

thermo scientific

Release Notes

Chromeleon 7 Chromatography Data System

Software Version 7.2.10 MUg • September 2023

Document Revision 2



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Release history

Revision	Date	Comment
1	January 2023	Initial Product Release
2	September 2023	Incident 275608 - Changed from Resolved Issue to Known Limitation.

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1 Maintenance Updates

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

- It is necessary to have a full base version of Thermo Scientific™ Chromeleon™ installed
- It is not necessary (but causes no problems) to have previous MUs installed first.

1.1 Release Notes

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

1.2 Other Documentation

The following documents have been updated with this release:

- List of Supported Instruments Chromeleon 7.2.10 MUg
- Online Help (distributed with this release)
- Supported Operating Systems Chromeleon 7.2.10 MUg
- Installation Guide Chromeleon 7.2.10 MUg

1.3 Installation

Before you install this Maintenance Update, verify that Chromeleon 7.2.10 MUa or later is installed. To install this Maintenance Update, run the following program from the distribution media:

Install.exe

2 What's New in Chromeleon 7.2.10 MUg

This section provides a short overview of all new features of Chromeleon 7.2.10 MUg. For more details, refer to the Online Help.

2.1 New and Updated Thermo Scientific Instrument Drivers

This chapter lists new and updated Thermo Scientific drivers added to Chromeleon 7.2.10 MUg. For details on supported options, required licenses, installation, and control, refer to the Online Help or the List of Supported Instruments document found on the Chromeleon 7.2.10 MUg distributable.

2.1.1 Thermo Scientific Vanquish Fraction Collector – New Driver

This release introduces support for the Vanquish Fraction Collector driver controlling the Thermo Scientific™ Vanquish™ Integral Fraction Collector FT (VF-F20-A) configured in the Thermo Scientific Vanquish Analytical Purification LC system.

Please note that the Vanquish Fraction Collector driver is not included in the Chromeleon 7.2.10 MUg installation media and needs to be downloaded and installed separately. The Vanquish Integral Fraction Collector Software Package can be downloaded at the Digital Science Support Resource Center (https://support.thermoinformatics.com/downloads/) under Chromeleon > Related Drivers.

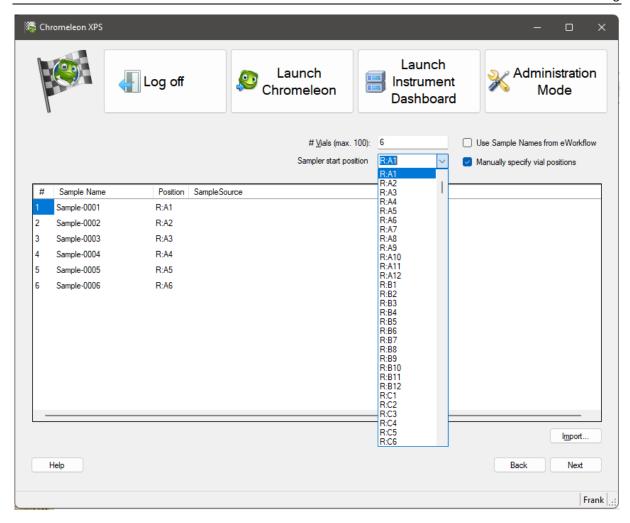
2.2 New and Updated Features

2.2.1 Chromeleon XPS Enhancements [281642]

Chromeleon XPS is a simple-to-use walk up open access user interface for the Chromeleon client, based on Chromeleon eWorkflows. This release of Chromeleon includes several enhancements to Chromeleon XPS.

2.2.1.1 Overriding the Default Starting Vial Position

In previous releases, Chromeleon XPS would automatically compute the next available vial position for the samples, based on pending sequences in the run queue. With this release, it is now possible to override that selection and specify a different starting vial position.

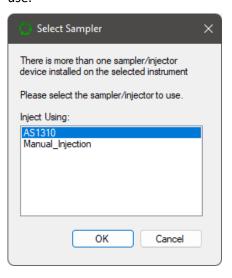


2.2.1.2 Using Sample Names and Vial Positions Present in the eWorkflow

When an eWorkflow includes injection blocks with fixed sample names and vial positions (e.g., for a calibration curve) Chromeleon XPS now includes the option to use those names and positions instead of auto-generated values.

2.2.1.3 Support for Instruments with Two or More Injection Devices

When using an instrument with more than one injection device (e.g., dual GC inlets or a manual injector + an autosampler), Chromeleon XPS will now prompt the user for which injection device to use.



2.2.2 Processing of Imaged-Capillary Isoelectric Focusing (icIEF) Data [308392]

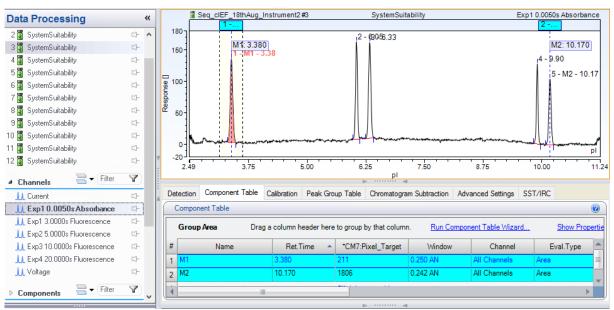
The Maurice Capillary Electrophoresis instrument from ProteinSimple can be used to generate Imaged-Capillary Isoelectric Focusing (icIEF) data sets in Chromeleon. This data is stored as special 2D-signal records where the x-axis has units of Pixel instead of minutes. With this release, support has been added for processing data files generated by this instrument.

Note: The Chromeleon Driver for the Maurice CE instrument is not distributed by Thermo Fisher Scientific. Please contact ProteinSimple or Bio-Techne for information on how to obtain the driver, as well as detailed documentation how to install and configure the driver, and how to create instrument and processing methods in Chromeleon.

2.2.2.1 Automatic Transformation from Pixel to pl (Isoelectric Point)

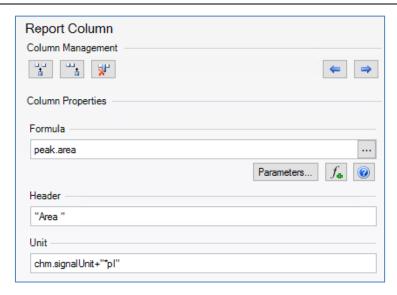
When a sequence containing icIEF data is opened in the Studio, it is possible to automatically transpose the x-axis from unit Pixel to pl for such signals.

In order to do so, the component table of the processing method for the injection must include a numerical custom variable called **CM7:Pixel_Target.** Two component records must have a value greater than zero for this custom variable. The expected retention times of these 2 component records are used to define the pI-Calibration values for 2 marker peaks. Based on these settings Chromeleon will automatically detect the marker peaks in the "Pixel-Chromatogram" and use the Pixel-value of the peak apex of the marker peaks, with the pI-Calibration values to compute the corresponding Pixel -> pI Transformation. For the final pI-Chromatogram standard data processing procedures (peak detection, component assignment, result computations) are the applied treating the pI-unit as a retention time in minutes.



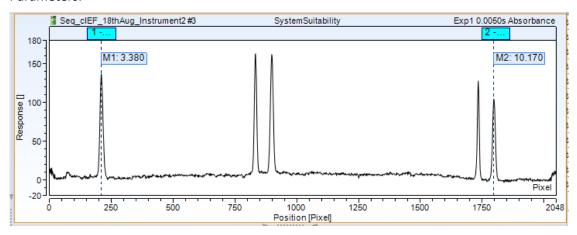
Labels for peak results in the report need to be changed manually to provide the pl-units instead of minutes.

Example: in the column header of an integration report table the default unit **chm.signalUnit+"*min"** for the peak area need to be changed to **chm.signalUnit+"*pl"**.



2.2.2.2 Display Options for Pixel- or pI-Chromatogram and Marker Peaks

The Chromatogram plot object of the Report Designer now supports select whether the Pixel- or the transposed pl-Chromatogram should be shown. There is also an option to emphasize the marker peaks and their corresponding pl-values using the same Line & Fill Style Settings as for Signal Parameters.



In the Pixel-Chromatogram only the marker peaks are shown. There is no data processing (peak results, etc...) for the Pixel-Chromatogram. This is only available for the corresponding pl-Chromatogram.

3 Resolved Issues

This chapter describes the issues that have been resolved with the release of Chromeleon 7.2.10 MUg only. For issues that have been resolved in previous MUs, please refer to the Release Notes of that release.

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

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

ID	Description
151272	Continued and uninterrupted data logging into the file *.dostm is now enabled again. Previously, the data logging was randomly interrupted.
172747	Vanquish Core: When creating new instrument methods in the wizard, the current gradient delay volume is no longer used to create a method. Instead, a default value is used. The method transfer option is deactivated by default, and a specific gradient delay volume has to be defined by the user, if desired.
192720	CTC Driver: A tray with just one row or column would result in a corrupt tray description. (Note: This issue was addressed in 7.2.10 MUa but not reported in the Release Notes.)
209598	PerkinElmer GC: For the PerkinElmer AutoSystem and Clarus GC systems, and for PerkinElmer TurboMatrix Headspace samplers an unstable RS232 hardware connection would cause errors which were reported by the Windows low level RS232 communication driver for the PCI cards or USB <-> RS232 converter. These errors were reported in the audit trail and would include error messages such as: "Communication error receiving data [Error: 37]". To avoid confusion, these error messages now clearly indicate that they are not originating from the GC/Headspace driver, but from the communication solution.
219518	Vanquish Flex Autosampler, firmware versions before 2.06: While perfroming a pump purge, executing the needle wash twice on the autosampler could cause the issue of erroneously connecting the drainage flow path to the column which may lead to column damage. With firmware version 2.06 and newer, this issue is fixed.
252790 281282	Licensing: The first time a user logged into a remote domain from a client, a "No License Available" error message was displayed. This applied to AWS and Citrix clients as well as thick clients.
258175	Remote Inject Device: The inject volume range of the remote inject device had been limited to 2 mL. The inject volume range has now been increased to 10 mL.
259247	Services: Stopping and restarting the Microsoft Cryptographic Services would cause several Chromeleon services to stop running, thereby causing Chromeleon to stop functioning on that PC.
263873	Agilent ICF A.02.04: When running a sequence using an Agilent 1100 LC and a G1329A autosampler, if the tray was removed shortly before the end of one injection and reinserted shortly before the autosampler was about to perform the next injection, then sporadically the tray description for the injection from vial1 was empty.
267370	Copying Signed Sequences: It was not possible to copy or move signed sequences having injection records containing raw data to a different data vault if these injection records also had different versions. The copy operation would report an exception with the error message 'Object reference not set to an instance of an object'.

ID	Description
267560	Custom Variables of Peak Groups: When a new custom variable was created in the peak group table and the component table contained many components (e.g., 200 and more) the studio window would become blocked for an extended time.
273614	Vanquish Dual Split Sampler with Charger: If the charger door was opened or closed during acquisition, then the sequence would abort. This abort only occurred if more than one sample rack was transported from the Vanquish Charger to the Vanquish Dual Split Sampler for injection.
280360	Instrument Controller: Following an instrument audit trail save error it could happen that the home data vault was changed to another data vault if the original home data vault was not available.
285145	ICS-5000 Audit Trail: Instrument Audit Trail logs a large number of entries in a short amount of time leading to "System.OutOfMemoryException" errors.
291343 295871	Chromeleon XPS: Even if a column containing a custom injection variable was hidden in the eWorkflow layout, an XPS user would still be able to edit the variable value.
291396	Chromeleon XPS: Chromeleon XPS would crash if injection or sequence custom variables were left blank
298165	Report Tables: If the number of report columns in a report table changed from one injection to another (e.g., using a consolidated report table) then increasing the number of columns could lead to empty results for these columns, since the report columns could lose formulas. This could only happen for report tables in report templates. Report tables in the Interactive Results pane of the Studio Window were not affected. Note: This problem was introduced in 7.2.10 MUe. Chromeleon releases prior to 7.2.10 MUe did not show the described behaviour.
299133	While running "ValidateRaman" or "CalibrateRaman" a "not ready state" was reported. Now, if a data acquisition is launched during the these processes, a more appropriate error message is reported. The previous error message "Cannot start acquisition {0}" is no longer shown.
299216	Sequence Acquisition: Changing the response time settings during an actively running data acquisition is now rejected with an appropriate error message.
313280	Custom ePanels and ePanel Sets: Custom ePanels and ePanel Sets were lost for all Instruments after rebooting the Chromeleon Domain Controller.
314297	Administration Console: In the All Resources table, manually removed resources would sometimes reappear after a short time.
328345	netCDF Import: If a netCDF (AIA) file was missing a value for "peak_retention_time", then the import would fail with a "Value cannot be null." error.
333563	Atlas Workbook Import: Importing an Atlas workbook would fail with the message "value out of range" if a calibration level was reported as "N/A".
342202	MS Component Table: Attempting any of the following actions would generate an "Object reference not set to an instance of an object" error if the selected components were not previously imported from an MS instrument acquisition list: • 'Copy' (via context menu or keyboard shortcuts) • 'Copy Compound Data' (via context menu or Ribbon button) • 'Export Compound Data' (via context menu or Ribbon button)

4 Limitations and Known Issues

The comprehensive list of limitations and known issues affecting Chromeleon 7.2.10 ES are documented in the Chromeleon 7.2.10 MUa and subsequent MU release notes.

New, updated and recently reported known limitations and issues identified during the development of Chromeleon 7.2.10 MUg are listed below.

4.1 Limitations with Thermo Scientific Instruments

ID	Description
249010	Vanquish DAD, MWD and VWD detectors and UltiMate 3000 DAD, MWD and VWD detectors: If the UVLampOperationTime.Value (VISLampOperationTime.Value) is exceeding UVLampOperationTime.Warning (VISLampOperationTime.Warning), Chromeleon issues a message (not a warning as stated in the online help). If the UVLampOperationTime.Value (VISLampOperationTime.Value) is exceeding UVLampOperationTime.Limit (VISLampOperationTime.Limit), Chromeleon issues a warning (not an error as stated in the online help).
279701	Orbitrap Exploris 120: Opening the method editor or opening the online help can result in an error: "Error in sample changed event handler of object Processing Method Editor. Exception of type 'System.OutOfMemoryException' was thrown." Workaround: Close and re-open Chromeleon Studio regularly when opening / examining MS methods.
282028	UltiMate VWD-3400(RS): In the data collection section for the UV portion of a method, the peak width value will change to 0.02 min if the method is saved and reopened. The Data Collection Rate and Time Constant will change according to the Peak Width entered in the Instrument Method Editor and stay at the desired value after the method is saved and reopened.
298674	Method Translation from UltiMate 3000 to Vanquish: The temperature of the sampler cabin is not correctly translated in case a temperature for the column compartment is set.
299110	Fraction Collector: In the instrument method for a system with an UltiMate AFC-3000 or Vanquish Fraction Collector FT, under the Fraction Collection section the preview window will display the error, "Can't determine pump flow as it is not constant over method duration. Parametername: Pump Left" even if the pump flow for the entire method is constant. This occurs when the fraction collection time starts with no set flow around the time it starts, while the collection end time has a pump flow around the time it ends. Workaround: The error only appears when the Pump.Flow.Nominal Command is exactly on the "End Time" and if there is no other Pump.flow command present within the Collection Time Frame. Add another Pump.flow.Nominal command at the Fraction Collection "Start Time" in the Script Editor:
	95
	104 FractionCollector.FractionCollection.ColledFractions No

ID	Description	
307368	Method Translation does not recognize the difference between Orbitrap Exploris™ models. When opening a Chromeleon instrument method created on an Orbitrap Exploris 240 on an Orbitrap Exploris MX instrument, no warning is presented to indicate the difference between the model the instrument method was created for and the actual instrument. Instead, the Ready Check fails with a method mismatch error and suggested solution. Workaround: After opening the instrument method re-enter a single MS parameter to trigger the 'Save' action.	
344351	Thermo ISQ and TSQ GCMS: Instrument methods developed for the Thermo ISQ or TSQ GCMS using a driver version older than 5.0 will not be readable or usable when version 5.0 or higher of the driver is installed. The workaround is to either downgrade the driver to the older version or re-create them using the version 5 driver.	
347230	Thermo Orbitrap Exploris Series ePanel: On the Thermo Orbitrap Exploris Series ePanel the "MS Parameters" panel is missing.	
347312	For a Vanquish instrument it is possible to change the instrument configuration while a diagnostic test is running.	

4.2 Limitations with the Waters Driver Pack

ID	Description
177708	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 maybe the Acquity driver pack is not installed. If this occurs, the user should contact Thermo Fisher Scientific for further advice. Workaround: The entries in C:\Windows\Microsoft.NET\Framework\v4.0.30319\Config\machine.config <runtime> need to be filled manually.</runtime>

4.3 Limitations with Agilent ICF

For a general overview regarding the Agilent Instrument Control Framework, please refer to the document Chromeleon and Agilent ICF — Quick Start Guide — Chromeleon 7.2 .pdf, found in the \Documents\ folder of the Chromeleon installation disk. For Agilent drivers, please refer to Agilent documentation.

ID	Description
172753	Privileges: The privilege "Control Instrument While Queue is Running" does not apply to ICF controlled instruments. This privilege only applies to actions through Chromeleon properties or commands (command box or standard ePanel elements). It does not apply to actions through the Agilent Status UI.
222538	Agilent ICF driver: When reconfiguring ICF-based LC System, then opening the instruments page in the Console, the ePanel no longer shows the status windows for the individual submodules. Clicking on the ePanel control results in the crash. This is also seen with Agilent Drivers for Chromeleon.

4.4 Limitations with Other Third-Party Instruments

ID	Description
261494	Scion 450 GC: Configuring the Scion 450 GC driver fails with an error message "Chromeleon Instrument Configuration: The configuration cannot be changed. Driver 450 GC (SCION450GC.Driver.dll) has terminated. This is a fatal error, you need to restart the Instrument Controller to recover." This issue has been addressed with Hotfix-261494-271095-272764 for Chromeleon.
335233	Markes TD: After running a method that specifies tube recollection using sequence variables (i.e., custom injection variables in the sequence), if the next method (same or subsequent sequence) supports recollection, but it leaves the sequence variables section blank, then it will continue to recollect on the last tube recollected. The workaround is to add a SeqVar_RecollectionType=None to the method script to ensure recollection is disabled.
335233	Markes TD: Running a sequence with a recollect method and then setting RecollectionType to "None" or "SameTube", but leaving the RecollectionTube blank will cause a ready check error The workaround is to always specify a RecollectionTube. The value will be ignored when RecollectionType = "None" or "SameTube"
335233	Markes TD: The Online Help and eWorkflow provided on the DVD both specify the possible values for RecollectionType as "None", "Same" and "Tube". The driver doesn't undertand "Same", instead it expects "SameTube". The workaround is to specify "SameTube" instead of "Same" when setting up the custom injection variable for RecollectionType.

4.5 Limitations With Setup

ID	Description
352792	IQ: If version 1.2 of the Vanquish Neo Driver is installed and then subsequently uninstalled, the IQ report will list two files as missing: 'IG-LC-VQ-UserInterface-Installation-DOC4820.3622-EN-2-0.pdf' and 'IG-LC-VQ-UserInterface-Installation-DOC4820.3622-FR-2-0.pdf'

4.6 Other Limitations

ID	Description
267233	ePanels: While editing ePanels, the ePanel Editor may occasionally and spontaneously change the background color of Edit Field controls to LightPink and sometimes the Edit Field controls seem to be empty.
275608	Sequence: If the sequence name contains a foreign character that is not part of the regional language code page (e.g. α on an English-US system), the respective sequence can be started, but the sequence bar turns orange and shows "Disconnected".

Description
Sequences: A special character (e.g., the unicode control character "Record Separator") in the comment for an injection (in the injection table) will cause a Ready Check error. A sequence run aborts with an error message "hexadecimal value 0x1F, is an invalid character".
Report Variables: If no adducts are specified, the report variables "injection.chemical_formula_and_adducts()" and "injection.chemical_formula_and_adduct_masses()" will return 'n.a."
Studio: When injections are filtered in the Navigation Pane, stepping though the sequence using the Prev/Next Injection Keys will still display the filtered (hidden) injections.
On a system where the data vault "ChromeleonLocal" is not present or not accessible and a local data vault is mounted but not accessible, attempting to import an instrument configuration shortly after the start of the Instrument Controller will result in an error: "Chromeleon Instrument Configuration: Remote instrument controller can't save configuration. The Instrument Controller does not respond. It is probably very busy." Workaround: Wait several minutes after the start of the Instrument Controller before saving or importing an instrument configuration.
Exporting an instrument configuration triggers a privileged action "Modify Instrument Configuration".
Electronic signature: If a sequence contains a processing method with reference mass spectra for components the submit of such sequence works fine. But the verification will always fail due to an invalid hash code for the processing method.
Chromeleon XPS: If an eWorkflow is defined for multiple instruments and the instrument name is the same for two or more of the instruments, then in Chromeleon XPS only one occurrence of the instrument will be shown. Workaround: Do not add more than one instrument with the same name to an eWorkflow being used in Chromeleon XPS.

5 Backward/Forward Compatibility Issues

5.1 Chromeleon Enterprise Compatibility between Chromeleon Versions

In general, for customers with Enterprise Chromeleon systems, we do not recommend connecting clients or IPCs with different versions of Chromeleon into the same Chromeleon Domain.

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

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

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

5.2 CMBX File Compatibility between Chromeleon Versions

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

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

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

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

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