	ms.spectrum().saturated	Returns TRUE if the MS photomultiplier was saturated (outside the linear range) when the indicated mass spectrum was acquired.
FT_resolution	ms.spectrum().FT_resolution	Returns the resolution of the indicated mass spectrum

## 3.7 Client Updates

### 3.7.1 Instrument Overview [54017]

Chromeleon 7.3 introduces a new Instrument Overview in the Instrument section of the Chromeleon Console. This view enables you to see the activity status of multiple instruments at once and can give you a much clearer overview of the status of the instruments you are responsible for, or of the overall activity in your laboratory:

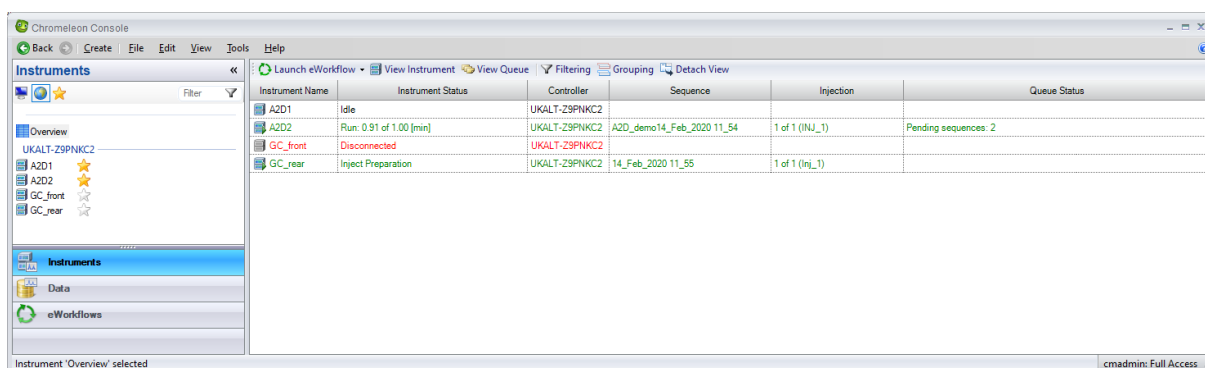


Figure 12: Instrument Overview in Chromeleon Console

Functionality available through toolbar and right-mouse buttons includes:

- Launch an eWorkflow for the selected instrument; the list of available eWorkflows is filtered to only show eWorkflows that can be run on this instrument

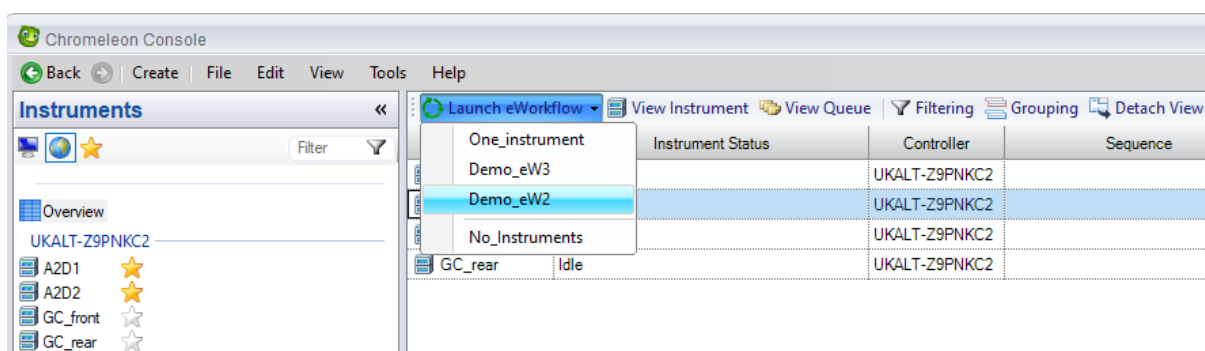


Figure 13: Launch eWorkflow from Instrument Overview

- View Instrument ePanel for the selected instrument
- View Instrument Queue for the selected instrument
- Filter and Group the instruments displayed in the grid
- Detach the Instrument Overview so that you can quickly see the status of your instruments while you are working in other areas of the Chromeleon Console

### 3.7.2 Reorganization of Instrument Queue tab [81443]

The Queue tab in the Instrument section of the Chromeleon console has been reorganised so that recently acquired Sequences are more visible and more easily accessible.

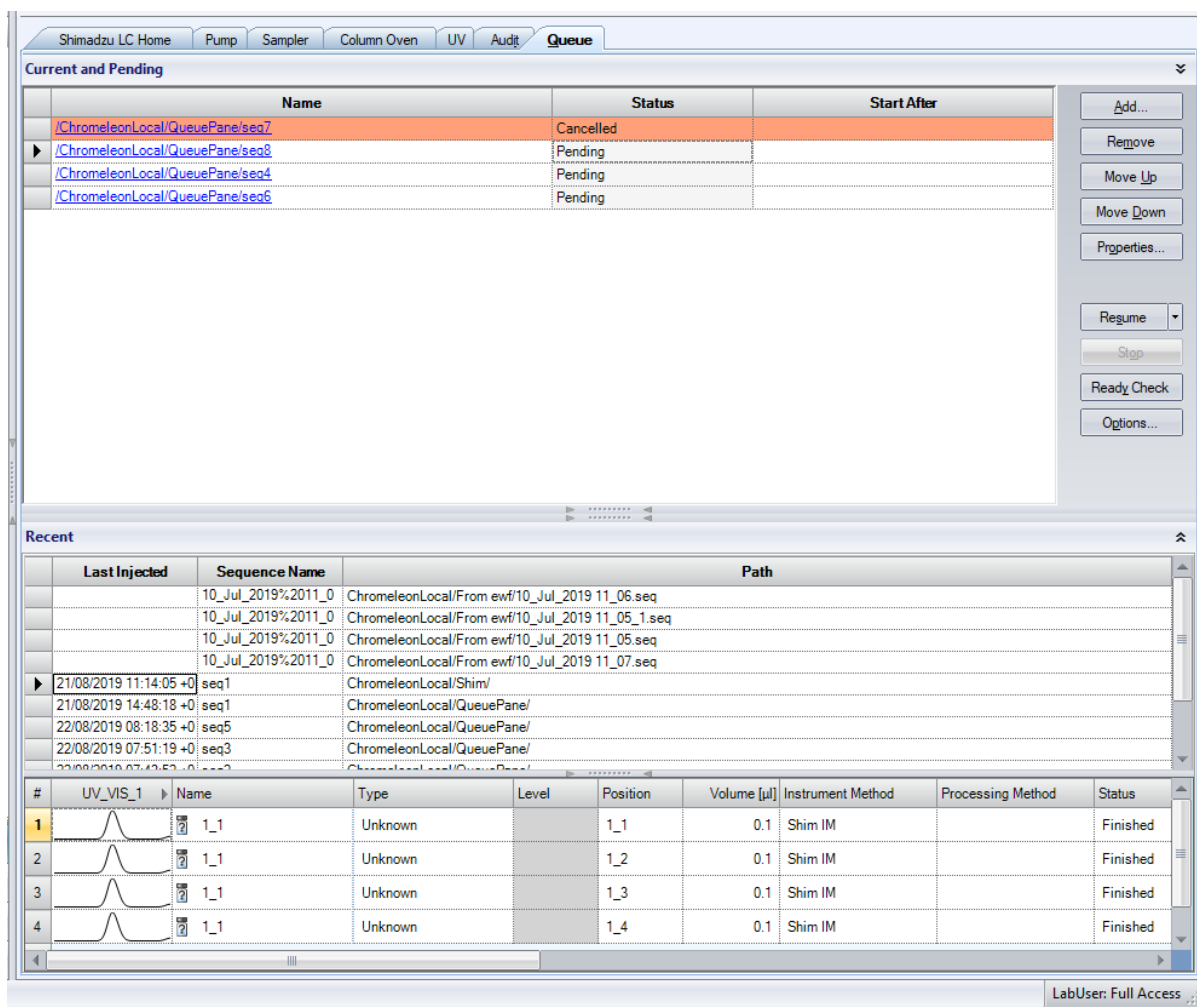


Figure 14: New-look Queue tab in Instruments section of Chromeleon Console

The upper section of the Queue tab now shows the currently acquiring sequence and any queued sequences, as in previous versions of Chromeleon. Controls for manipulating the queue are available to the right of the Current and Pending pane. Queue options, which were previously displayed below the queue are now accessible through the Options... button.

The lower section of the Queue tab now shows recently acquired sequences. Selecting one of these sequences will display a preview of the samples in the recent sequence.

### 3.7.3 eWorkflow: Default Assignments Tab [28322]

The eWorkflow editor has been improved to allow more options to be pre-defined, and to allow the same eWorkflow to be used for more instruments, thereby reducing the number of eWorkflows required and giving the eWorkflow designer more control over the options available to the user who uses the eWorkflow to create a sequence.

A new Default Assignments tab has been added to the eWorkflow editor:

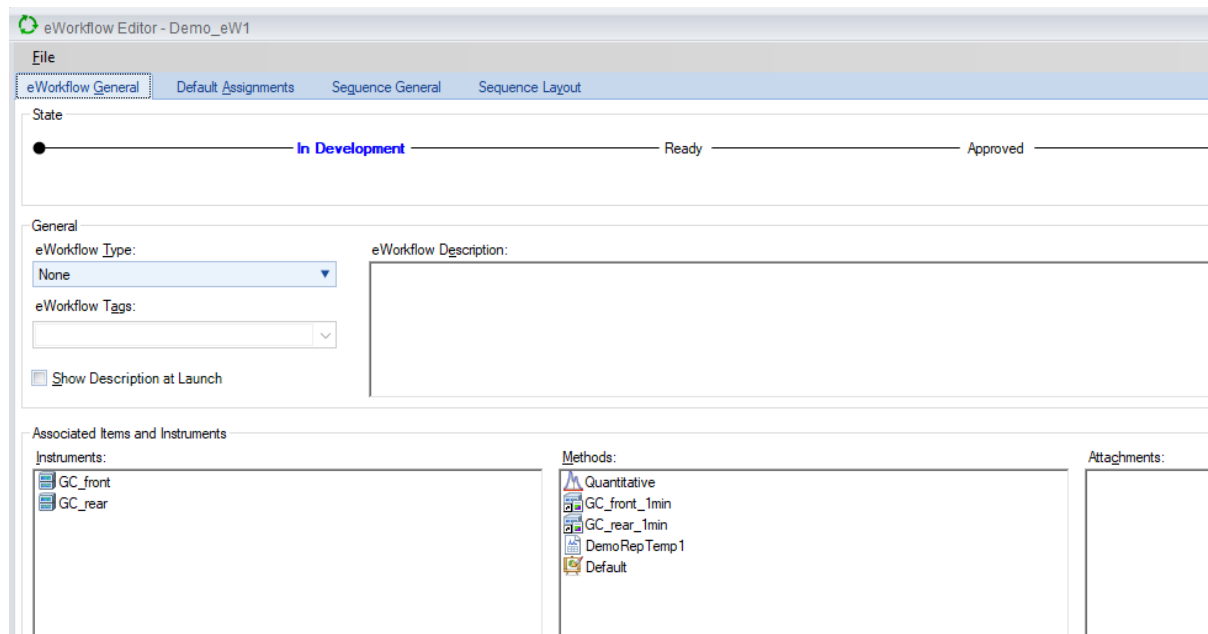


Figure 15: eWorkflow editor with new Default Assignments tab

In this tab, the eWorkflow designer can pre-define default Instrument and Processing Method(s), Report Template(s), View Setting(s), and Channel(s) either on an entire eWorkflow or a per-instrument basis, and can optionally pre-define that the Sequence will always be run after creation. When the eWorkflow is run, Chromeleon uses the values selected on the Default Assignments tab to create and, if selected, start the Sequence.

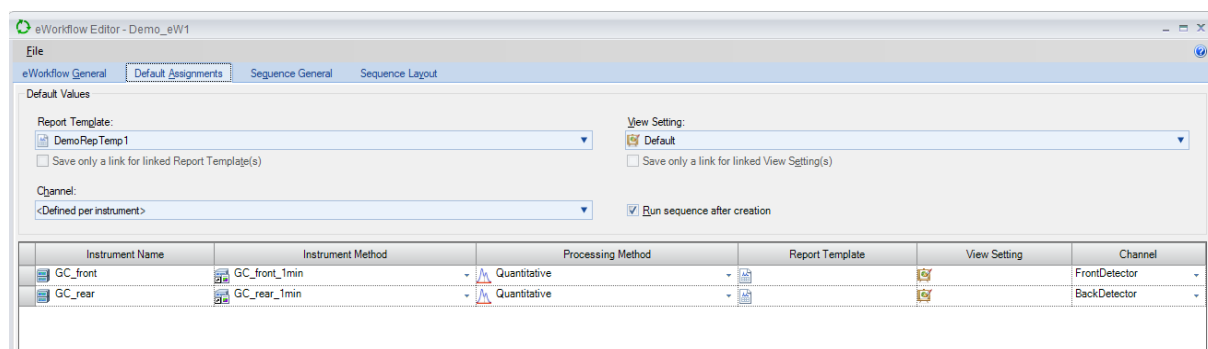


Figure 16: Default Assignments tab in eWorkflow editor

In the example above, Report Template and View Setting have been defined at an entire eWorkflow level, and Channel and Instrument Method have been set to <Defined per instrument>. When the eWorkflow is run on instrument GC\_front, Chromeleon will automatically populate the sequence with the 'GC\_front\_1min' instrument method and 'Quantitative' Processing Method because these have been selected in the grid for the GC front row, and Chromeleon will use the 'DemoRepTemp1' Report Template and 'Default' View Setting because these have been selected for all Sequences created from this eWorkflow. It will also automatically run the sequence after creation because that checkbox has been ticked.

Thus, this single eWorkflow can be used to manage the creation of sequences on both configured instruments.

### 3.7.4 Define Units When Extracting 3D Signal [56431]

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

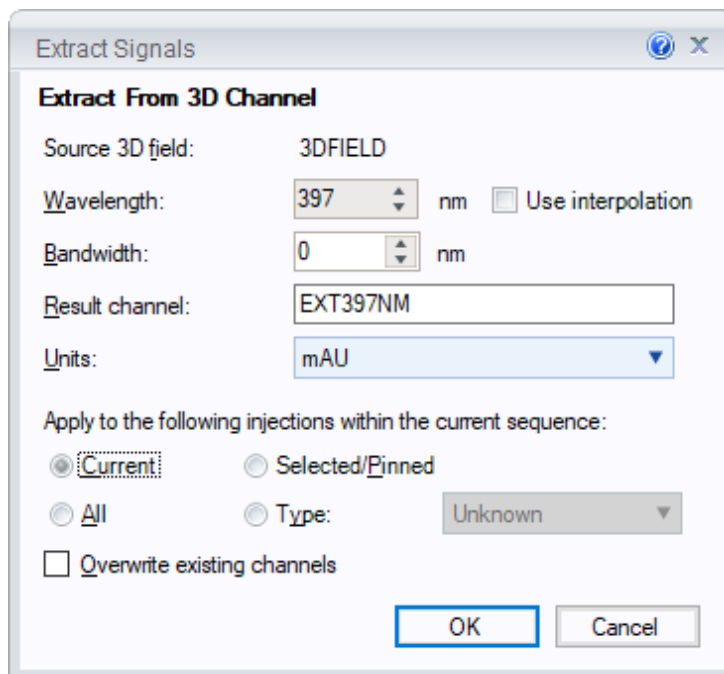


Figure 17: Extract Signals dialog box

### 3.7.5 Improved Performance Accessing UV Spectra Libraries [45362]

The performance when accessing UV spectra libraries, e.g. to view them in dedicated Chromatography Studio window or to execute a corresponding UV spectra library screening, has been improved significantly for this release, especially if the UV spectra library is located on a network data vault.

As an example, an ad-hoc library search for an UV spectra library with 6500 spectra located on a SQL-server based network data vault needed about **3 minutes** with Chromeleon 7.2.10. With Chromeleon 7.3, the same ad-hoc library search will take less than **10 seconds**.

### 3.7.6 Peak Label for Undetected Components [83283]

The chromatogram plot offers a new peak label option which allows labelling of undetected components in the chromatogram. The label for such undetected components is placed at the expected retention time of the component. The label is tied to the signal value of the chromatogram at the expected retention time. For this new peak label option, a dedicated formula and the corresponding font can be specified separate from the formula and font settings for the identified and unidentified peak labels. The label rotation angle is identical for all these peak label types.

### 3.7.7 Updated Intact Protein Deconvolution Engine [48787]

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-EC/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".



## 3.8 Administration Console Updates

### 3.8.1 Concurrent Logon Policy [56246]

A new option has been added to the User Database Policies Section of the Admin Console, which controls whether Chromeleon users are allowed to logon on to different Chromeleon Client Console sessions at the same time. If this new option ('Allow multiple Chromeleon Console logons of the same user in different Windows sessions') is deactivated, then any attempt of a user to logon to the Chromeleon Console is prevented if the same user is still logged on in a different Windows session on any computer connected to the same Chromeleon Domain Controller.

### 3.8.2 Remote IQ Kit Control [83023, 82896, 83285]

The Domain Resources section of the Chromeleon Administration Console has new options for managing IQ kits on remote devices such as the Thermo Scientific 247 Instrument Controller.

The following IQ actions can now be performed from the Administration Console:

- View completed IQ kit from 247 Instrument Controller
- Run IQ kit on 247 Instrument Controller

These have been combined with Updater actions into a new Installation and Maintenance menu group:

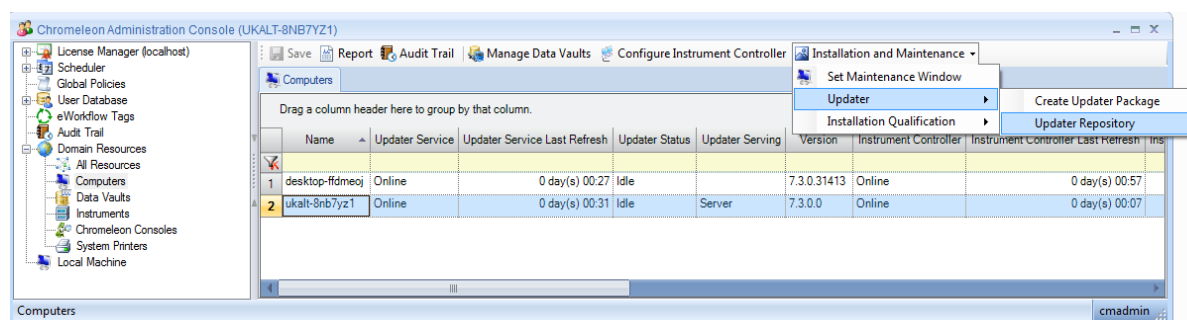


Figure 18: New Installation and Maintenance menu group

## 3.9 Other Enhancements

### 3.9.1 Access to MS Raw Data via the SDK

The Chromeleon Software Development Kit (SDK) now allows developers to access MS raw data via the SDK toolkit.

### 3.9.2 Upgrade to SQL Server Express 2017

Since this version, Chromeleon ships with SQL Server Express 2017 for local DataVaults and XVaults.

As before, Chromeleon will only install SQL Server Express if not already present on the computer. If a previous installation of Chromeleon already installed SQL Server Express 2014, an upgrade of Chromeleon will not automatically upgrade the SQL Server Express version.



**Note: SQL Server Express 2017 no longer supports Windows 7 or 32bit OS systems.** On those systems, the installation of SQL Server Express 2017 will be skipped, and local DataVaults or XVaults are not available. To install Chromeleon 7.3 on Windows 7 or a 32bit OS, please manually install and configure SQL Server Express 2014 first (see Installation Guide).

## 4 Chromeleon 7 Process Analyzer [28100]

Chromeleon 7 Process Analyzer (PA) is a client/server-based chromatography management system that provides software control of Dionex Integral Process Analytical Systems. It is typically intended for use in industrial applications, including pharma and biopharma, power, semiconductor, environmental, chem and petrochem markets, and the food/beverage/agriculture environments.

Chromeleon 7 PA is an application built on the foundation of Chromeleon 7 CDS software. It adds process monitoring functions to Chromeleon chromatography functions, including sample stream selection, sample preparation and analysis, and alarm and conditional response configuration.

Chromeleon 7 PA inherits most of the functionality of the original Chromeleon Process Analyzer based on Chromeleon 6.8. It is designed for easy transition from that platform and has an easily recognizable user interface. Being based on Chromeleon 7 CDS, it provides the following improvements over the Chromeleon 6.8 version:

- Chromeleon 7 compliance tools to allow use in regulatory environments.
- Chromeleon 7 networking, which allows for configuration of unlimited and even remote analyzers.
- A new, dedicated Windows service that eliminates the need for the creation of a generic user to keep an analyzer running when the client is closed.
- It has been validated on Windows 10 Enterprise and Windows 10 Pro.

## 5 Resolved Issues

This chapter describes the issues that have been resolved with the release of Chromeleon 7.3.

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
<b>CM-2231</b>	<p>Vanquish Drivers: For a Vanquish 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. This has been fixed. Now a warning or error messages indicates any mismatches in the temperature settings: During a queue 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>
<b>CM7-19993</b>	<p>Agilent 7697A: If the 7697A lost its connection to the network, the ePanel would still show the unit as 'Ready'.</p>
<b>CM7-20464</b>	<p>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.</p>
<b>CM7-20991</b>	<p>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.</p>
<b>26111 (CM7-25447)</b>	<p>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.</p>
<b>26214 (CM7-11172)</b>	<p>GC Drivers: For the TriPlus Classic Autosampler on a Japanese-language system, in the Method Editor on the 'General Settings' page, it was not possible to use keyboard shortcut definitions.</p>
<b>26373 (CM7-25026)</b>	<p>Data Audit Trail Report Table: Under some circumstances, the content of the data audit trail report table in a report template did not match the content in the data audit trail window in the Console. Sometimes records were missing or additional records appeared in the report table. Sometimes the Name column, Additional Info column or Operation column reported a different content compared to the corresponding values in the data audit trail window.</p>
<b>26426 (CM7-23349)</b>	<p>Importing Chromeleon 6 QNT-Files: When importing a Chromeleon 6 CMB-File containing QNT-Files the import log window could show an error message "Missing page in processing method layout template CM6 pane qntPane_MsTrack. The pane will be ignored." Even though these MS Tracking panes were not visible when viewing the respective QNT-Files in Chromeleon 6.</p>
<b>27056 (CM7-15455)</b>	<p>Processing Method: Without data in the first injection, it was not possible to select the 2nd or 3rd Detector for Dead/Delay Time.</p>

ID	Description
<b>27567</b> <b>(CM7-23173)</b>	Waters Acquity: For an UPLC Acquity System with a column manager capable of hosting four columns, the Column Manager page in the Instrument Method Wizard offered eight columns for the selection of the Valve Position.
<b>27586</b> <b>(CM7-23293)</b>	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).
<b>27614</b> <b>(CM7-18112)</b>	Instruments: Many channels would still provide a property "Delta" (e.g., FLD_Dev.Emission_1.Delta). However, this "Delta" property was a remnant of Chromeleon 6 and was no longer populated with a value. It could therefore not be used for triggers or evaluations in Chromeleon 7. For all channels with such a non-functional Delta property, the symbol has now been removed.
<b>27683</b>	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.
<b>27811</b> <b>(CM7-23764)</b>	Instrument Method Editor: When the method editor includes a checkbox with a "partial" selection for temperature control, tool tip help text is now available that explains that checkboxes render as partially enabled if there is no explicit value provided in instrument configuration, therefore it is unclear if value is enabled or disabled.
<b>27837</b> <b>(CM7-23858)</b>	VH-P10-A Control: With a VH-P10-A pump, using one of the commands <code>PumpModule.Pump.Pump_Wellness_LeftBlock.UndockPistons</code> , <code>PumpModule.Pump.Pump_Wellness_RightBlock.UndockPistons</code> , <code>PumpModule.Pump.Pump_Wellness_LeftBlock.DockPistons</code> , or <code>PumpModule.Pump.Pump_Wellness_RightBlock.DockPistons</code> resulted in a warning "Ensure that the purge valve is open to protect your column(s) and fluidic system." This warning was not appropriate as the purge valve can only be opened automatically.
<b>27844</b> <b>(CM7-23907)</b>	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.
<b>27862</b> <b>(CM7-24094)</b>	Studio: On occasion, in the Component list of the Navigation Pane, the icon representing the component detection state was not updated when corresponding MS component trace(s) was manually integrated.
<b>27865</b> <b>(CM7-24102)</b>	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.
<b>27910</b> <b>(CM7-24557)</b>	Vanquish Pumps: The default pressure range in the online signal plot for the Vanquish Binary Pump H (VH-P10-A), Vanquish Binary Pump F (VF-P10-A) and the Vanquish Quaternary Pump F (VF-P20-A) had a range of -2000 bar to 2000 bar. This range has been adjusted to a more suitable range of -50 bar to 1550 bar.
<b>27947</b>	Ad-Hoc Library Search: Although the order of the columns in the result table can be rearranged, the order was not retained when the Ad-Hoc Library Search window was closed and reopened.
<b>28025</b> <b>(CM7-24868)</b>	Shimadzu LC-2010A: When using a large injection volume, samples could remain in a running state until interrupted manually by the user. The need to configure the loop volume in two places was not correctly documented in the help.
<b>28032</b> <b>(CM7-24920)</b>	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
<b>28065, 29022</b> <b>(CM7-24976, CM7-26053)</b>	PC Requirements: The recommended screen settings and limitations for high resolution displays have been updated in the installation guide.
<b>28554</b> <b>(CM7-24872)</b>	Shimadzu LC: In rare cases a sequence running on a Shimadzu LC-10, LC-20 or LC-30 system was interrupted shortly after injecting the first sample.
<b>28599</b> <b>(CM7-25764)</b>	SmartPeaks: When opening the SmartPeaks dialog, the chromatogram windows showing all the possible peak detection results did not always apply the current signal and time scaling in the chromatogram plot.
<b>28639</b>	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.
<b>28725</b>	Thermo LC Drivers: For the UltiMate 3000 FLD-3100 and FLD-3400RS and the Vanquish VF-D50-A and VF-D51-A no message was provided in the Audit Trail upon completion (successful or failed) of a calibration/validation.
<b>28760</b>	HPLC IQ: The page numbering of Instrument IQ report template was incorrect.
<b>28803</b> <b>(CM7-25920)</b>	Vanquish DAD: For a Vanquish Flex Diode Array Detector with the 3DField disabled, executing a method check would result in an error.
<b>28918</b> <b>(CM7-25984)</b>	Replication Framework: An IPC will now use the load balancer Data Vault Server only if it is configured to do so.
<b>29021</b>	Installer: When uninstalling Chromeleon, some firewall rules created by Chromeleon were not properly removed. This could lead to problems when re-installing Chromeleon in a different folder.
<b>29273</b> <b>(CM7-26209)</b>	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.
<b>29283</b>	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
<b>35584</b>	Access Control: if a folder in a data vault was set to read-only, then the access control for this folder couldn't be changed even though the logged-on user had the "Modify Global Security Settings" privilege.
<b>35685</b>	SmartLink and Autorepeat: When applying the Autorepeat Feature for components or channels to a Summary Report Table, if the report table was linked to a Chromatogram Plot with fixed overlays via a corresponding SmartLink setting then the printout of the first page was correct but the printout of all auto repeated pages failed to apply the SmartLink settings correctly. In particular the sum, average and RSD calculation rows below the summary report table were missing from the second page onward.
<b>35801</b>	AS-AP: Running a sequence in which lines were appended would sometimes result in a double injection in the last row of the sequence.
<b>36157</b>	Station Audit Trail: Information messages provided by the Agilent ICF control were incorrectly reported as Sequence Abort errors in the Station Audit Trail.
<b>44097</b>	MS Data and Interactive Charts: when viewing interactive charts in a Chromatography Studio window for a sequence with MS data and dedicated XICs (Extracted Ion Chromatograms) for some components the pane window for the interactive charts was sometimes filled with a red cross. An error window displayed a message stating 'Peak is no longer attached to a chromatogram'.

ID	Description
44207	HPLC IQ: In the HPLC IQ report template header and footer sections, the formula "smp.time", has now been replaced by "injection.time".
44208	HPLC IQ: In the HPLC IQ Report, signal parameters on all chromatogram plots have now been disabled.
44463	OQ/PQ: Some 3 <sup>rd</sup> party instruments currently do not support instrument qualification. When trying to perform an OQ or PQ on such instruments, Chromeleon showed an unexpected exception message.
45364, 82936	Injection Query: An out of memory error would sometimes be generated when saving the results of an injection query that included MS data
46741	<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 7.3 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>
46797	Licensing: Under certain conditions Chromeleon would incorrectly display a License Expired message box and would block access to the Chromeleon application.
48574	Privileged Actions: The privileged action 'Edit Injection Specific XIC Detection Settings' which was introduced in Chromeleon 7.2.10 was not active at all. Instead the privileged action 'Modify Peak' was been applied.
48592	Scheduler: Time zone offset information was not adjusted properly for different time zones. When looking at scheduler tasks for remote scheduler services located in a different time zone, all times are now represented in the local time of the scheduler service executing the task.
48782	Client: In some conditions, Chromeleon Client stations would report a "License Server Unavailable" error message.
49206	Vanquish LC: In the Inverse Gradient Wizard, the Minimize Flow option calculated the wrong delay time
49650	UltiMate 3000 and ICS 3000 Variable Wavelength Detector: For the UltiMate 3000 VWD-3100, VWD-3400RS and ICS-3000 VWD, occasionally the connection between the Chromeleon PC and the UltiMate 3000 VWD and/or ICS 3000 VWD would freeze. This would happen primarily when running sequences. This issue has been addressed in firmware version 4.00 for the UltiMate 3000 VWD and firmware version 1.50 for the ICS 3000 VWD. Ultimate VWD3x00 firmware version 4.00 and ICS-3000 VWD firmware version 1.50 are fully backward compatible.
49880	ICS-6000: When an ERD ERN suppressor was installed, the 1-wire device was recognized, but it was not possible to select the model in the Instrument method.
50567	Timed Peak Group Window: When a timed peak group window in the chromatogram plot was moved via the left mouse button to a different position, if the peaks covered by the time range changed then the peak labels and results were not changed unless F5 was pressed.

ID	Description
50707	Missing Privilege Checks: A user having the "Copy" privilege for Processing Methods, Instrument Methods, Report Templates or View Settings but no other privileges for that object could copy an existing data object of that type into a sequence via the Add command in the System Menu of a Chromatography Studio Window and later modify the just copied object. The data audit trail showed both a copied and a changed record in this case. The modification of just copied objects is now prevented in this use case.
50741	ICS-3000 VWD: After upgrading the VWD firmware to version 1.3 or 1.4, when attempting to configure the VWD, the following error was reported in the Instrument Configuration Manager audit trail: <p>"{UV} Cannot connect to the device. Verify that the firmware is running and has completed its initialization, then retry. If no firmware is running even power-cycling the detector, use Chromeleon Instrument Configuration Manager to install a new firmware."</p> <p>New firmware has been released to correct this issue and may be installed from the Chromeleon Module Configuration dialog.</p>
50876	Report Designer: For a locked sheet in a report template one could remove the lock for a partially selected cell range in a report table. It is now only possible to unlock a complete report table.
50981	Agilent ICF: Using Agilent ICF A.02.04 with an Agilent 1100 with a G1329A autosampler, while the sequence queue was running, the tray was removed shortly before the end of the one injection and reinserted shortly before the autosampler was about to perform the next injection. Sporadically for the injection from vial1 the tray description was empty.
51006	Reporting: When reporting Peak Amount Deviation, the computation of the report variable did not take into consideration different injection volume values in the sequence when using internal standard components.
51145	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.
51151	Instrument Controller: In very rare cases, an injection run would be aborted by an error "The remaining free space on the operating system drive (0.000 MB) is not sufficient. Delete unnecessary data to continue working." erroneously reporting no more available disk space.
51321	Excel Export: After adding any shape object (line, rectangle, oval) from the Illustrations Ribbon to a sheet of the currently selected report template, any attempt to export this sheet to an excel file failed with the error message 'Invalid object type'.
51386	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
51489	Chromeleon 6 Data Import: When importing Chromeleon 6 based RDF- or SOR-Files containing control characters into a Chromeleon 7 data vault, the import process stopped, and reported invalid characters. Non-visible control characters are now skipped during the import.
51492	Vanquish Autosampler: In some cases, when using the Vanquish Autosampler with the command PrepareNextInjection, the injection audit trail would report wrong volume and position values. For the sequence execution, injection position and volume used for PrepareNextInjection correspond to the values as assigned in the instrument method, if any. However, the injection audit trail would report the values for injection position and volume defined in the injection table instead of those defined in the instrument method.

ID	Description
52207	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.
52241	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.
52348	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.
52441	Chromeleon 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 Administration Console would show a status of 'Installation Failed' for any of the affected computers. This is now fixed but we still recommend that nobody is logged into any Clients or IPCs during a Maintenance Window.
52524	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.
52711	Vanquish Autosampler: A Vanquish Autosampler configured with a charger would abort a Smart Startup, Smart Standby or Smart Shutdown.
52717	Atlas Import: Import would fail for Workbooks containing 3D data if the Calibration is Named Peak and the component list contains components on multiple channels.
52890	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 trail every half second.
53367	Instrument Method: For the Ultimate 3000 FLD-3100 and FLD-3400RS the Instrument Method Wizard did not display the table for 'Channel start settings' if the FLField- channel was disabled.
53945	Aquion RFIC: When DRS suppressor is used with FW 3.1.0, an error was generated in the Instrument Method editor stating that " You cannot set suppressor current if the ERS or Atlas suppressor is not selected"
54883	Agilent 6850: Using the lower injector connection port on the rear of the 6850 would result in a "Warning: ALS no tower" error message and the Sequence would not start.
54950	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.
54015	SDK: The CopyOption enumeration contained some values that were not supported by the SDK. Using those values resulted in an "ArgumentOutOfRangeException". To avoid further confusion, those options have been removed from the enum.
61655	Peak Grouping, Variable Internal Standard: When using named peak groups of evaluation type 'Calibration' and referring to an ISTD component of type 'Variable Internal Standard' the calibration of such peak groups didn't produce any results. Instead 'n.a.' values were reported if any calibration or calibration dependent results have been configured in report templates, calibration plot objects or any interactive report tables.
62566	Performance Qualification: When executing a performance qualification an unhandled exception occurred. The performance qualification run stopped at this moment and could not be completed.



ID	Description
62850	<p>SII Framework: Adding an injection for an autosampler with an injection volume with mL as the unit of measure (e.g., TriPlus 500) would fail. When creating an ISiiInjection, adding an injection volume in mL to the injection list (InjectionControl.Injections.Add) would cause an exception. It is now possible to provide the injection volume using mL as the unit of measure. For existing SII applications that are ignoring the inject volume unit, the old behavior can be enabled by setting the SII configuration option ConvertInjectVolume to "False". Using this setting, the volume will be converted to the unit offered by the SDK (<math>\mu</math>L). If you need to enable the old behavior, please contact your local Chromeleon support channel.</p>
63007	<p>Closing the Chromeleon Console and Studio setting was possible while a Station Performance qualification was being executed</p>
63252	<p>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).</p>
63607	<p>CTC Driver: A tray with just one row or column would result in a corrupt tray description.</p>
65791	<p>Console: Clicking on the Recycle Bin sometimes resulted in the user interface becoming unresponsive.</p>
65877	<p>TriPlus 300 Sampler: 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 restored).</p>
65933	<p>AdminConsole: User Management: When trying to delete or retire an ordinary user it could happen that the AdminConsole prevented this operation telling that the user database would be locked instead.</p>
66311	<p>When attempting to connect any of the modules listed below under Windows 10, the user would be unable to see the USB address, and 2 error messages would appear in the audit trail. The modules affected were:</p> <ul style="list-style-type: none"> <li>• Dionex Coulochem III</li> <li>• Dionex Corona CAD</li> <li>• Dionex Corona Ultra</li> <li>• Dionex Corona Veo</li> <li>• Dionex ECD-3000RS</li> </ul>
80749	<p>ECD-3000RS: The ECD-3000RS driver would occasionally report an "unknown response" for a correct data packet.</p>
80889	<p>Import/Export: CDF Import: MS data imported from .cdf resulted in full scan filters that were based on the exact m/z range in the data, which resulted in potentially unique filters for each injection. The low m/z value is now rounded down to the nearest integer multiple of 10 and the high m/z value is rounded up to the nearest integer multiple of 10.</p>
80944	<p>Corona Veo: During the operation of the Corona Veo device using Chromeleon it was possible to start an autozero from the device display. This has been fixed.</p>
81386	<p>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 would start immediately although the sample had not yet been injected. The workaround is to send a start signal to an external instrument, and set the ExternalStart property to AllRuns or InjOnly. This is now documented in the Chromeleon online help.</p>

ID	Description
81561	ICS-6000: When running a sequence, it could happen that the sequence was interrupted with the following error message in the instrument audit trail: "DC Error receiving data: Raw data buffer overflow!" This was more likely to occur when using gradient instrument method containing many pump commands.
81736	RefractoMax RI: For the RefractoMax RI detector, the entries in the injection/instrument audit trail did not specify the device name.
82321	ICS-6000 CD: The 'Delta' value for this detector would always be zero, regardless of the data recorded for the channel.
82609	Dual Inlet GC: When two sequences were 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.
82823	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."
82935	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 or not the user had permission to control the instrument.
83022	Injection Query: Running an injection query on a Chromeleon 6 data vault and saving the corresponding hits to a Chromeleon 7 data vault would sometimes lead to a new sequence without any injection at all or with only some of the injections which were found in the query.
83032	Administration Console: Under some circumstances, the Chromeleon Admin Console would crash when Scheduler Service was restarted
83274	Privileged Actions: When submitting an electronic report for signature, if Privileged Actions were enabled, the user was always required to add a comment, regardless of the privileged actions settings.
83864	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.
84485	Reporting: After copying a component record with a custom variable CV from a processing method A to a processing method B via copy / paste and creating the custom variable in processing method B modified values for the custom variable in processing method B were not reported correctly. The corresponding report variable component.customVar("CV") returned the original value from processing method A and not the modified one. A subsequent report (print or export) used this original value instead of the modified one in processing method B. After restarting the Chromeleon console subsequent reports used the modified value leading to deviations in such reports although nothing has been changed in between. This also happened if processing method B already contained the custom variable CV having the same name but a different ID.

ID	Description
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>
85381	<p>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 Datavault Properties dialog showed the error message "Cannot get database information".</p>
85921	<p>Licensing: If an SDK application was run on a computer which wasn't also running a Chromeleon session, the SDK app would not get a 'fresh' license and the application could be rendered inoperable by Network Failure Protection grace period expiration.</p>
86048	<p>Auto-reporting: When processing long sequences where IRC was being used to repeatedly auto-generate new injections into an acquiring sequence, the report manager process would keep reporting that it was "waiting for upload", meaning the report/export would not get created.</p>
86974	<p>Reporting: After upgrading to after upgrading to Chromeleon 7.2 SR5 or a later form a pervious release, using the report variable text (Category 'Global Functions', Variable 'Convert to Text') to format a date/time value, e.g. text(injection.time; "yyyymmddhhmm"), resulted in an error message "Unable to format Object".</p>
87121	<p>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.</p>
87315, 111933	<p>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 insertion of new rows in the report table did not apply the specified row height for the inserted rows.</p>
87670	<p>UltiMate 3000 Variable Wavelength Detector: A new Ultimate 3000 VWD-3x00 firmware version 4.00 fixes stability issues when the UltiMate 3000 VWD-3100 or VWD-3400RS is operated from Windows 10 PC's. Ultimate VWD-3x00 firmware version 4.00 is fully backward compatible.</p>
88217	<p>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.</p>
89181	<p>Studio: Attempting to print the Processing Method in the Data Processing category would fail if the "Calibration" page was part of the print selection.</p>
107300	<p>Instrument Control: Thermo Scientific Drivers: GC: The default 'shared' mode for the TRACE1300 GC was "Only Back" rather than "Shared"</p>
107552	<p>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.</p>

ID	Description
107889	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 to split a surrogate character pair.
108070	<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><b>NOTE:</b> 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>
109271	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.
109343	Chromeleon Admin Console: Email notifications only worked if the recipient was in the Global Org Unit.
109434	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.
109593	PE Clarus GC: Communication with PerkinElmer Clarus GC would sometimes fail due to a timeout of a status request for informational purposes only. The driver will now 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 there is no response to a valve status request, it is assumed that the operation succeeded because in an error case the GC will respond with a dedicated error.
110457	eWorkflow: In the sequence layout tab of the eWorkflow editor, the first option was 'max samples per bracket'. This was incorrect and caused confusion as this option actually defines 'max sample blocks per bracket'.
110459	eWorkflow: The Associated Items section title in eWorkflow editor was inconsistent as, in addition to associated items (methods, reports, attachments) it also contained Instruments.
111755	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 contained > 255 characters.
112069	eWorkflow: When a Sequence was created using an eWorkflow containing multiple instruments and multiple instrument methods, the Sequence would contain all of the methods from the eWorkflow, even if they were not suitable for the selected instrument.
112478	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.
112939	Import/Export: Xcalibur RAW data import would fail if any comment in the original data contained > 255 characters.
112946	Agilent 6850/6890: Valve events were not downloaded to the GC if the method didn't contain an Inject command (for example, when using a GSV rather than an autosampler).

ID	Description
113955	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.
116011	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.
118318	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'.
119227	Instrument Method Editor: Entering a special character (e.g. "&") in a command parameter in the instrument method would result in a driver crash during a Method Check or Queue Ready Check.

## 6 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.

### 6.1 Limitations with Thermo Scientific Instruments

ID	Description
<b>CM7-16851</b>	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.
<b>120000</b>	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.
<b>62947</b>	LC Method Transfer: 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 results in an error message: "The chosen data collection rate is not accepted for the given acquisition parameters ..."
<b>CM7-25370</b>	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.
<b>28276</b>	Vanquish Column Compartments: A Vanquish instrument with two Column Compartments cannot be configured. The underlying cause for this issue may be insufficient USB bandwidth to fulfill the bandwidth reservations made by the instrument modules. When a second Column Compartment driver instance is configured with the USB address that is already used by the first Column Compartment, an error message indicates that the selected USB address is already in use.
<b>CM7-21342</b>	Vanquish Variable Wavelength Detector: For acquiring data on a single channel only using the Vanquish VWD it is necessary to use channel UV_VIS_1.
<b>35925</b>	Vanquish Variable Wavelength Detector: If the shutter is opened or closed manually (e.g. via ePanel), no firmware download is possible afterwards. The audit trail message is "Error: Cannot start firmware installation. The module is still busy." Workaround: After opening or closing the shutter manually (e.g. via ePanel), disconnect and reconnect the Vanquish VWD before downloading the firmware.

<b>54791</b>	<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>
<b>111161</b>	<p>Vanquish Charger: The Vanquish Charger is only supported with Vanquish Autosamplers which have temperature control.</p>
<b>116426</b>	<p>Vanquish Charger: After upgrading the Vanquish Charger firmware version 1.12, the charger ePanel does not provide the option to launch the inventory scan.</p> <p>Workaround: Launch an inventory scan via command box.</p>
<b>CM7-24471</b>	<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>
<b>CM7-18098</b>	<p>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.</p>
<b>CM6-21321</b>	<p>Accela Open Autosampler: When using this autosampler, a dot ('.') must be used as decimal separator.</p>
<b>CM7-15457</b>	<p>ESA Drivers: Coulochem III: Before setting the cell state to ON manually, please ensure that eluent is flowing into the detector. Otherwise the detector can be damaged.</p>
<b>CM6-22760</b>	<p>TRACE 1300 GC: The autozero function does not work correctly for the FID, NPD, ECD and FPD detector types.</p>
<b>CM7-25600</b>	<p>TriPlus RSH / TriPlus 100: When running the TriPlus RSH or TriPlus 100 in Clone mode (Autosampler serves two GCs), if the Virtual Terminal is opened from the ePanel of one of the GCs and a Sequence is started for the other, the Sequence fails with an error; "Sample - Error while validating script. (Trayplate 1: Slot 1:3)". This can be worked-around by closing the Virtual Terminal on GC1 before attempting to start the run on GC2.</p>
<b>CM6-23614</b>	<p>TriPlus RSH: When using the TriPlus RSH in constant double pro headspace mode, starting a sequence that includes a constant double pro method will generate a validation error.</p>
<b>CM6-24043</b>	<p>TriPlus RSH: If firmware version 2.2 is installed on the TriPlus RSH autosampler, then tool changes on the instrument are not immediately recognized in Chromeleon. It is necessary to disconnect and reconnect the instrument after such changes are made; they will then be detected.</p>

<b>57217</b>	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.
<b>CM7-25760</b>	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.
<b>CM7-15632</b>	TSQ Quantiva and Endura: When removing the source from a TSQ Quantiva or Endura in mid-acquisition, the sequence does not abort.
<b>CM7-16030</b>	TSQ Quantiva and Endura: With these instruments the standby state reports that the instrument is on, regardless of the real instrument state.
<b>CM7-16154</b>	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.
<b>CM7-17668</b>	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.
<b>CM7-18129</b>	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.
<b>CM7-21967</b>	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.
<b>CM7-24445</b>	TSQ Quantiva and Endura: Instrument methods written with an earlier version of the method editor cannot be opened with a newer version thereof.
<b>CM7-23138</b>	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.
<b>CM7-16557</b>	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.
<b>87252</b>	<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>
<b>CM7-20295</b>	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.



<b>CM7-23669</b>	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.
<b>CM7-22490</b>	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.
<b>CM7-17500</b>	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.
<b>114502</b>	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.
<b>52817, 52878</b>	MS Tuning: After tuning an MS instrument of the TSQ LC QqQ family, the tune report will sometimes not automatically appear in the list of available tune reports on the ePanel. If this occurs, please press F5 to refresh the screen and/or navigate to the \Instrument Data\ <instrument name="">\MS Tune Reports\ folder in the Data Category.  Note: If refreshing the screen doesn't work, it is necessary to close and reopen the client.</instrument>
<b>CM7-20547</b>	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.
<b>120627</b>	IQ/OQ/PQ: The following ready check error (gradient test) may occur for Vanquish instruments containing a VH-C10-A or VC-C10-A with a valve installed: "Unknown symbol: ColumnComp.\$LowerValve.CurrentPosition".  Workaround: Replace the string "\$LowerValve" by the corresponding valve device name and save the instrument method.
<b>112609</b>	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).

## 6.2 Limitations with the Waters Driver Pack

<b>ID</b>	<b>Description</b>
<b>CM7-25485</b>	The Waters Driver Pack 2017 R2 cannot be installed on a PC running Windows Server 2016. The corresponding option is greyed out and cannot be selected during the Chromeleon setup.
<b>CM6-24164</b>	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

<b>CM7-25782</b>	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.
<b>CM7-19830</b>	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.
<b>CM7-20374</b>	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.
<b>CM7-22872</b> <b>CM7-15225</b>	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.
<b>CM7-23504</b>	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.
<b>CM7-23730</b>	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.
<b>CM7-24022</b>	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.
<b>CM-9703</b>	Waters Driver Pack 2017 R2: When installing Waters Driver Pack 2017 R2 on an operating system earlier than Windows 10, ensure that Microsoft Windows Universal C Runtime (KB2999226) is installed. This is to avoid failure of Waters Driver Pack 2017 R2's DM.exe application, which depends on the Windows Universal C Runtime that this hotfix provides for older Windows platforms.
<b>CM6-21112</b>	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.
<b>CM6-21180</b>	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.
<b>CM6-24158</b>	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.
<b>CM6-24191</b>	In extremely rare cases the Acquity PDA server stops working, which then causes the running sequence to be interrupted.

<b>44902</b>	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.
<b>81542, 82809</b>	Waters Alliance 2695: It is not possible to control a column selection valve installed in a Waters Alliance 2695.

### 6.3 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 CDS DVD. For Agilent drivers, please refer to Agilent documentation.

ID	Description
<b>CM7-19347</b>	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.
<b>CM7-20047</b>	Agilent VWD G1314B: When using a G1314B VWD, occasionally the chromatogram is half the expected length.
<b>CM7-21172</b>	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.
<b>CM7-21427</b>	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 ( $\geq 0.025$ 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
<b>CM7-22051</b>	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
<b>CM7-22567</b>	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".
<b>CM7-23096</b>	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.
<b>CM7-19540</b>	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.

<b>CM7-25781</b>	Agilent 7697A: The "Sample Bar Code Reader with data tracking" option on the Agilent 7697A sampler is not currently supported in Chromeleon.
<b>CM7-19975, CM7-20451</b>	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.
<b>CM7-23242</b>	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.
<b>CM6-23980</b>	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:  If the sampler is in error state, the sequence starts without getting interrupted If the sampler is running, the sequence stops with audit trail message "Sequence stopped by user"  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."
<b>CM6-23992</b>	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.
<b>CM7-20259</b>	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.
<b>CM6-23996, CM7-19940, CM7-21324</b>	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.
<b>CM6-24004</b>	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.
<b>CM6-24005</b>	Agilent 7697A: When 7697A headspace instrument method parameters are included in a report, the "fill pressure" parameter is rounded to the nearest integer.
<b>CM6-24007</b>	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.
<b>CM6-24008</b>	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.
<b>CM6-24009</b>	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.

## 6.4 Limitations with Other Third Party Instruments

ID	Description
<b>CM7-15293, CM7-18463</b>	Agilent 1100 Obsolete Driver: Occasionally, when using a combination of older and newer modules, the raw data was not correctly acquired.
<b>CM7-25343</b>	Agilent 6850: Instrument Configuration Manager does not report mismatches between the hardware and the Chromeleon configuration.
<b>CM7-12366</b>	<p>Agilent 5890 DICE Card: Please note the following when using the 19257 DICE card with the Agilent 5890 GC:</p> <p>Control and acquisition using the DICE card is only supported via the serial interface. The GPIB interface is not supported.</p> <p>Digital data acquisition via the serial interface of the DICE card is only supported for a single channel; dual channel digital acquisition is not supported.</p> <p>Currently, it is possible to select certain illegal combinations in the Configuration Dialog such as:</p> <p>Digital acquisition with the 19254 card. This is not supported.</p> <p>Digital acquisition on one detector and analog acquisition on the other. Acquisition needs to be exclusively digital or exclusively analog.</p> <p>When using the DICE card to acquire data digitally, the 5890 INET mode must be set to "GLOBAL" not "LOCAL". Failure to do so will result in a "No response from GC" message following the AcqOn command in the audit trail.</p> <p>Note that when performing analog acquisition, the 5890 INET mode should still be set to "LOCAL" (as described in the online help).</p>
<b>CM7-9675</b>	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.
<b>CM7-24724</b>	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.
<b>CM7-15400, CM7-15556, CM7-15734, CM7-15736</b>	PerkinElmer LC200 Autosampler: When upgrading from a version earlier than Chromeleon 7.2 SR1 to Chromeleon 7.3, 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.
<b>CM7-15716</b>	PerkinElmer Clarus 400 GC: Some users must select Autosystem XL in configuration in order to communicate with the PerkinElmer Clarus™ 400.
<b>CM7-17948</b>	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.
<b>CM6-23947</b>	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.

<b>CM7-23099</b>	<p>Shimadzu LCs: The Microsoft Visual C++ 2005 Run Time component is no longer supported by Microsoft. However, this component is required for the Shimadzu LC-2010A and Shimadzu LC-10A/20A/30A drivers and is therefore installed by Chromeleon.</p> <p>If you don't use these drivers, it is possible to uninstall the Visual C++ 2005 Run Time component from the 'Programs and Features' page of the Windows Control Panel. Alternatively, during the installation of Chromeleon, it is possible to suppress the installation of the Visual C++ 2005 Run Time component by using a response file and excluding the "__MicrosoftVisualC2005_SP1__" package. Please refer to the Installation Guide for details.</p> <p>Several of the Shimadzu devices can be controlled by obtaining an updated driver directly from Shimadzu (see the "List of Supported Instruments" for details).</p>
<b>28253 CM7-25252</b>	<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>

## 6.5 Limitations With Setup

ID	Description
<b>CM7-21780</b>	<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 DVD. Alternatively, one may install AMDIS and MS Search using the full (licensed) NIST library installer.</p> <p>Note that MS library searching within the Chromatography Studio is not affected by this issue.</p>
<b>CM7-23341</b>	<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>
<b>CM7-24384</b>	<p>Setup: When Chromeleon 7.2 SR5 is installed on a Windows 10 PC, upgrading that PC to Chromeleon 7.3 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 7.3 setup, selecting 'Repair' on the opening screen of the setup program.</p>
<b>119076</b>	<p>If a Chromeleon client or IPC is updated, from an earlier version of Chromeleon, to Chromeleon 7.3 before the Chromeleon Domain Controller has been updated, the licensing step during installation should be skipped, otherwise an unhandled exception will be raised. The exception can be ignored and the license step can be skipped to complete the installation, but the Chromeleon will not run on the client until the Domain Controller has been upgraded to Chromeleon 7.3 and a valid license has been installed.</p>
<b>121292</b>	<p>Scheduler: Scheduler tasks created with Chromeleon 7.2 are not listed in the AdminConsole after upgrading to Chromeleon 7.3. There are also not executed. In order to get them back you have to copy all files in the folder C:\ProgramData\Dionex\Chromeleon\Scheduler\7\2 on the local disk to the folder C:\ProgramData\Dionex\Chromeleon\Scheduler\7\3 which is created automatically after upgrading to Chromeleon 7.3.</p>

## 6.6 Other Limitations

ID	Description
<b>CM7-25151</b>	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.
<b>CM7-15588</b>	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.
<b>CM7-22111</b>	<p>Discovery: Mixed Installations with Chromeleon 7.2 SR5 Domain Controller: If you have an existing installation of Chromeleon &lt; 7.2 SR1, the following limitations apply during an upgrade:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• It is not possible for a Chromeleon 7.2 (and below) station to join a Chromeleon 7.2 SR5 domain.</li> <li>• 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.</li> </ul> <p>Please refer to the Enterprise Documentation for guidance on upgrading an older installation of Chromeleon 7 to Chromeleon 7.2 SR5.</p>
<b>CM7-24042</b>	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.
<b>CM7-11692</b>	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.
<b>CM7-17966</b>	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.
<b>CM7-25480</b>	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.
<b>CM7-22738</b>	<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>
<b>CM7-21399</b>	Console: Data Query: Injection Variables 'Auto Dilution Ratio' and 'Retention Time Standard': Auto Dilution Ratio and Retention Time Standard columns are not available in the custom filter conditions for injection records (e.g., in the IRC editor or summary report).

<b>CM7-19836</b>	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.
<b>CM7-24058</b>	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 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.
<b>CM7-19336</b>	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.
<b>SWFR-248</b>	Waters Empower Import: The following limitations apply to the import of data from Waters Empower: <ol style="list-style-type: none"> <li>1. Time zone information is not supplied by the Waters toolkit API, so dates and times will be imported as if they were local.</li> <li>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.</li> <li>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.</li> </ol>
<b>CM7-25551</b>	Import/Export: If tw70o (or more) users simultaneously attempt to export a Sequence to the same location, a "Cannot export <sequence_name>" error is displayed for all.
<b>CM7-18252</b>	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.
<b>36644</b>	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
<b>CM7-17465</b>	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.
<b>CM7-21783</b>	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.
<b>26033</b>	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.
<b>CM7-20335</b>	Comparison of Old Report Versions Shows Change in CmbxExportParameters: If a report which was created in Chromeleon 7.2 SR2 or earlier, and modified in SR3, has its history compared in SR4, the history will appear to show that the "Cmbx Export Parameters" value has changed from True to False. This is due to a change in the default value of this field and does not represent any user-modification of the report.



<b>CM7-17203</b>	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.
<b>CM7-22145</b>	Reporting: Discrepancy in "Last Modified" Time: Owing to differing rounding methods used, it is possible that the value of the "last modified" time for an object in a sequence has a difference of 1 second between the client display and the value shown in a report.
<b>CM7-17841</b>	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.
<b>CM7-21331</b>	Reporting: 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.
<b>CM7-23442</b>	Reporting: 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 settings, 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> .
<b>CM7-24972</b>	Reporting: When applying a two level Autorepeat rule with double grouping to a plot object, if the sequence contains a large number of injections and a large number of components, it is possible that software performance will degrade significantly. This has been observed when applying Autorepeat to an MS Components plot for a sequence with 27 injections and 292 components.
<b>CM7-23484</b>	Reporting: In order to display the last updated date and time for a locked injection it is necessary to use the Chromeleon report formula <code>procMeth.version.time</code> .
<b>CM7-25590</b>	Chromatogram Plot: When creating a Virtual Channel, the Power Factor only increments in steps of 0.5, which does not provide sufficient flexibility for controlling the scale of the extracted data.
<b>CM-14128</b>	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 distribution DVD in the <code>\Tools\CacheCleaner\</code> folder. Double-click on <code>CacheCleaner.exe</code> to manage the content of the cache.
<b>48906</b>	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)
<b>117796</b>	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

<b>CM7-23033</b>	<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 7.3 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 to enable the replication framework with Chromeleon 7.3 to avoid the problem.</p>
<b>CM7-23051</b>	<p>In a few cases Sequences have been reported to abort with messages in the audit trail that were not conclusive, such as:</p> <ul style="list-style-type: none"> <li>• “The audit trail was unavailable for some time. Several audit trail messages are lost. They have been logged to the file "Dionex\Chromeleon\Log\AuditTrailMessages.log" in the (common) application data folder.”</li> <li>• “The injection audit trail / signal "...” cannot be saved. Error detail: The transaction has aborted. The transaction commit operation failed.”</li> </ul> <p>However, the SQL Server ERRORLOG files of the affected Instrument Controller PCs revealed errors due to slow file operations on the local hard drive. Thus it is assumed that these failures were caused by poor disk drive performance. Chromeleon 7.2 SR5 introduced additional internal error reporting so that similar errors can be identified more easily in the future.</p>
<b>47809</b>	<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>
<b>112934</b>	<p>Reporting: 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".</p>
<b>CM7-25508</b>	<p>Upload: In very rare cases, an upload may succeed, however the sequence remains locked (redirected to the Xvault).</p>
<b>CM7-25633</b>	<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>
<b>SWFR-2543</b>	<p>Sampling Devices That Do Not Use uL As Units for Volume: Although most liquid injection devices expect volumes to be entered in uL, there are a few devices (e.g. Thermo AS-HV and PerkinElmer GC Autosampler) which do not use µL as their default volume unit. If one of these devices is configured in the same instrument that also includes an injection device that uses µL, problems may be observed with volume validation in the sequence table as well as units associated with volumes in reports.</p>
<b>CM7-24600</b>	<p>Spectral Library: If an older Chromeleon version 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.</p>

## 6.7 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.

## 6.8 Functional Differences between Chromeleon 7.3 and Chromeleon 6.8

Chromeleon 7.3 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.

## 7 Backward/Forward Compatibility Issues

### 7.1 Chromeleon Enterprise Compatibility between Chromeleon 7.2 and Chromeleon 7.3

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.

During migration of a system from Chromeleon 7.2 to Chromeleon 7.3, it may be necessary to temporarily have older clients connecting to a newer Chromeleon Domain Controller while client updates are rolled-out across your enterprise, but caution should be taken to manage this process in a way which prevents clients and IPCs of different versions accessing the same data.

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

### 7.2 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.

### 7.3 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.

### 7.4 Thermo Scientific TriPlus RSH

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

### 7.5 Thermo Scientific TriPlus 300 HS

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

### 7.6 Thermo Scientific TriPlus LS-100

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

## **7.7 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.

## **7.8 Signed Sequences [CM7-16374]**

Sequences that have been signed within Chromeleon 7.2 SR1 will fail verification after copying within later versions of Chromeleon 7.2 and so also for 7.3.

## 8 Appendix

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

### 8.1 Release Notes

The Release Notes list the new features, improvements and known limitations of the current release Chromeleon 7.3. Included are also bug fixes of Chromeleon 7.2.10. For details about Chromeleon 7.2.10 and other previous releases, refer to the relevant release notes which can be found on the Chromeleon 7.3 DVD.

### 8.2 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.

### 8.3 Contributed Content

The Chromeleon 7 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.

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