Agilent Drivers for Thermo Scientific Chromeleon 7

Release Notes – Revision 3.2

Introduction

References to product documentation for installation and usage are provided, as well as references to documentation regarding known issues and workarounds.

Table 1 Terms and abbreviations used in this document

Terms	Description
Agilent Drivers	Agilent Drivers for Thermo Chromeleon 7
Chromeleon	Thermo Scientific Chromeleon 7 Chromatography Data System
CTC	CTC Analytics AG
IQ	Installation Qualification
PAL	Prep and Load System
SVT	Software Verification Tool
Thermo	Thermo Fisher Scientific Inc.

For our regulated customers

When any change is made to Agilent software, the validation status of the software needs to be re-established by the user. Whenever software is changed, a validation analysis should be conducted not just for the validation of an individual change, but also to determine the extent and impact of that change on the entire software system.

Trademarks

Agilent Drivers for Chromeleon 7 Revision 3.2 What's new?

Hardware Support

This release adds or enhances support for several instruments and modules. The LC modules are:

- G7123B 1290 Infinity III Fluorescence Detector
- G7137B 1290 Infinity III Bio Hybrid Sampler

  This hybrid sampler supports both classic flow-through injection and Agilent's unique Feed Injection mode, which improves peak shape and sensitivity by mitigating strong solvent effects.
- G4756A Infinity Lab Sample Reader Upgrade

  The Sampler Reader Upgrade adds sample barcode reader functionality for Multisamplers.
- G7178A InfinityLab Assist consisting of G7180A Assist Hub and G7179A Assist Interface

  The InfinityLab Assist Hub is now fully integrated in the driver package.
- G7175A InfinityLab Level Sensing Upgrade
- Support has been extended to include the second-generation 8850 GC. Additionally, this release now supports CTC PAL3 Series II samplers operating on Agilent firmware. This functionality aligns with the capabilities introduced in Agilent Drivers for Chromeleon 3.1 Update 2.

Component Updates

The individual components of the Agilent Drivers for Chromeleon have been updated to the following versions:

- Instrument Control Framework 3.5
- LC & CE driver 3.11
- GC driver 4.4 Service Release 1
- HS driver 4.4
- SVT 6.3.4.1

The following components have not been changed:

- ELSD driver 1.8.61
- PAL driver 3.0

LC Enhancements

The inclusion of LC driver 3.11 adds new capabilities first introduced with release of the Infinity III series of LC modules. These capabilities are:

- InfinityLab Assist Hub

  Previous releases of the Agilent Drivers for Chromeleon provided basic support for the InfinityLab Assist. Starting with this release, the InfinityLab Assist is fully supported by the Agilent Drivers for Chromeleon. Please refer to the corresponding InfinityLab Assist Control software documentation for further details.
- Steady Inject

  Added support to Steady Inject for Multisamplers with Multiwash.
- Solvent Level Sensing

  Added hardware support to G7175A InfinityLab Level Sensing as well as software functionality for level sensing.
- Pressure Control

  Added support to pressure-controlled ramps outside of analytical runs.

- Injector Workflows

  This release has enhanced injector program functionality to simplify the creation of injector programs. Additionally, it is now possible to import and export injector workflows.

- Multisampler Drawer Automation

  This release of the Agilent Drivers for Chromeleon provides drawer automation for compatible Multisamplers. The system automatically manages drawer opening and closing operations in synchronization with sequence execution. It broadcasts events for drawer state changes, allowing external automation systems to respond to drawer operations. This automation improves workflow efficiency and reduces manual intervention, particularly beneficial for high-throughput laboratories and automated sample handling systems. Drawer automation commands are sent via a new command available in the Chromeleon command tree.

- Barcode Confirmation workflow

  The barcode confirmation workflow already implemented for capable GC instruments is now available for LC instruments also. Using this feature requires an Agilent sampler equipped with the G4756A Infinity Lab Sample Reader Upgrade.

GC & HS Enhancements

- Dual manual injections

  The enhanced remote injector functionality enables dual simultaneous injection workflows where a user can manually inject samples on the front and back channel.

- PAL3 Series II sampler integration

  The addition of the PAL3 Series II sampler driver enables advanced sample preparation with subsequent analysis on an Agilent GC.

New Features

- Generic commands

  A new command, GenSendCommand, is added to the command tree advanced view. Any input entered as command parameter is sent to the LC driver. Return values and events can be accessed via the two new properties GenCommandResult and GenCommandEvent. The commands and properties can be used in conjunction with the Multisampler drawer automation to automatically manage drawer opening and closing operations.

- Infrastructural improvements
- Dual injection timeout

  An injection timeout is now available for instruments configured for dual simultaneous injections. The injection timeout is enabled on the Agilent Home ePanel and allows defining a time after which a single sequence will start processing. The sequence will no longer wait indefinitely.

- Remote injector

  It is now possible to assign remote injectors to instruments configured for dual simultaneous injections. This enables the start of sequences executing in parallel via an external trigger like the start button on the GC front panel.

- G7123B 1290 Infinity III Fluorescence Detector ePanel

  A new ePanel for the 1290 Infinity III Fluorescence Detector has been added. The ePanel is automatically loaded when a G7123B is configured.

Defect Fixes

This release fixes several defects. See Resolved Issues below for an overview.

Compatibility

Hardware and Firmware requirements are listed in the section Supported Agilent Modules and Firmware of this document. See the following paragraphs for software and PC requirements.

Supported Chromatographic Data System

This driver release supports Chromeleon 7.2.10 MUf and higher, Chromeleon 7.3.1, Chromeleon 7.3.2, Chromeleon 7.3.2 MUa, Chromeleon 7.4 and includes all subsequently released Chromeleon versions including their respective maintenance updates. At the time of writing the latest Chromeleon release was Chromeleon 7.4.0.

Lab Advisor Compatibility

Lab Advisor is standalone diagnostic software which can be co-installed and can co-exist with Thermo Fisher Chromeleon on the same IPC. Lab Advisor does not interfere with the CDS.

Modules with firmware A (mainly 1100/1200) can host only one instrument controller. In this case only Lab Advisor or Chromeleon can be used.
Main modules with firmware B/D can host up to five instrument controllers and allow parallel execution of Chromeleon and Lab Advisor.

When in use, each instrument is locked by its respective controller. For example, Chromeleon locks the instrument when a sequence is started, Lab Advisor locks the instrument when a diagnostic test is started. Other connected instrument controllers can view the instrument actuals but not modify method parameters or submit commands. This also applies to the Lab Advisor Client/Server setup with a TCP Relay Service installed on the instrument controller.

For more information, visit Lab Advisor on Agilent.com.

InfinityLab Assist Compatibility

The InfinityLab Assist is compatible with Agilent Drivers for Chromeleon 3.2 or higher. Starting with this driver version the InfinityLab Assist is integrated into Chromeleon.

Older driver releases do not integrate the InfinityLab Assist tightly and users must take care not to interfere with running sequences by starting tasks on the InfinityLab Assist. The current integration offers tighter integration thereby eliminating the risk of interfering with running sequences.

Supported Operating Systems and .NET Framework

The supported operating system in use is determined by the hosting CDS.

- Microsoft Windows 10 Pro and Enterprise, 64-bit
- Microsoft Windows 11 Enterprise
- Microsoft Windows Server 2016, 64-bit
- Microsoft Windows Server 2019, 64-bit
- Microsoft Windows Server 2022, 64-bit
- Microsoft Windows Server 2025, 64-bit

The LC Drivers have been optimized for the Windows default font size. Larger font sizes may require increasing the window size or may cause truncations.

The driver requires the Microsoft .NET Framework 4.7.2 or higher and for the ELSD component Microsoft .NET 3.5 must be installed.

Supported Language Settings

The Agilent Drivers are developed for use with English (US) regional settings and are supported in English language only. The LC instrument driver offers language support for English, Chinese,

Japanese, and Portuguese languages. The GC instrument driver offers language support for English, Chinese, and Portuguese.

Interoperability

Interoperability describes a scenario in which different driver versions are present on client and instrument controller in a client/server environment. In this way a rolling upgrade from previous Agilent Drivers for Chromeleon versions to the current version may be realized with minimal downtime. Agilent Drivers for Chromeleon support driver interoperability in client/server systems for LC, GC, and HS drivers in accordance with the following constraints

- The driver version of the client is greater or equal to the version on the instrument controller.
- New hardware and new features are only supported when both the instrument controller and the client are updated to the same version.
- ELSD driver interoperability is not supported.

Periodically, new technologies or features may require breaking changes to the drivers. New features and options introduced by a new client-side driver version may not work or lead to unexpected behavior. Fully functional behavior requires synchronized driver versions on both the client and the instrument controller. The recommendation is to keep interoperability scenarios at a minimum.

Support of legacy and native drivers

The Agilent Drivers for Chromeleon can coexist with older driver implementations on the same computer. It is even possible to use the Agilent Drivers for Chromeleon and legacy and native drivers on the same IPC at the same time for different instruments.

Supported Third-Party Modules

Supported third-party modules are the Thermo Fisher Corona Veo Charged Aerosol detector and the WPS-3000 sampler. These modules can be combined with Agilent LC modules in one instrument. See Third party instrument considerations below for use cases limitations and known issues.

Installation

Prerequisites

Before installing the Agilent Drivers for Chromeleon, ensure that the PC conforms to the requirements outlined in the CDS documentation.

Installation should be executed using an account with local Windows administrator rights. The Agilent Drivers for Chromeleon must be installed on all instrument control PCs and clients used to control Agilent instrumentation or edit instrument methods. The driver package requires .NET Framework 4.7.2 or higher and for the ELSD driver .NET Framework 3.5 to be installed on the computer. If the Agilent Drivers for Chromeleon are installed as part of the CDS installation the required .NET Framework components are installed automatically.

The Agilent Drivers for Chromeleon will request a class 3 license for LC instruments and a class 2 license for GC instruments. Depending on the version of Chromeleon in use, this might differ somewhat. Please contact your Thermo Scientific representative for the correct license if you use those versions.

Any Chromeleon version up to and including 7.2.10 MUa and 7.3 will request a class 3 license for a GC where normally only class 2 would be required. Newer Chromeleon versions request the class 2 license as expected.

GCs, configured in dual sequence mode, will request only one license.

Firewall configuration

If third-party firewalls or anti-virus software are used on a network with the Agilent Drivers for Chromeleon, the firewall ports listed in this section must not be in use by other applications to allow communication between the instruments and the drivers. These restrictions apply to workstations and enterprise systems since component communications rely on these channels. The installer will automatically set up the necessary firewall inbound rules. If you encounter communication issues, refer to the following table for an overview of the utilized ports.

Table 2 Instrument inbound rules for the instrument controller

Protocol	Port	Description
TCP	4879	Instrument communication (Headspace)
TCP	10000 - 10020	Instrument communication (GC 78XX, 88XX, 9000)

Table 3 Instrument Outbound Rules for the instrument controller

Protocol	Port	Description
TCP	23	Instrument communication (LC, CE)
TCP	53	DNS server
TCP	67, 68	DHCP server
TCP	9001, 9002, 9100	Instrument communication (GC, LC)
TCP	9101, 9110	Instrument communication (GC, LC)

Standalone installer

NOTE The Agilent Drivers installation routine will abort if no supported Chromeleon version is detected.

Installing the Agilent Drivers is a two-step process. In the first step the Software Verification Tool (SVT) is installed. In the second step the Agilent Drivers for Chromeleon are installed.

To install the SVT double click the SFVtool.msi and follow the installation wizard.

The Agilent Drivers are delivered as a single Windows Installer file, named Agilent_Drivers_for_Thermo_Chromeleon.msi. The installation process is started by double-clicking the file. Follow the instructions of the installation wizard to install the driver package.

Installation during Chromeleon installation

The Agilent Drivers for Chromeleon are delivered on the Chromeleon installation medium available at time of release. Installation prerequisites are outlined by Chromeleon (e.g., CPU, memory, and hard drive space).

The preferred installation is the automatic installation using the advanced option of the Chromeleon installer. Please refer to the Chromeleon Installer documentation for installation, updates, and uninstallation.

Silent installation

It is possible to install the Agilent Software Verification Tool and the Agilent Drivers for Chromeleon in silent mode by executing the following commands in the command console. Make sure to log on to the PC with a local Administrator account and administrative privileges. Start the command line with **Run as administrator**.

Refer to the Microsoft documentation for Microsoft installer functionality for more details.

Silent installation of the SVT can be achieved by invoking msiexec in the following way.

```
msiexec.exe /i "\SFVtool.msi" [/quiet][/passive][/q{n|b|r|f}]
```

Example

- Installation with no user interaction interface or user interface.

```
msiexec.exe /i "C:\Temp\SFVtool.msi" /qn
```

NOTE The **Temp** folder in the examples must be created and the msi placed in the folder prior to executing the command.

The Agilent Drivers for Chromeleon can be installed by invoking msiexec in a similar fashion:

```
msiexec.exe /i
"<path_to_msi>\Agilent_Drivers_for_Thermo_Chromeleon.msi"
[/quiet][/passive][/q{n|b|r|f}] [/norestart][/forcerestart]
[/L{i|w|e|a|r|u|c|m|o|p|v|x+|!|*}] ["\install.log"]
```

An installation using this syntax will install the msi to the default installation path with the defined restart and logging instructions.

NOTE The Agilent Drivers for Chromeleon must always be installed to the default location. Changing the installation folder may result in a non-functional installation.

Example

- Installation with no user interaction, no user interface and automatic restart:

```
msiexec.exe /i
"C:\Temp\ Agilent_Drivers_for_Thermo_Chromeleon.msi" /qn
```

NOTE The Response File section of the Chromeleon Installation Guide provides further information on the unattended installation of Chromeleon.

Installation verification

Agilent offers the Software Verification Tool to verify the correct installation of the software components. The tool is delivered along with the Agilent Drivers for Chromeleon.

The SVT must always be installed before the Agilent Drivers installer is executed. The Chromeleon installer routine ensures software is installed in the correct order. During manual installation ensure the SVT is installed before the Agilent Drivers. The Agilent Drivers installer checks the presence of the SVT and will abort if the tool cannot be found.

After the installation of the SVT execute the verification with the following steps:

Open *Start > All Programs > Agilent Technologies* and select *Software Verification Tool*.

In the dialog box select the required report type and the components of interest and click *Qualify*. The corresponding browser opens and shows the resulting files and passed or failed status of the installation.

NOTE The Chromeleon IQ does not start the Agilent SVT, the Agilent Software Verification Tool requires manual execution.

Silent execution of the SVT

It is possible to run the Agilent Software Verification Tool (SVT) in silent mode by executing one of the following commands in the command console:

```
SFVTool.exe -silent -p:"Agilent Drivers for Thermo Chromeleon 7"
```

The command runs the SVT silently with the command window hidden and saves the report in html format (default option) for the selected product(s). It does not open the report.

```
SFVTool.exe -qt -p:"Agilent Drivers for Thermo Chromeleon 7"
```

The command runs SVT showing the progress in the command window and saves the report in html format (default option) for the selected product(s).

```
SFVTool.exe -qt -p:"Agilent Drivers for Thermo Chromeleon 7" -html -
pdf –open
```

The command runs the SVT, showing the progress in the command window, saves the report in html format (default) and pdf for the selected product(s) and opens the reports.

Chromeleon IQ report

The Agilent Drivers for Chromeleon integrate seamlessly with the Chromeleon Installation Qualification (IQ). As part of the IQ process, the installed driver version and the versions of all related driver files are documented. When the Agilent Drivers for Chromeleon are installed correctly, the Chromeleon IQ generates no warnings or errors.

Upgrade Installation

A direct upgrade from previous Agilent Drivers for Chromeleon versions is supported and is performed by following the normal installation steps. Ensure that SVT is upgraded before the Agilent Drivers for Chromeleon.

Upgrading the Agilent Drivers for Chromeleon from version 1.1 Update 1 or version 1.2 requires additional steps due to changes in the handling of Run Diagnostic Data and newly added features. After the installation it is recommended to update the instrument configuration to ensure that the changes become active. In rare cases not updating the instrument configuration may result in connectivity issues.

Support Information and User Documentation

The following documents are present in the driver package:

- Release Notes
- Declaration of Software Quality
- Declaration of Cybersecurity
- License Terms
- Troubleshooting Guide

Online help

The online help consists of the help made for the Agilent Drivers for Chromeleon and an instrument specific help. To access the former, use the Help button below the instrument status dashboard. This help provides general information on the usage of the Agilent Drivers for Chromeleon. Instrument specific online help is available by opening an instrument method and pressing the F1 button. This will open the online help showing information specific to the currently selected method parameter.

User Guides

User guide documents are included in the installation for the Agilent Drivers for Chromeleon. One user guide for LC, one for GC, and a quick start guide for the PAL3 sampler.

The user guides offer information on instrument configurations, method editing, executing sequences and technique specific information.

Obtaining Technical Support

For all technical support enquiries regarding Thermo Scientific Chromeleon Chromatography Data System software please contact your Thermo Fisher Scientific customer support organization as your first point of contact.

If your question or problem is related directly to your Agilent instrument, please contact your local Agilent Sales & Support organization for assistance. Visit Agilent Support for your local contact information: https://www.agilent.com/en/support.

When communicating with support teams, please provide the following details:

- Your name, address, email address and telephone number.
- Your Chromeleon version number together with installed Chromeleon updates.
- Your instrument driver information is listed in the Agilent Software Verification Tool report. Please run this tool by navigating to Start > Agilent Technologies > Software Verification Tool from your Windows operating system.
- Your instrument information can be found in Chromeleon by accessing the Instrument Status dashboard and clicking on "I".
- A description of the problem including any errors that were displayed in the Instrument Audit Trail, what you were trying to do when the problem occurred and the frequency of the problem.

Known Issues

The table below lists known issues for this release of the Agilent Drivers. For the full list of issues refer to the SSB's for the used components. Information related to SSB is also available on www.agilent.com.

ADC:

https://agilent.com/cs/library/support/Patches/SSBs/SSB-for-Agilent-Drivers-for-Chromeleon-7.html

ICF:
https://www.agilent.com/cs/library/support/Patches/SSBs/Agilent_Instrument_Control_Framework_(ICF).html

LC and CE Drivers:

https://www.agilent.com/cs/library/support/Patches/SSBs/LC_RC_Net.html

ELSD Drivers:

https://www.agilent.com/cs/library/support/Patches/SSBs/PL29ELSD.html

GC & PAL3 Drivers:

https://www.agilent.com/cs/library/support/Patches/SSBs/Agilent_GC_Drivers_Software.html

HS - ICF Drivers:

https://www.agilent.com/cs/library/support/Patches/SSBs/ICF-Headspace.html

Table 4 Known Issues

Key	Summary	Workaround
1357413	When an injection is aborted due to a removed or exchanged tray Chromeleon may show the status of the sequence as running while the instrument is already idle.	Ensure trays are in place when an injection starts to avoid interrupting the sequence.
1357175	Configurations combining an Ultimate 3000 sampler with Agilent detectors, the instrument may stall at the end of a blank run if the blank run is the initial line in the sequence.	Use an empty vial for blank runs.
1355948	Method check warning contains "@@ValueX" after editing G7123B method	This message can be disregarded.
1084348	Importing defective LC pretreatment file deletes all entries without user information	Do not import defective pretreatment files.
956217	A headspace sampler method does not include the run time information. Therefore, the ready check of an instrument method for an instrument consisting only a headspace sampler will fail.	A headspace sampler must always be combined with a GC instrument. Configuring a headspace sampler only is not supported.
726410	Method check fails with an error informing on missing needle offset when using an injector program using the function "Eject" and "Seat" as destination.	Manually add the offset mode command to the instrument method script.

Known Limitations

General considerations

Hold, Continue, and StopFlow commands

The commands Hold, Continue, StopFlow and Message are not available with the Agilent Drivers for Chromeleon and are treated differently from a Thermo Fisher Scientific instrument. Consequently, these commands shouldn't be used.

Updating instrument methods prior to version 2.3

After upgrading the Agilent Drivers for Chromeleon, the instrument methods may require an update. This is the case when the instrument method uses the Run Diagnostic Data signals and were created using a driver version prior to 2.3.

After opening the instrument method, the Chromeleon method translation tool starts automatically. Choose Adjust Manually and open the method script. Command lines requiring an update are marked with a red background and can be updated by clicking on the command.

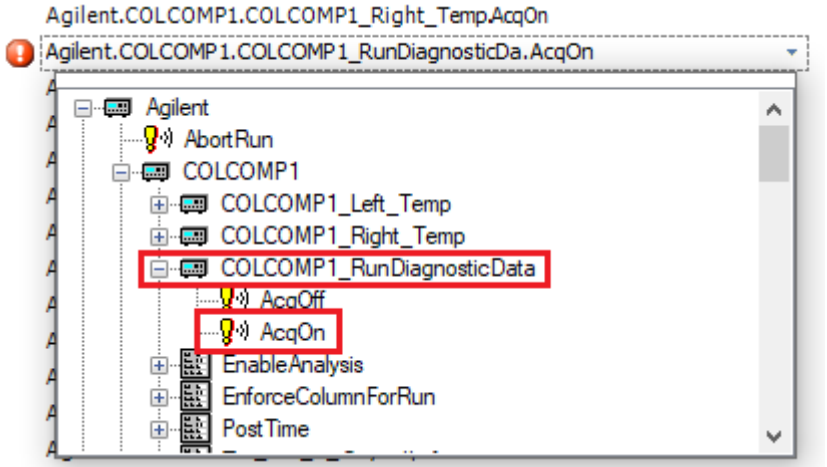

Figure 1. Updating the RunDiagnosticData command in the method script

After opening the instrument method, the Chromeleon method translation tool starts automatically. Choose Adjust Manually and open the method script. Delete the two command lines highlighted in red and save the method.

Window scaling

Use only a Windows zoom level of 100%. Other settings may result in UI truncations.

LC considerations

Fraction collection

Fraction collection modules and fraction collection clusters are not supported.

Only one injector allowed per LC instrument

An LC instrument can at most have one injector, i.e., sampler. Adding a second injector is not permitted and will create an error during configuration.

Missing vial handling

Missing vials are handled slightly differently from Thermo Fisher Scientific instruments. Right-click on the sampler tile and select **Control** to select the desired behavior in case of a missing vial.

Visual display of the rack layout

Visual display of the rack layout is not available for Agilent LC systems. The tray position of the Agilent LC shows a list of positions but no valid tray geometry, as this is not characterized by the Agilent Drivers.

Ad-hoc runs

Data from ad-hoc runs started via the handheld controller are not collected.

Emergency methods

Agilent LC instruments use built-in emergency methods; therefore, emergency instrument methods in the Chromeleon queue cannot be used. Instead, these methods must be specified using the context menu in the Agilent instrument status window. Refer to the Chromeleon help or Agilent Instrument Drivers help for details.

Diagnostic functions are not supported

Agilent Drivers do not provide the functionality to access Early Maintenance Feedback counters or perform diagnostic/maintenance operations on the individual modules. Therefore, Chromeleon cannot offer any functionality for diagnostics. The Agilent Lab Advisor software is required to perform diagnostic operations.

TurnOn command

The command TurnOn is not available in the method script. It is available as a command, for example, for ePanels.

Baseline Monitoring

Monitor Baseline control, which Chromeleon offers for Data Acquisition functions, but is not supported for generation of analytical data. Chromeleon offers Monitor Baseline to allow you to manually save the online signal in an idle state or after a manual injection. As Agilent modules offer a monitor signal (outside a run) and Chromatogram signals (inside a run) that are not delivered with the same frequency, Agilent does not support this feature for manual injections to generate analytical results.

Enforce Column for run

The configuration editor offers the setup of the column plumbing as well as a table for column information for the G7116A/B Multi-Column Compartment and for the Valve-Thermostat-Cluster (VTC). The column plumbing is correctly displayed and used in the methods. The module is working in the expected setup. The column information cannot be presented for selection in the G7116A/B graphical method interface and Valve-Thermostat-Cluster (VTC). As the column information is not offered in the GUI, the option enforce column cannot be selected.

Pressure Units

The pump's Pressure Unit Configuration options allow you to select between bar (default), psi, and MPa as pressure unit. This setting is then used in the graphical user interface. However, the script always uses bar as its pressure units, regardless of configuration settings.

Generic command limitations

Sending commands to ELSD devices is not supported.

The symbol tree properties **GenCommandResult** and **GenCommandEvent** retain their value until updated. Users must take care when evaluating these properties and ensure they have been updated in the current context

Capillary Electrophoresis considerations

MS coupling

Coupling the CE with MS instruments is not supported.

Detector restrictions

LIF and CCD detectors are not supported.

User vials and capillary catalog

User vials and the capillary catalog are only available in Agilent CDS and therefore not available in Chromeleon.

Sequence requires an injection volume

Chromeleon always requires an injection volume in the injection list. The CE instrument does not use an injection volume. Enter any value for the sequence to be valid.

GC and HS considerations

In previous versions of the Agilent Drivers for Thermo Chromeleon so-called “soft configuration” parameters, which are changeable in the method editor, were reported as “minor incompatibilities” with the existing GC configuration. This prevented these methods from being used without first resolving the method (changing the soft configuration parameters) or updating the existing GC configuration.

Starting with version 2.3 of the Agilent Drivers for Thermo Chromeleon, those incompatibilities will no longer need to be resolved and thus can be used without requiring any changes.

This change includes the following settings:

- Column changes
  - Presence or absence
  - Type change (even if same dimensions)
  - Connections
  - Dimensions
  - Calibration
- ALS
  - Syringe Size
  - Nanoliter Adapter presence
  - Solvent Mode
- Gas types
  - Gas sources (inlets, EPC modules)
  - Detector gases
- Any valve change (presence, type, configuration)

By contrast, anything that the GC can determine independently of external software is considered a major inconsistency and will still require (manual) resolution. These settings are read-only and can only be changed by physically altering the GC.

- ALS
  - Different tower or tray model
  - Removal of tower or tray
- Different (oven) cryo type
- Valve Box presence
- Helium Conservation Module presence

- Gas Source (inlet, EPC module) or Detector module presence
- Aux Heater presence
- Different module type (inlet, detector)

NOTE

On GC systems configured for dual simultaneous injections the minor changes will only be updated for the instrument which was created first during configuration. To ensure all changes are correctly propagated the instrument should be reconfigured even after minor changes. Systems which do not use dual simultaneous injection mode do not need to be reconfigured in such cases.

Intuvo 9000 GC maintenance functions not available inside CDS

The Agilent Drivers for Chromeleon do not provide access to GC maintenance functions. Therefore, Chromeleon cannot offer any functionality for diagnostics. Maintenance functions are accessible via the instrument front panel or the browser interface.

Pressure units

Changing the pressure unit requires a reconfiguration of the GC. It is not possible to mix pressure units, e.g. configuring the GC to use kPa and running a method that uses psi.

Data rates

1000 Hz data rate for 7890 GC is not supported.

Blank run evaluation

Blank run evaluation is not supported.

Retention Time Locking is not supported

The RTL feature is not available in Chromeleon

Diagnostic Functions are not supported

Agilent Drivers do not provide the functionality to access EMF counters or perform diagnostic/maintenance operations on the individual modules. Therefore, Chromeleon cannot offer any functionality for diagnostics.

Headspace sequence size limitation

Restrict sequences using the 7697A headspace sampler to 111 lines or less. Restrict Sequences using the 8697 headspace sampler to 48 lines or less. Longer sequences or sequences with many extractions per line may result in high CPU usage of the Chromeleon Console.

PAL3 script manager and custom scripts not supported

This driver release does not support the script manager or custom scripts. A set of predefined scripts is included in the driver and can be selected during method creation. These scripts can be edited as required.

PAL3 standalone use not supported

The sampler should always be used in conjunction with an Agilent GC. Standalone use is not supported by this driver release.

PAL3 barcode reader not supported

The PAL3 barcode module is currently not supported. Trying to use the barcode feature will result in an aborted sequence.

Third party instrument considerations

The WPS-3000 sampler and the Corona Veo Charged Aerosol detector are the only third-party modules supported for use with an Agilent LCs in Chromeleon. During testing some functional limitations were identified. The following functions or use cases are therefore not supported.

- The WPS-3000 must be the only sampler in the instrument.
- Overlapping injections are not supported.
- The smart startup / shutdown feature is not supported.
- It is not possible to link the pump with the autosampler. This means injection synchronization is not possible.
- The sampler may only be used as injection source. Fraction collection is not supported.
- User-Defined programs are not supported.
- USB-to-LAN adapters are not supported.

Resolved Issues

The table below lists the issues resolved in this release. For resolved instrument driver issues, please refer to the respective driver Release Notes on the installation medium.

Table 5 Resolved Issues

Key	Description
1377148	Removing vial tray causes improper audit trail entries and change in sequence.
1276082	In one case it was reported that the instrument method download of a GC is not possible when the GC is equipped with a user configurable aux heater.
1274109	The Chromeleon method editor will not load when the LC instrument includes a G4260B ELSD.
1200009	Aborting a LC run while acquiring DAD spectra the error message "A fatal error occurred while acquiring data for XX.XXX [s]. The data system complained about: You may only call this function after AcquisitionOnCommand and prior to OnDataFinished" may be written to the audit trail several times.
1188680	Opening a saved ELSD instrument method in Chromeleon Studio causes the application to quit.
1148103	Renumbering vial positions of a GC sequence fills the injection location column with value "1" when exceeding the maximum available positions.
1130296	A 7890 Gc equipped with G2913A injectors cannot be used for dual simultaneous injections as it is impossible to set the "Shared" value on the Agilent Home ePanel.
1086227	With LC Drivers 3.6 new control functions for missing vial options were implemented. The function "Abort Current Run" aborts the whole sequence instead of skipping/aborting the current run.
941803	The FLD spectral data is stored as a 3DFIELD instead of FLField. Hence, Chromeleon Studio shows the spectral data in the UV-Vis Spectra plot and the dedicated Fluorescence Spectra plot is not populated with the data.
777461	When a sequence using the headspace sampler is edited while the last line of the sequence is already locked the sequence will never reach the finished state.

Supported Agilent Modules and Firmware

LC Modules

NOTE The Agilent LC drivers are backwards compatible. Modules with identical Product Numbers are supported, even if the tables below list only the name of the current model version. 1100 Series models are supported on a best effort basis only. For more details, please refer to the driver Release Notes of the driver revision you are using.

NOTE The Agilent Drivers for Chromeleon 3.2 do not support fraction collection modules although these modules are selectable during instrument configuration. These modules are untested and may show unexpected behavior. Their use is discouraged until official support is implemented.

Table 6 Pumps

Module No.	Module Name	Min. required FW	Min. Driver Version
G1310A	1200 Isocratic Pump	A.06.10	1.1
G1310B	1260 Infinity Isocratic Pump	A.06.32	1.1
G1311A	1200 Series Quaternary Pump*	A.06.10	1.1
G1311B	1260 Infinity Quaternary Pump*	A.06.10	1.1
G1311C	1260 Infinity Quaternary Pump VL*	A.06.32	1.1
G1312A	1200 Series Binary Pump*	A.06.10	1.1
G1312B	1260 Infinity Binary Pump*	A.06.10	1.1
G1312C	1260 Infinity Binary Pump VL*	A.06.32	1.1
G1361A	1260 Infinity Preparative Pump	A.06.50	1.1
G1376A	1260 Infinity Capillary Pump	A.06.10	1.1
G2226A	1260 Infinity Nanoflow Pump	A.06.10	1.1
G4204A	1290 Infinity Quaternary Pump*	B.07.42	1.1
G4220A	1290 Infinity Binary Pump*	B.07.42	1.1
G4220B	1290 Infinity Binary Pump VL*	B.07.42	1.1
G4302A	1260 Infinity SFC Binary Pump*	A.06.10	1.1
G4782A	1260 Infinity II/III SFC Binary Pump*	D.07.42	1.2
G5611A	1260 Infinity Bio-inert Quaternary Pump*	A.06.10	1.1
G5654A	1260 Infinity II/III Bio-Inert Quaternary Pump*	D.07.42	1.1
G7104A	1290 Infinity II/III Flexible Pump*	B.07.42	1.1
G7104C	1290 Infinity II/III Flexible Pump*	B.07.42	1.2
G7110B	1260 Infinity II/III Isocratic Pump	D.07.42	1.1
G7111A	1260 Infinity II/III Quaternary Pump VL*	D.07.42	1.1
G7111B	1260 Infinity II/III Quaternary Pump VL*	D.07.42	1.1
G7112B	1260 Infinity II/III Binary Pump*	D.07.42	1.1
G7120A	1290 Infinity II/III High Speed Pump*	B.07.42	1.1
G7131A	1290 Infinity II/III Bio Flexible Pump	B.07.42	3.0
G7131C	1260 Infinity II/III Bio Flexible Pump	B.07.42	3.0
G7132A	1290 Infinity II/III Bio High Speed Pump	B.07.42	3.0

Table 6 Pumps

G7161A	1260 Infinity II/III Preparative Binary Pump	D.07.20	1.2
G7161B	1290 Infinity II/III Preparative Binary Pump	D.07.27	1.2
Cluster			
N/A	Pumps marked with * can create a pump valve cluster with up to two valves of type G1160A and/or G1170A with 5067-4159 or 5067-4147	See modules	1.1
N/A	1260 Infinity Preparative Pump Cluster with up to four G1361A	A.06.50	1.1

Table 7 Sampling Systems

Product Number	Product Description	Min. required FW	Min. Driver Version
G1328A/B	Manual Injector	N/A	2.5
G1330A/B	Thermostat for Agilent Sampler	N/A	1.1
G1313A	Agilent 1100 Autosampler	A.06.10	1.1
G1329A	Agilent 1200 Series Standard Autosampler	A.06.10	1.1
G1329B	Agilent 1260 Standard Autosampler	A.06.10	1.1
G1367A	Agilent 1100 Well-Plate Autosampler	A.06.31	1.1
G1367B	Agilent 1200 High Performance Autosampler	A.06.31	1.1
G1367C	Agilent 1200 High Performance Autosampler SL	A.06.31	1.1
G1367D	Agilent 1200 High Performance Autosampler SL+	A.06.31	1.1
G1367E	Agilent 1260 Infinity High Performance Autosampler	A.06.32	1.1
G1377A	Agilent 1260 High Performance Micro-Scale Autosampler	A.06.12	1.1
G1389A	Agilent 1100 Micro-Scale Autosampler	A.06.10	1.1
G2258A	Agilent 1260 Infinity Dual-Loop Autosampler	A.06.50	1.1
G2260A	Agilent 1260 Infinity Preparative Autosampler	A.06.50	1.1
G3167A	Agilent 1260 Infinity II/III Online Sample Manager	D.07.45 (New)	Not supported
G3167B	Agilent 1260 Infinity II/III Bio Online Sample Manager	D.07.45 (New)	Not supported
G4226A	Agilent 1290 Infinity Autosampler	A.06.31	1.1
G4303A	Agilent 1260 Infinity SFC Standard Autosampler	A.06.54	1.1
G4767A	Agilent 1260 Infinity II/III SFC Multisampler	D.07.45 (New)	1.2
G5667A	Agilent 1260 Bio-Inert High Performance Autosampler	A.06.32	1.1
G5668A	Agilent 1260 Infinity II/III Bio-Inert Multisampler	D.07.45 (New)	1.1
G7129A	Agilent 1260 Infinity II/III Vialsampler	D.07.38	1.1
G7129B	Agilent 1290 Infinity II/III Vialsampler	D.07.38	1.1
G7129C	Agilent 1260 Infinity II/III Vialsampler	D.07.38	1.2
G7137A	Agilent 1290 Infinity II/III Bio Multisampler	D.07.45 (New)	3.0
G7137B	Agilent 1290 Infinity III Hybrid Multisampler	D.07.45 (New)	3.2
G7157A	Agilent 1260 Infinity II Preparative Autosampler	D.07.38	1.2
G7158B	Agilent 1290 Infinity II Open-bed Sampler / Fraction Collector	D.07.43	Not supported
G7167A	Agilent 1260 Infinity II/III Multisampler	D.07.45 (New)	1.1
G7167B	Agilent 1290 Infinity II/III Multisampler	D.07.45 (New)	1.1
G7167C	Agilent 1260 Infinity II/III Hybrid Multisampler	D.07.45 (New)	3.1
G7169B	Agilent 1290 Infinity II Open-bed Sampler / Fraction Collector - Sampler Driver	D.07.39	Not supported

Table 8 Detectors

Module No.	Module Name	Min. required FW	Min. Driver Version
G1314A	1100 Series Variable Wavelength Detector	A.06.10	1.1
G1314B	1260 Infinity Variable Wavelength Detector VL	A.06.10	1.1
G1314C	1260 Infinity Variable Wavelength Detector VL+	A.06.10	1.1
G1314D	1200 Series Variable Wavelength Detector	B.06.32	1.1
G1314E	1290 Infinity Variable Wavelength Detector	B.06.32	1.1
G1314F	1260 Infinity Variable Wavelength Detector	B.06.32	1.1
G1315A	1100 Series Diode Array Detector	A.06.10	1.1
G1315B	1200 Series Diode Array Detector	A.06.10	1.1
G1315C	1260 Infinity Diode Array Detector VL+	B.06.30	1.1
G1315D	1260 Infinity Diode Array Detector VL	B.06.30	1.1
G1321A	1200 Series Fluorescence Detector (FLD)	A.06.10	1.1
G1321B	1260 Infinity Fluorescence Detector Spectra	A.06.36	1.1
G1321C	1260 Infinity Fluorescence Detector	A.06.54	1.1
G1362A	1260 Infinity Refractive Index Detector	A.06.10	1.1
G1365A	1100 Series Multiple Wavelength Detector	A.06.10	1.1
G1365B	1200 Series Multiple Wavelength Detector	A.06.10	1.1
G1365C	1260 Infinity Multiple Wavelength Detector	B.06.30	1.1
G1365D	1260 Infinity Multiple Wavelength Detector VL	B.06.30	1.1
G4212A	1290 Infinity Diode Array Detector	B.06.30	1.1
G4212B	1260 Infinity Diode Array Detector	B.06.30	1.1
G4218A	1260 Infinity Evaporative Light Scattering Detector	N/A	Not supported
G4260A	380-ELSD	25.00	1.1
G4261A	385-ELSD	25.00	1.1
G4260B	1260 Infinity II/III Evaporative Light Scattering Detector	32.06	1.1
G4261B	1290 Infinity II Evaporative Light Scattering Detector	32.06	1.1
G7102A	1290 Infinity II Evaporative Light Scattering Detector	32.06	1.1
G7114A	1260 Infinity II/III Variable Wavelength Detector	D.07.01	1.1
G7114B	1290 Infinity II/III Variable Wavelength Detector	D.06.70	1.1
G7115A	1260 Infinity II/III Diode Array Detector WR	D.07.01	1.1
G7117A	1290 Infinity II/III Diode Array Detector FS	D.06.70	1.1
G7117B	1290 Infinity II/III Diode Array Detector	D.06.70	1.1
G7117C	1260 Infinity II/III Diode Array Detector HS	D.07.01	1.1
G7121A	1260 Infinity II/III Fluorescence Detector	D.07.01	1.1
G7121B	1260 Infinity II/III Fluorescence Detector Spectra	D.07.01	1.1
G7123B	1290 Infinity III Fluorescence Detector	D.07.45 (New)	3.2
G7162A	1260 Infinity II/III Refractive Index Detector	D.06.76	1.1
G7162B	1290 Infinity II/III Refractive Index Detector	D.06.76	1.1
G7165A	1260 Infinity II/III Multi Wavelength Detector	D.07.01	1.1
Cluster			
HDR-DAD	2 × G4212A or 2 × G4212B or a combination of 1x G4212A and 1x G4212B	B.06.57	1.1

Table 8 Detectors

HDR-DAD	2 × G7117A or 2 × G7117B or a combination of 1xG7117A and 1xG7117B	B.06.70	1.1

Table 9 Column Compartments

Module No.	Module Name	Min. required FW	Min. Driver Version
G1316A	1260 Infinity Thermostated Column Compartment	A.06.10	1.1
G1316B	1200 Series Thermostated Column Compartment SL	A.06.10	1.1
G1316C	1200 Series Thermostated Column Compartment	A.06.14	1.1
G7116A	1260 Infinity II/III Multicolumn Thermostat	C.07.32 (B.07.35 / D.07.35)	1.1
G7116B	1290 Infinity II/III Multicolumn Thermostat	C.07.32 (B.07.35 / D.07.35)	1.1
G7130A	Integrated Column Compartment ICC	D.06.75	1.1
Cluster			
N/A	Cluster with up to three G1316C with integrated 8-pos/9-port valves (product G4230A/B) or a minimum of two G13161C TCCs; the third TCC can be a G1316A, B or C.	See module	1.1
	The Valve Thermostat Cluster is a combination of G7116B, G1170A and G1316C as valve or column hosts and G1316A/B and G7130A as column hosts.		

Table 10 Valve Drives and Valves

Product Number	Product Description	Min. required FW	Min. Driver Version
G1157A	Agilent 1200 2-Position/10-Port Valve	A.06.02	1.1
G1158A	Agilent 1200 2-Position/6-Port Valve	A.06.02	1.1
G1158B	Agilent 1200 2-Position/6-Port Valve 600 Bar	A.06.02	1.1
G1159A	Agilent 1200 6-Position Switching Valve	A.06.02	1.1
G1160A	Agilent 1200 12-Position/13-Port Valve	A.06.02	1.1
G1162A	Agilent 1200 2-Position/6-Port Micro Valve	A.06.02	1.1
G1163A	Agilent 1200 2-Position/10-Port Micro Valve	A.06.02	1.1
G1170A	Agilent 1290 Infinity II/III Valve Drive	C.07.40 (B.07.40/D.07.40)	1.1
G9322A	Agilent 1260 Infinity II Clustering Valve	N/A	Not supported
5067-4134	4pos/10 port Bio 600bar	N/A	N/A
5067-4142	6 Col Selector 1200bar	N/A	N/A
5067-4143	6 Col Selector 600bar, BIO	N/A	N/A
5067-4144	2PS/10PT 600bar, Micro	N/A	N/A
5067-4145	2PS/10PT 600bar	N/A	N/A
5067-4146	6 Col Selector 600bar	N/A	N/A
5067-4147	12PS/13PT 200bar	N/A	N/A
5067-4148	2PS/6PT 600bar, BIO	N/A	N/A
5067-4157	2pos/10-port micro valve 1200 bar	N/A	N/A
5067-4159	12ps-13pt selection valve head (bio-inert)	N/A	N/A
5067-4170	2ps-8pt Valve for 2D-LC 1200bar	N/A	N/A
5067-4171	2ps-8pt Valve for 2D-LC 600bar	N/A	N/A

Supported Agilent Modules and Firmware

Product Number	Product Description	Min. required FW	Min. Driver Version
5067-4193	2ps-10pt, prep LC up to 200 ml/min, 600 bar	N/A	N/A
5067-4194	8ps-9pt, prep LC up to 200 ml/min, 600 bar	N/A	N/A
5067-4214	2ps/4pt-4pt, 1200 bar	N/A	N/A
5067-4233	8 Column selector valve	N/A	N/A
5067-4239	8/9 valve head	N/A	N/A
5067-4240	2/10 valve head	N/A	N/A
5067-4241	2/6 valve head	N/A	N/A
5067-4243	6 Column selector valve	N/A	N/A
5067-4244	8/2 valve head	N/A	N/A
5067-4266	combi-valve G4243A (5pos/10ports)	N/A	N/A
5067-4267	Prep 6 column selector 600 bar	N/A	N/A
5067-4273	6 Column selector valve NPL 1300 bar	N/A	N/A
5067-4279	4-column selector 800 bar	N/A	N/A
5067-4282	2pos/6port Valve Head 800 bar	N/A	N/A
5067-4283	2pos/10port Valve head 800 bar	N/A	N/A
5067-4284	6 column selector 800 bar	N/A	N/A
5067-4287	4 column selector SST 600 bar	N/A	N/A
5067-6680	3-Position/6-Port Valve 800bar	N/A	N/A
5067-6682	2pos/10port 1300 bar Bio	N/A	N/A
5067-6711	2ps/14port Valve	N/A	N/A
5067-6722	6-pos/14-port preparative valve 600 bar	N/A	N/A
5320-0002	2ps-14pt Valve Head-S, 600bar, Prep	N/A	N/A
5320-0003	3-Position/6-Port bio valve 1300bar	N/A	N/A
5320-0017	5-Position/10-Port Bio ASM Valve	N/A	N/A
5320-0025	6-Position/14-Port bio valve 1300bar	N/A	N/A

Table 11 Other Modules

Module No.	Module Name or Min. Module Firmware	Min. host module FW	Min. Driver Version
G1390A	1100 Series Universal Interface Box (UIB)	A.06.02	1.1
G1390B	1200 Infinity Series Universal Interface Box II (Host required with B.06.53/D.06.53 firmware)	C.06.50	1.1
G4227A	1290 Infinity Flexible Cube (Host required with B.06.52/D.06.52 firmware)	C.06.50	1.1
G1364A	1100 Series Automatic Fraction Collector	N/A	Not supported
G1364B	1260 Infinity Fraction Collector (preparative scale)	N/A	Not supported
G1364C	1260 Infinity Fraction Collector (analytical scale)	N/A	Not supported
G1364D	1100 Series Micro Fraction Collector	N/A	Not supported
G5664A	1260 Infinity Bio-inert fraction collector AS	N/A	Not supported
G4240A	1260 Infinity Chip Cube MS Interface	N/A	Not supported
G4301A	1260 Infinity II/III SFC Control Module	A.03.09	1.1
G7170B	1290 Infinity II MS Flow Modulator (Host required with B.06.20/D.06.20 firmware)	C.06.20	Not supported

Table 11 Other Modules

G7175A	InfinityLab Level Sensing	D.07.42	3.2
G7180A	InfinityLab Assist Hub - Assist Control Software	E.02.01SR1 (new)	3.2
Cluster			
N/A	Any combination of G1364A/B/C or G566A plus a fourth G1364A/B/C or G5664A for recovery can be clustered. Multiple single Fraction Collectors are not supported	See module	Not supported

Table 12 Combined LC Systems

Module No.	Module Name or Min. Module Firmware	Min. Firmware	Min. Version of Agilent Drivers
G4286A	1120 LC Isocratic	B.06.21	1.1
G4286B	1220 LC System Isocratic, Man. Inj., VWD, 600 bar	N/A	Not supported
G4287A	1120 LC Isocratic with Oven and ALS	B.06.50	1.1
G4287B	1220 LC Isocratic, ALS, TCC, VWD, 600 bar	B.06.50	1.1
G4288A	1120 LC Gradient	B.06.21	1.1
G4288B	1220 LC Gradient, Man. Inj., VWD, 600 bar	N/A	Not supported
G4288C	1220 LC System VL Gradient, Man. Inj. VWD, 400 bar	N/A	Not supported
G4289A	1120 LC Gradient with Oven	B.06.50	1.1
G4289B	1220 LC Gradient, ALS, TCC, VWD, 600 bar	B.06.50	1.1
G4289C	1220 LC System VL Gradient, Man. Inj. VWD, 400 bar	N/A	Not supported
G4290A	1120 LC Gradient with oven and ALS	B.06.50	1.1
G4290B	1220 LC Gradient, ALS, Man. Inj., TCC, VWD, 600 bar	B.06.50	1.1
G4290C	1220 LC System VL Gradient, ALS, TCC, VWD, 400 bar	B.06.50	1.1
G4291B	1220 LC Isocratic, Man. Inj., TCC, VWD, 600 bar	N/A	Not supported
G4292B	1220 LC Isocratic, ALS, VWD, 600 bar	B.06.32	1.1
G4293B	1220 LC Gradient, ALS, VWD, 600 bar	B.06.32	1.1
G4293C	1220 LC System VL Gradient, ALS, VWD, 400 bar	B.06.50	1.1
G4294B	1220 LC Gradient, ALS, TCC, DAD, 600 bar	B.06.32	1.1

Table 13 Capillary Electrophoresis

Module No.	Module Name or Min. Module Firmware	Min. Firmware	Min. Version of Agilent Drivers
G7150A	G7100 Capillary Electrophoresis II	B.06.25	3.0
G7151A	Diode Array Detector for CE	B.06.25	3.0

Table 14 Driver Features and Special Solutions

Feature	Feature Name	Min. Firmware	Min. Version of Agilent Drivers
Additional Driver Features	External Contacts Board G1351A	N/A	1.1
Additional Driver Features	Blend Assist	N/A	Not supported
Additional Driver Features	ISET G2197AA I	N/A	1.1
Additional Driver Features	ISET G2197AA II	N/A	1.1
Additional Driver Features	ISET G2197AA III	N/A	1.1
Additional Driver Features	ISET G2197AA IV	N/A	1.1

Table 14 Driver Features and Special Solutions

Special Solutions	Buffer Advisor (G5617AA)	N/A	1.1 (Import buffer files)
Special Solutions	2DLC (G2198AA)	N/A	Not supported
Special Solutions	Method Scouting Wizard (G2196AA)	N/A	Not supported
Special Solutions	Automated Purification Software (M8368/M8369AA)	N/A	Not supported

GC Modules

NOTE Agilent releases GC firmware updates independently of the software releases.

All Agilent GC instrument driver revisions have been designed to be backward compatible with the installed instrument base.

Agilent recommends always using the latest module firmware revisions to provide the highest level of system capability.

NOTE All Agilent Headspace driver revisions have been designed to be backward compatible with the installed instrument base.

Agilent recommends always using the latest driver revision to provide the highest system capability.

Table 15 Supported Gas Chromatographs, Inlets, and Detectors

	Module Type	Inlets	Detectors
Intuvo 9000	G3950A	SSL, MMI	FID, NPD, FPD+, TCD,
		PSD	ECD, AIB, NCD, SCD
	G3952A	S/SL, MMI	FID, NPD, FPD+, TCD,
			ECD, AIB, NCD, SCD
	G3953A	S/SL, MMI	FID, NPD, FPD+, TCD,
			ECD, AIB, NCD, SCD
8890	G3540A	SSL, PP, COC, PTV, MMI	FID, NPD, FPD+, DFPD+,
		VI, PCM, HCM	TCD, ECD, AIB, NCD, SCD
	G3542A	SSL, PP, COC, PTV, MMI	FID, NPD, FPD+, DFPD+,
		VI, PCM, HCM	TCD, ECD, AIB, NCD, SCD
	G3543A	SSL, PP, COC, PTV, MMI	FID, NPD, FPD+, DFPD+,
		VI, PCM, HCM	TCD, ECD, AIB, NCD, SCD
	G3544A	SSL, PP, COC, PTV, MMI	FID, NPD, FPD+, DFPD+,
		VI, PCM, HCM	TCD, ECD, AIB, NCD, SCD
	G3545A	SSL, PP, COC, PTV, MMI	FID, NPD, FPD+, DFPD+,
		VI, PCM, HCM	TCD, ECD, AIB, NCD, SCD
8860	G2790A	SSL, PP, PCI, COC	FID, NPD, FPD+, TCD,
			ECD, NCD, SCD
8850	G3940A	S/SL, PP, COC, MMI	FID, TCD, AIB
		PCM. PSD. HCM	
	G3941A	S/SL, PP, COC, MMI	FID, TCD, AIB

		PCM, PSD, HCM	
	G3942A	S/SL, PP, COC, MMI	FID, TCD, AIB
		PCM, PSD, HSM	
	G3943A	S/SL, PP, COC, MMI	FID, TCD, AIB
		PCM, PSD, HCM	
7890B & 7890A+	G3440A/B	SSL, P/P, COC, PTV, VI	FID, NPD, FPD, FPD+, DFPD,
		PCM, COC	DFPD+, TCD, µECD, AIB, NCD, SCD
	G3442A/B	SSL, P/P, COC, PTV, VI	FID, NPD, FPD, FPD+, DFPD,
		PCM, COC	DFPD+, TCD, µECD, AIB, NCD, SCD
	G3443A/B	SSL, P/P, COC, PTV, VI	FID, NPD, FPD, FPD+, DFPD,
		PCM, COC	DFPD+, TCD, µECD, AIB, NCD, SCD
7890A	G3440A	SSL, PP, COC, VI, PTV, MMI	FID, NPD, FPD, DFPD, TCD,
		PCM, COC	µECD, AIB, NCD, SCD
	G3442A	SSL, PP, COC, VI, PTV, MMI	FID, NPD, FPD, DFPD, TCD,
		PCM, COC	µECD, AIB, NCD, SCD
	G3443A	SSL, PP, COC, VI, PTV, MMI	FID, NPD, FPD, DFPD, TCD,
		PCM, COC	µECD, AIB, NCD, SCD
7820	G4350A	SSL, P/P, COC, PCI	FID, NPD, FPD, FPD+, TCD,
		PCM	µECD
	G4350B	SSL, P/P, COC, PCI	FID, NPD, FPD, FPD+, TCD,
		PCM	µECD
	G4350C	SSL, P/P, COC, PCI	FID, NPD, FPD, FPD+, TCD,
		PCM	µECD
6890A	G1530A	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD ECD,
		PCM	µECD, Dual W FPD, AIB
	G1540A	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD ECD,
		PCM	µECD, Dual W FPD, AIB
6890Plus	G1530A	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD ECD,
		PCM	µECD, Dual W FPD, AIB
	G1540A	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD ECD,
		PCM	µECD, Dual W FPD, AIB
6890N	G1530N	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD, ECD,
		PCM	µECD, Dual W FPD, AIB
	G1540N	SSL, P/P, COC, PTV, VI	TCD, FID, NPD, FPD ECD,
		PCM	µECD, Dual W FPD, AIB
6850	G2630A/B	SSL, P/P, COC, PTV	TCD, FID, NPD, FPD ECD, µECD, AIB
		PCM	

Table 16 Gas Chromatographs and Hardware Required Firmware and Agilent Drivers

Module No.	Module Name	Min. Firmware	Min. Version of Agilent Drivers
G1530N	6890N	N.06.07	2.1
G1540N	6890N	N.06.07	2.1
G1530A	6890A	A.03.8	2.1

Table 16 Gas Chromatographs and Hardware Required Firmware and Agilent Drivers

G1540A	6890Plus	A.03.8	2.1
G2630A	6850A (Serial Number >= US10243001)	A.06.02	2.1
G2630A	6850A (Serial Number <= US00003200)	A.03.07	2.1
G3940A	8850 GC	2.9	3.1
G3941A	8850 GC	2.9	3.1
G3942A	8850GC	3.3	3.2
G3943A	8850 GC	3.3	3.2
G2790A	8860 GC	1.0	2.1
G3540	8890 GC	1.0	2.1
G3950A	Intuvo 9000 GC	A.01.04	2.0
G3952A	Intuvo 9000 GC	A.01.04	2.0
G3953A	Intuvo 9000 GC	A.01.04	2.0
G3440B	7890B GC	B.02.03.2	2.0
G3445B	7890B GC	B.02.03.2	2.0
G3440A	7890A GC	A.01.16	2.0
G3445A	7890A GC	A.01.16	2.0
G4350A	7820A GC	A.01.15.012	2.0
G4567A	7650 GC ALS Injector	A.10.02	2.0
G4513A	7693 GC ALS Injector	A.10.08	2.0
G4514A	7693 GC ALS Tray	A.10.16	2.0
G4515A	7693 GC ALS BCR/Mixer	A.10.04	2.0
G4516A	7693 GC ALS External Controller	A.01.06	2.0
G4517A	7693 GC ALS Injector 6890Plus ALS card upgrade	A.01.06	2.0
G4521A	7693 GC ALS LVI Syringe Carriage	N/A	2.0
G4522A	7693 GC ALS Cooling Accessory	N/A	2.0
G4520A	7693 GC ALS Tray with BCR Mixer	A.10.16	2.0
G2913A	7683B GC ALS Injector	A.11.03	2.0
G2614A	7683B GC ALS Tray	A.02.01	2.0
G2615A	7683B GC ALS BCR/Mixer	N/A	2.0
G2613A	7683A GC ALS Injector	A.10.07	2.0
G2614A	7683A GC ALS Tray	A.02.01	2.0
G2615A	7683A GC ALS BCR/Mixer	N/A	2.0
G2880A	G2880A GC ALS for 6850	A.10.05	2.0

Table 17 Supported Headspace Hardware

	Module Type	Description	FW Revision	Min. Version of Agilent Drivers
7697A	G4557A	7697A Headspace Sampler, 111 vials	A.01.08.2	2.1
	G4556A	7697A Headspace Sampler, 12 vials	A.01.08.2	2.1
	G4561A	Barcode Reader for 111 vials	A.01.02	3.0
	G4565A	Cooling Plate/Tray Assembly	A.01.09	2.1
8697	G4511A	8697 Headspace Sampler	1.3.0.59 (New)	2.4
8697 XL	G4512A	8697 XL Headspace Sampler, 120 vials	1.4	3.1

Table 18 Supported PAL3 Series II sampler - Not supported on 6850 GCs

Module No.	Module Name	Min. Firmware	Min. Version of Agilent Drivers
G7367B	PAL3 Series II RSI 85 cm	4.13	3.1 Update 2
G7368B	PAL3 Series II RSI 120 cm	4.13	3.1 Update 2
G7370B	PAL3 Series II RTC 120 cm	4.13	3.1 Update 2
G7395B	PAL3 Series II RSI 160 cm	4.13	3.1 Update 2
G7396B	PAL3 Series II RTC 160 cm	4.13	3.1 Update 2

Table 19 GC Accessory valves

Module No.	Module Name	Min. Firmware	Min. Version of Agilent Drivers
G3539A	High Pressure Liquid Injection Valve	N/A	3.0
G3535A	GC Gasifier	1.09	3.0
G3541A	GC Sample Selector	1.06	3.1

Changelog

Driver Version	ICF Version	LC driver version	GC/HS Driver Version	PAL3 Driver Version	Release Date	What's new?
3.2	3.5	3.11	GC 4.4 SR1 / HS 4.4	3.0	2026	Support for new LC driver features, InfinityLab Assist, remote injector enhancement; defect fixes.
3.1 Update 2	3.3 Update 1	3.7 SR1	GC 4.1 / HS 4.1 SR1	3.0	2026	Support for PAL3 Series II; Chromeleon 7.4 support; no defect fixes
3.1 Update 1	3.3 Update 1	3.7 SR1	GC 4.1 / HS 4.1	-	2025	Fix for KPR#1106249; no other changes
3.1	3.3 Update 1	3.7 SR1	GC 4.1 / HS 4.1	-	2024	8850 GC, 8697 XL HS, G7167C Hybrid Multisampler, SerialNo property, GC Method Resolution Wizard
3.0	3.2 Update 1	3.5 SR1	GC 3.7 / HS 3.3	-	2023	Switch to CLR4; Barcode reader support; negative runtimes; ELSD 38xx deprecated
2.5	2.6 Update 5	A.02.19 SR2	GC 3.6 / HS 3.2	-	2022	GC Feature Selection; updated SVT; ELSD driver; Microabsorbance Units; manual injection improvements
2.4	2.6 Update 5	A.02.19 SR2	GC 3.5 SR1 / HS 3.1 SR1	-	2022	8697 HS support; dynamic licensing
2.3	2.6 Update 2	A.02.19 SR2	3.4 SR1	-	2021	Dual simultaneous injection
2.2 Update 1	2.6 Update 1	A.02.19 SR2	3.0 SR4		2020	Defect fixes
2.2	2.6 U1	A.02.19.SR2	3.0 SR3	-	2020	Multiple GC injectors; manual injection; manual method resolution; multi-GC use
2.1	2.6 U1	A.02.19 SR2	GC 3.0 SR2	-	2019	New GC instruments; new GC-HS driver; defect fixes
2.0	-	-	-	-	-	Not publicly available
1.2	A.02.05	A.02.18	-	-	2018	New LC modules; shutdown method; direct actions; timetable improvements
1.1 Update 1	A.02.04	A.02.14			2018	
1.1	A.02.04	A.02.14	-	-	2017	First major LC feature set; ePanels; script handling; audit trails; sequence handling

Appendix A

The tables below list registry entries created by the Agilent Drivers for Chromeleon package. The listed registry keys are not checked by the SVT. Therefore, these entries are in this appendix for completeness.

Table 20 Registry entries not listed by SVT report on a 32-bit system

Registry key	Location under HKEY_LOCAL_MACHINE\SOFTWARE
Ag7697WS	Ibid.
GCPackage	Agilent Technologies\Instrument Control Framework
Installationdirectory	Agilent Technologies\Instrument Control Framework\ GCPackage
Versionmajor	Agilent Technologies\Instrument Control Framework\ GCPackage
Versionminor	Agilent Technologies\Instrument Control Framework\ GCPackage

Table 21 Registry entries not listed by SVT report on a 64-bit system

Registry key	Location under HKEY_LOCAL_MACHINE\SOFTWARE\ WOW6432Node\Agilent
Ag7697WS	Ibid.
GCPackage	Agilent Technologies\InstrumentControlFramework\GCpackage
Installationdirectory	Agilent Technologies\InstrumentControlFramework\GCpackage
Versionmajor	Agilent Technologies\InstrumentControlFramework\GCpackage
Versionminor	Agilent Technologies\InstrumentControlFramework\GCpackage

Table 22 Registry keys not reported in SVT report

Key not reported in SVT report	Registry folder below HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES
EVENTMESSAGEFILE	EVENTLOG\APPLICATION\AGGC68XXDRV
EVENTMESSAGEFILE	EVENTLOG\APPLICATION\AGGC7890DRV
EVENTMESSAGEFILE	EVENTLOG\APPLICATION\AGGCDATASYSTEMADAPTER

Table 23 SVT reference files not reported by SVT report placed in driver installation folder

File not reported in SVT report	Installed under C:\Program Files (x86)\Agilent Technologies
IQTRefRapidControlIF.xml	IQTool\IQProducts\Agilent Rapid Control .NET
IQTRefICFMerge.xml	IQTool\IQProducts\Agilent Drivers for Thermo Chromeleon
GC_Drivers_RefFile.xml	Agilent Drivers for Thermo Chromeleon\Instrument Control Framework\IQTWizard\RefFiles
IQTRefELSDDrivers.xml	Agilent Drivers for Thermo Chromeleon\Instrument Control Framework\IQTWizard\RefFiles
IQTRefICFMerge.xml	Agilent Drivers for Thermo Chromeleon\Instrument Control Framework\IQTWizard\RefFiles
IQTRefLCDrivers.xml	Agilent Drivers for Thermo Chromeleon\Instrument Control Framework\IQTWizard\RefFiles
IQTRefRapidControlIF.xml	Agilent Rapid Control .NET
IQTRefRapidControlSampleContainerManager.xml	Agilent Rapid Control .NET

Appendix A

Table 24 SVT reference files not reported by SVT report placed in Chromeleon installation path

File not reported in SVT report	Installed under directory C:\PROGRAM FILES (X86)\THERMO\CHROMELEON\BIN
Agilent_Drivers_for_Thermo_Chromeleon.xml	DDK\V1\Drivers\AgilentTechnologies\RefFiles
IQTRefAgilentDriversforThermoChromeleon.xml	DDK\V1\Drivers\AgilentTechnologies\RefFiles

In This Book

The release note describes the following:

- Introduction
- What's new?
- Compatibility
- Installation
- Support Information and User Documentation
- Known Issues
- Known Limitations
- Resolved Issues
- Supported Agilent Modules and Firmware

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