



Agilent OpenLab CDS

Workstations, Clients, and Instrument Controller

Requirements and Supported Instruments

Notices

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This guide is valid for revision 3.0 of OpenLab CDS.

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In this Book

This document details the minimum hardware and software requirements that need to be met to run OpenLab CDS. It is valid for Workstation, Workstation Plus, client, or analytical Instrument Controller (AIC) components. It also provides information on supported Agilent- and Non-Agilent instruments.

For server components, see *OpenLab Server and OpenLab ECM XT Hardware and Software Requirements* ([openlab-server-ecmxt-v2.8-requirements-en.pdf, D0035352](#)) or *OpenLab ECM Software and Hardware Requirements* ([OpenLab_ECM_SW_HW_Requirements.pdf](#)), respectively.

Table 1: Terms and abbreviations used in this document

Term	Description
FP	Feature Pack. Contains updates to an existing software version, providing new functionality: • that will not impact existing functionality, - or • includes minor changes to a selection option while maintaining backwards compatibility to existing methods and data.
Secure Storage	Component of OpenLab Server including a database, used to manage your analytical data
AIC	Agilent's Analytical Instrument Controller
Control Panel	Control Panel for Agilent OpenLab software
Microsoft Control Panel	Part of the Microsoft Windows operating system
Shared Services	Set of administrative services that control, for example, the security policy and the central configuration of OpenLab CDS. Shared services are accessed via the Control Panel.

1

Hardware Requirements

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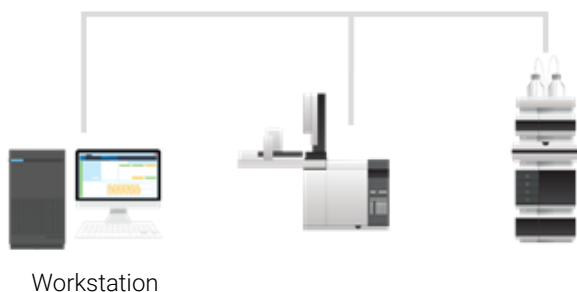
OpenLab CDS Topologies

OpenLab CDS is available in different topologies. They differ in the location and availability of OpenLab software components (shared services, secure storage, clients). For details on the topologies refer to the respective installation guide or check with your Agilent representative.

OpenLab CDS Workstation and Workstation Plus

OpenLab CDS Workstation installations include all required components on the same PC.

Agilent provides two different storage options for this topology: *CDS Workstation* Workstation with (local) file storage, and *Workstation Plus* with included content management (provided by the local Secure Storage component).



Networked Workstation

A OpenLab CDS networked workstation is defined as a PC machine that supports both user interaction (i.e. sample submission and data review and processing) as well as automated functions (i.e. data acquisition and automated processing and printing). It typically provides access to a remote secure storage.

For OpenLab CDS, a networked workstation is an AIC, used interactively for sample submission and data processing. The client components are installed as part of the AIC installation.

OpenLab CDS Client/Server

With an OpenLab CDS client/server installation, you need multiple hardware components. On client PCs or the Analytical Instrument Controllers (AICs) the *OpenLab CDS* software provides the chromatography data system components for instrument control, data analysis and reporting.

On one or several server(s), the *OpenLab Server*, *OpenLab ECM XT*, or *OpenLab ECM* software provide the Shared Services and content management components.

Based on your expected system load (depends on the number and type of instruments and users) OpenLab CDS client/server systems can be deployed with different topologies. Consult with your Agilent support representative to decide which topology is appropriate for your environment.

OpenLab CDS Cloud Deployments with OpenLab ECM XT

OpenLab CDS client/server installations with an OpenLab ECM XT back-end can run in an Amazon Web Services (AWS) or Microsoft Azure cloud environment. In this configuration OpenLab ECM XT is configured as the secured repository for OpenLab CDS.

More information on supported cloud configurations with OpenLab ECM XT is provided in *OpenLab Server and OpenLab ECM XT Hardware and Software Requirements (openlab-server-ecmxt-v2.8-requirements-en.pdf, D0035352)* , available online at <https://www.agilent.com/cs/library/usermanuals/public/openlab-server-ecmxt-v2.8-requirements-en.pdf> .

PC Recommendations

NOTE

The following tables are intended to be guidelines for hardware configuration. The minimum requirements depend on your intended load. Factors to consider include number of logical instruments, concurrent users, and other connection points. For more details on how to estimate your requirements, see [Disk Space](#) on page 23, [Table 15 Typical expected file sizes, with run time 60 min](#) on page 23 and [Configuration Capacity](#) on page 18. Consult with your Agilent support representative to decide which hardware and topology is appropriate for your needs.

For more information on pre-configured Agilent original bundle PCs see <https://www.agilent.com/en/products/software-informatics/chromatography-data-systems/openlab-cds/originalpcbundle>.

OpenLab CDS standalone Workstations

OpenLab CDS software is available in two workstation flavors: OpenLab CDS Workstation with storage in the local file system, or OpenLab CDS Workstation Plus that provides a built-in content management database.

Based on the number of your instruments, Agilent recommends two PC configurations for the CDS Workstation: A small (default) with 8 GB of memory to control up to 2 instruments, and one with upgraded memory (16 GB) for use to control up to 4 instruments. Refer to [Configuration Capacity](#) on page 18 and [Table 15 Typical expected file sizes, with run time 60 min](#) on page 23 to estimate your requirements.

[Table 2 Recommended hardware configurations for standalone OpenLab CDS workstations](#) on page 11 provides the hardware configuration for Workstations with any instrument configuration other than LC/(Q-)TOF as tested by Agilent, for Win 11 (64 Bit).

Hardware Requirements

PC Recommendations

Table 2: Recommended hardware configurations for standalone OpenLab CDS workstations

Item	CDS Workstation	CDS Workstation Plus
Tested Agilent original bundle PC (Win 11)	HP Z2G9 SFF Workstation with 8 GB RAM, option to add 8 GB for >= 3 capacity points used on the system. Intel® Core i5-12500; 3.0 GHz, 18 MB cache, 6 Core	HP Z2G9 SFF Workstation with additional 16 GB RAM Intel® Core i5-12500, 3.0 GHz, 18 MB cache, 6 Core
	Installation of additional software, including security and PC management applications, may impact performance and Agilent recommends adding additional RAM for best performance.	
Processor (CPU) - minimum	Intel® i5, i7, Xeon E3, or equivalent, 3.0 GHz or greater, 4 Core	Intel® i5, i7, or Xeon E3, or equivalent, 3.0 GHz or greater, 4 Core
Physical memory (RAM)	1-2 instrument points: 8 GB 3 or more instrument points: 16 GB 4 GB is reserved for the Windows operating system.	16 GB
Hard disk	1 x 500 GB 7200 RPM SATA drive (minimum) or equivalent Solid State Drive (recommended)	1TB or 2 x 500 GB 7200 RPM SATA (minimum), or equivalent Solid State Drive (recommended)
Graphic Resolution	1600 x 900 minimum; 1920 x 1080 recommended	
RS-232 port	1 serial port required for selected instruments that are still using RS-232 communication. See instrument specifications for details.	
USB port	USB 3.0 might be required for installation, if USB media were ordered ¹	
LAN card	100 MB/1 GB LAN for instrument control 2nd LAN card required for lab intranet connection, to isolate the instrument's data traffic from the lab intranet connection.	

¹ Software can be downloaded from your Agilent Online Account. USB media are available as an option.

HW requirements for a workstation with any LC/(Q-)TOF instrument configuration are higher than outlined in the table above. Please refer to [Table 3 Recommended hardware requirements for workstations with any LC/\(Q-\)TOF configuration](#) on page 12.

NOTE

LC/(Q)TOF configurations are not supported with CDS Workstation Plus.

Table 3: Recommended hardware requirements for workstations with any LC/(Q-)TOF configuration

Item	HW recommended for Workstation with one LC/(Q-)TOF instrument ¹	Workstation Plus
Tested Agilent original bundle PC	Win 11 (64 Bit): HP Z4 G5	Standalone Workstation with Content Management is not supported with LC/(Q-)TOF or MassHunter DA
Processor (CPU) - minimum	Intel® Xeon W3-2423 (4.2 GHz, 15 MB cache, 6 cores) or equivalent 4.2 GHz or greater, 6 Core or more	
Physical memory (RAM)	32 GB minimum, 64 GB recommended (for one LC /(Q)TOF instrument)	
Hard disk	1 TB M.2 NVMe SSD Boot Volume and 12 TB 7200 RPM SATA 6G Hard Drive	
LAN cards	10 GbE LAN for instrument control of G6575A. 1 GbE LAN for G6549A or G6230C. 2nd LAN card required for lab intranet connection, to isolate the instrument's data traffic from the lab intranet connection.	
RS-232 port	1 serial port required for selected instruments that are still using RS-232 communication. See instrument specifications for details.	
USB port	USB 3.0 might be required for installation, if USB media were ordered ²	
Graphic Resolution	1600 x 900 minimum; 1920 x 1080 recommended	

¹ All configurations assume MassHunter Data Analysis (Qual & Quant) and BioConfirm are installed.

² Software can be downloaded from your Agilent Online Account. USB media are available as an option.

OpenLab CDS Clients

Table 4: Recommended hardware configuration for OpenLab CDS clients

Item	HW recommended for Client PCs
Processor	Intel® i5, i7, or Xeon E3 or equivalent 3.0 GHz or greater, 4 Core
Physical memory (RAM)	8 GB (Minimum) For better performance with larger data sets, Agilent suggests to use more memory to improve performance. Ensure that at least 4 GB is reserved for the operating system.
Hard disk	500 GB 7200 RPM SATA drive (minimum) or equivalent solid state drive (recommended)
USB port	USB 3.0 might be required for installation, if USB media were ordered ¹
LAN Card	1 GB LAN
Graphic resolution	1600 x 900 minimum 1920 x 1080 recommended

¹ Software can be downloaded from your Agilent Online Account. USB media are available as an option.

Table 5: Recommended hardware configuration for OpenLab CDS clients used to perform data analysis on (Q-)TOF data

Item	HW recommended for Clients used to perform data analysis on (Q-)TOF data ¹
Tested Agilent original bundle PC	Win 11 (64 Bit): HP Z4 G5
Processor	Intel® Xeon W3-2423 (4.2 GHz, 15 MB cache, 6 cores) or equivalent 4.2 GHz or greater 6 cores or more
Physical memory (RAM)	32 GB minimum, 64 GB recommended (for one LC /(Q)TOF instrument)
Hard disk (minimum)	1 TB M.2 NVMe SSD Boot Volume
USB port	USB 3.0 might be required for installation, if USB media were ordered ²

Item	HW recommended for Clients used to perform data analysis on (Q-)TOF data ¹
LAN Card	1 GB LAN
Graphic resolution	1600 x 900 minimum 1920 x 1080 recommended

¹ All configurations assume MassHunter Data Analysis (Qual & Quant) and BioConfirm are installed.

² Software can be downloaded from your Agilent Online Account. USB media are available as an option.

OpenLab Analytical Instrument Controller (AIC)

Table 6 Required hardware configuration for an instrument controller (AIC) on page 14 is applicable for AICs with up to 6 instruments (no LC/(Q-)TOF). For AICs configured with fewer instruments, the amount of memory required by the system may be decreased.

Table 6: Required hardware configuration for an instrument controller (AIC)

Item	HW recommended for AICs
Tested Agilent original bundle PC	HP Z2G9 SFF WorkStation: Intel® Core i5-12500, 3.0 GHz, 18MB cache, 6 Core
Processor (minimum)	Intel® i5, i7, or Xeon E3, or equivalent, 3.0 GHz or greater, 4 Core
Physical memory (RAM)	16 GB 4 GB is reserved for the Windows operating system.
Hard disk	2x500 GB, or 1 TB 7200 RPM SATA (minimum), or equivalent SSD drive (recommended). If the computer has a disc array controller Agilent recommends 2 x 1 TB in RAID1.
RS-232 port	1 serial port required for selected instruments that are still using RS-223 communication. See instrument specifications for details.
USB port	USB 3.0 might be required for installation, if USB media were ordered ¹

Hardware Requirements

PC Recommendations

Item	HW recommended for AICs
LAN card	100 MB/1 GB LAN for instrument control 2nd LAN card required for house, to isolate the instrument's data traffic from the lab intranet connection.
Graphic resolution (Monitor required for failover mode only)	1600 x 900 minimum 1920 x 1080 recommended

¹ Software can be downloaded from your Agilent Online Account. USB media are available as an option.

Table 7: HW recommendations for an instrument controller (AIC) with one LC/(Q-)TOF instrument

Item	HW recommended for AICs with one LC/(Q-)TOF instrument ¹
Tested Agilent original bundle PC	Win 11 (64 Bit): HP Z4 G5
Processor (minimum)	Intel® Xeon W3-2423 (4.2 GHz, 15 MB cache, 6 cores) or equivalent 4.2 GHz or greater 6 cores or more
Physical memory (RAM)	32 GB minimum, 64 GB recommended (for one LC/(Q)TOF instrument)
Hard disk	1 TB M.2 NVMe SSD Boot Volume and (Optional) 12 TB 7200 RPM SATA 6G HDD (for extended Failover operation)
RS-232 port	1 serial port required for selected instruments that are still using RS-223 communication. See instrument specifications for details.
USB port	USB 3.0 might be required for installation, if USB media were ordered ²
LAN card	10 GbE LAN for instrument control of G6575A. 1 GbE LAN for G6549A or G6230C. 2nd LAN card required for house, to isolate the instrument's data traffic from the lab intranet connection.
Graphic resolution (Monitor required for failover mode only)	1600 x 900 minimum 1920 x 1080 recommended

¹ All configurations assume MassHunter Data Analysis (Qual & Quant) and BioConfirm are installed.

² Software can be downloaded from your Agilent Online Account. USB media are available as an option.

Shared Services server

A separate Shared Services server is needed for configurations with OpenLab ECM as storage backend. The Shared Services server requirements are outlined in the OpenLab Server /ECM XT requirements guide (access from the **Planning** tab of the OpenLab installer or from the **OpenLab Help & Learning** page).

For more information on the configuration, see [Configuring OpenLab CDS with OpenLab ECM \(CDS_v3.0_configure-with-ECM_en.pdf, D0141678\)](#).

Printer requirements

OpenLab CDS does not support Adobe PDF, Microsoft Print to PDF, or Microsoft XPS Document Writer as a default printer.

NOTE

Setting a PDF printer as the default printer may cause the printing of a report to fail.

- Select **Let Windows manage my default printer** to print successfully.

Configuration Capacity

Instrument An analytical system, made up of one or more modules that are configured together to achieve the desired analytical functionality. Also known as a system, i.e. an LC/MSD system.

Points The relative level of load (load value) that an instrument or module puts on a physical or virtual system, aggregating CPU and RAM (memory) consumption. Different types of detectors require more processing power and memory than others, so they have been assigned higher “point” values.

Concurrent sessions The number of simultaneous connections to the system. This includes user connections and instrument connections. For OpenLab CDS, use points as the measure of instrumentation as this reflects both number of instruments and the amount of data generated by each instrument system. See below for examples of number of points per instrument type.

Instrument licenses Connection Licenses refer to the licenses required in the software in order to run a specific instrument configuration. Note: Points do not equal instrument connection licenses.

The instrument capacity (number of configurable instruments) per Workstation or AIC depends on the type of instrument configured. Work with your Agilent representative to ensure your system is configured sufficiently for your projected number of users, concurrent sessions, instruments, and load.

You can configure any number of instruments that sum up to 4 instrument points per OpenLab CDS Workstation (Standard configuration).

Table 8: Instrument capacity of OpenLab CDS workstations

OpenLab CDS standard configuration	Supported Instrument points
Workstation (with local file storage)	Up to 4 points
Workstation Plus (with local secure storage)	Up to 4 points

Hardware Requirements

Configuration Capacity

Table 9: Supported AIC configurations, Instrument capacity of OpenLab CDS AICs

AIC Type	No. of instruments	Comments
Physical PC	Up to 6 points per AIC. Every configuration that sums up to 6 points per AIC is supported.	Supported Client and AIC version must be the same
Virtualized – PC	Up to 6 points per AIC. Every configuration that sums up to 6 points per AIC is supported.	Supported Client and AIC version must be the same
Networked WorkStation (Client Co-installed on AIC) ¹	Up to 4 points per AIC. Every configuration that sums up to 4 points per AIC is supported.	Supported Client and AIC version must be the same

¹ Networked workstation is defined as a PC machine that supports both user interaction (i.e. sample submission and data review and processing) as well as automated functions (i.e. data acquisition and automated processing and printing). For OpenLab CDS a networked workstation is configured by using the Client software on the same PC where the AIC software is installed. Note: Not all add-ons are supported on all configurations. Check add-on software product documentation for details.

NOTE

AIC virtualization is supported but not recommended due to the added risks associated with not locating the AIC near to the instrumentation.

The Instrument-to-AIC connection is outside of the OpenLab communication redundancy protocols and, to reduce the chance of non-recoverable communication issues, it is recommended that this connection be a local LAN/VLAN. It is the responsibility of the customer to make the appropriate risk assessment when choosing where and how to deploy the AIC within their environment.

Load approximations

The following tables provide guidance how to approximate load-based requirements for different instruments. Note that the load value may also depend on actual instrument utilization and number of users.

Hardware Requirements

Configuration Capacity

Table 10: Points vs licenses – OpenLab CDS system with Agilent LC modules

Module Type	Instrument Points	Connection Licenses	Configured Instruments (Basic Server)
LC Instrument (= injector + pump + Agilent 2D detector ¹ such as VWD)	1	1	1
Additional LC 2D-detector (e.g. VWD, RI, (2D)FLD)	0	0	0
LC 3D-detector: e.g. DAD (including DAD cluster) or (3D)FLD	1	1	0
Additional LC 3D-detector ²	0	0	0
HDR (High Dynamic Range)	2	1	0
OpenLab CDS Client ³	2	0	0

¹ Includes any detector connected via an Analog-to-Digital converter

² Additional Agilent DAD (if same DAD model) or 3D-FLD, do not consume an additional license. Non-Agilent 2D or 3D detectors require a specific own connection license.

³ Use case: User may launch and run an OpenLab CDS client on the AIC (equivalent to a Networked Workstation). For such an AIC used as a client you can run a maximum of 4 instrument points

Table 11: Points vs licenses – OpenLab CDS system with Agilent LC/MS modules

Module Type	Instrument Points	Connection Licenses	Configured Instruments (Basic Server)
MSD (Single quadrupole mass spectrograph)	2	1	0
OpenLab CDS Client	2	0	0
OpenLab CDS Client with MHDA	n/a	0	n/a

For (Q-)TOF related systems, see LC/(Q-)TOF PC specifications for AIC/WS requirements.

Hardware Requirements

Configuration Capacity

Table 12: Points vs licenses – Openlab CDS with Agilent GC instruments

Module Type	Instrument Points (load value)	Connection Licenses	Configured Instruments (Basic Server)
GC Instrument (GC=Inlet +1 detector i.e. FID ¹)	1	1	1
Additional GC detectors: FID/TCD/ ECD	0	0	0
GC Sampler e.g. PAL, Headspace	0	0	0
MSD (Single quadrupole mass spectrometer)	2	1	0
OpenLab CDS Client	2	0	0

¹ Includes any detector connected via an Analog-to-Digital converter

Table 13: Points vs licenses – other OpenLab CDS system components

	Instrument Points	Connection Licenses
A2D instrument ¹	1	1 ²
Agilent Instrument with A2D ³	0	0
Non-Agilent Instrument with A2D ⁴	0	1 ²
Test Services (QualA)	1	0

¹ For a system that is configured using only an A2D module

² Non-Agilent Instrument connection

³ For a system that includes an A2D module as part of a supported Agilent instrument configuration, e.g. a 8890 with additional detector connected through A2D

⁴ Non-Agilent 2D or 3D detectors require a connection license on their own

NOTE

The instruments points can be different for non-Agilent instruments. Please check the respective driver documentation.

Hardware Requirements

Configuration Capacity

Table 14: Capacity approximations for some example configurations

System	Points	Instrument Connections
LC + DAD	2 points	2 Connections (1x LC + 1x LC 3D)
LC + HDR DAD	3 points	2 Connections (1 x LC + 1 x LC 3D)
LC + DAD + FLD	2 points	2 Connections (1 x LC + 1 x LC 3D)
LC + MSD	3 points	2 Connections (1x LC + 1x MS)
LC + MSD + DAD	4 points	3 Connections (1x LC + 1x MS + 1xLC 3D)
LC + (Q)TOF	n/a	2 Connections (1x LC + 1x MS) ¹
GC with HSS	1 point	1 Connection (1x GC; HSS is 0 connections)
GC + MS	3 points	2 Connections (1x GC +1x MS)
Non-Agilent LC (with driver) with A/D	1 point or more	1 non-Agilent Instrument Connection (1x LC; A/D requires no additional connections in this case.)
Non-Agilent LC (via A/D)	1 point	1 non-Agilent Instrument Connection (A/D)
Data Player (used by ACE and Test Services)	1 point	1 Connection

¹ Configuration with Basic Server not supported.

Disk Space

Disk space requirements should be adjusted based on the number and type of instruments and archival periodicity. Agilent recommends providing disk space for one year of lab operation in addition to the operating system and OpenLab CDS requirements.

Table 15 Typical expected file sizes, with run time 60 min on page 23 provides some estimates that are intended to help with your calculation of the required disk space. Note that the actual values are highly method dependent.

Table 15: Typical expected file sizes, with run time 60 min

	Acquisition Mode	Data Type	Expected data size
2D data	-	10 Hz, 2 channel data	300 - 700 KB
3D data	-	10 Hz, 5 channel data, + spectra at 1 nm resolution 200 - 400 nm	100 - 300 MB
LC/MS data (SQ)	Scan	Centroid	50 - 650 MB
	Scan	Profile	500 - 750 MB
LC/MS data (SQ) + DAD	Scan	Centroid or Profile + DAD spectra	150-1050 MB
LC/MS (Q-)TOF	Scan	Centroid	60 - 400 MB
	Scan	Profile	500-1050 MB
	SIM (2 ions)	Centroid	1-3 MB
LC/MS (Q-)TOF + DAD	Scan + DAD spectra	MS Centroid scan data + DAD spectra	80 - 650
GC/MS data (SQ)	Scan		50 - 300 MB
GC/MS data (SQ)	SIM (2 ions)		1 - 3 MB

NOTE

LC/MS data files—especially (Q-)TOF data acquired in Profile mode—can be large. File size is highly dependent on the acquisition method. Agilent recommends monitoring data accumulation rates and adjusting storage capacity based on actual usage patterns.

2

Software Requirements

General Software Requirements

Component	Details
.NET Framework (64-bit) ^{1 2}	.NET 3.5.x ³ .NET 4.8 or higher
.NET (64 bit) Desktop Runtime ²	6.0 8.0
Asp.NET Runtime	6.0 8.0
Web browser	• Google Chrome 98 or higher • Microsoft Edge (Chromium-based, as shipped with the supported OS versions)
Supported antivirus solutions ⁴	• Microsoft Defender Antivirus • Trellix MVISION Plus • Symantec Endpoint Security • CrowdStrike

¹ Both Frameworks are required, they coexist.

² Installed by OpenLab installer if needed.

³ Some OpenLab CDS components require Microsoft .Net 3.5. By default, this version of framework does not enforce the usage of TLS 1.2 or higher. In most IT environments, TLS 1.2 is enabled for .Net 4.5 or older frameworks. Verify that TLS 1.2 (or higher) is enabled before proceeding with the installation. Transport Layer Security (TLS) security protocols TLS 1.0, TLS 1.1, and SSL 3.0 are not required by OpenLab CDS. They present a security risk. Disable them according to instructions from Microsoft.

⁴ The listed antivirus software has been tested and is recommended by Agilent. Support is not limited to this software. Check the specific requirements and support of each product.

A PDF viewer is not required for the system to function correctly. You may use a PDF viewer e.g. to open PDF user manuals.

Operating Systems

**Language
Compatibility**

User interfaces are displayed in the language of the Windows operating system.

The following language versions are supported:

- English,
- Chinese,
- Japanese, or
- Brazilian Portuguese

The English language OpenLab CDS software is also supported with Western European language operating systems, provided the OS Region settings are configured correctly.

The English version of add-on software or drivers may be used where a specific product or feature is not localized. They will appear in English even when running localized versions of OpenLab CDS.

Customized locale settings might be required for non-Agilent drivers. Please check the localization statement in the driver documentation.

Supported operating systems

Table 16: Microsoft Windows: Supported versions (Type 64 bit required)

OpenLab CDS	v2.6	v2.7	v2.8	v3.0
Supported during upgrade only				
Windows Product	OS Revision			
Windows 11 Pro, 64 bit		21H2 or greater	21H2 or greater	24H2 or greater
Windows 11 Enterprise, 64 bit ¹		21H2 or greater	21H2 or greater	24H2 or greater
Windows 10 Pro, 64 bit ¹	2004 or greater	20H2 or greater	21H2 or greater	21H2 or greater
Windows 10 Enterprise, 64 bit ¹	1909 or greater	20H2 or greater	21H2 or greater	21H2 or greater
Windows 10 LTSC	Check FAQ on Agilent.com / OpenLab CDS ²			
Windows Server 2025				Standard Data Center
Windows Server 2022		Standard Data Center	Standard Data Center	Standard Data Center
Windows Server 2019	Standard Data Center	Standard Data Center	Standard Data Center	Standard Data Center
Windows Server 2016	Standard Data Center	Standard Data Center		

¹ Agilent does not support use on Windows Home Edition, or Windows Education Edition

² See <https://www.agilent.com/en/support/software-informatics/analytical-software-suite/chromatography-data-systems/openlab-cds/faq-openlab-cds-ltsc>.

Agilent may ship any supported Windows version. Updating to a different version is the responsibility of the end user and is not part of standard installation process.

Table 17: Supported Operating Systems - by Component

OpenLab CDS component	Windows 10 / 11, 64-bit Pro or Enterprise	Windows Server 2019 64-bit Standard or Datacenter	Windows Server 2022 64-bit Standard or Datacenter	Windows Server 2025 64-bit Standard or Datacenter
Workstation (with or without MassHunter DA ¹)				
Networked WorkStation ²		³	³	³
Network Workstation with MassHunter DA ¹			³	³
Client				
Client with MassHunter DA				
AIC		³	³	³
AIC with MassHunter DA ¹			³	³
CDS Server Component				

¹ MassHunter DA stands for: MassHunter Qualitative Analysis or MassHunter BioConfirm. No other MassHunter DA is supported as part of an "OpenLab CDS" solution.

² Networked workstation is defined as a PC machine that supports both user interaction (i.e. sample submission and data review and processing) as well as automated functions (i.e. data acquisition and automated processing and printing). For OpenLab CDS a networked workstation is configured by using the Client software on the same PC where the AIC software is installed. Note: Not all add-ons are supported on all configurations. Check add-on software product documentation for details.

³ supported, but not recommended

Upgrade to current version of Windows OS

Upgrading to a different version is the responsibility of the end user and is not part of the standard installation process. Refer to <https://www.agilent.com/en/support/windows-upgrade-faq> for more information.

Supported Databases

OpenLab CDS supports PostgreSQL databases for hosting the Data Repository.

OpenLab CDS Workstation Plus uses a PostgreSQL database for OpenLab Shared Services, the Data Repository and content management (secure storage). It is installed and configured automatically during installation. Agilent supports only the use of the PostgreSQL version as installed by the OpenLab software.

If you are using OpenLab Server/ECM XT or OpenLab ECM to store data, please refer to the respective product documentation for information on supported databases (available on [Cloud-Ready SDMS Software - OpenLab ECM XT | Agilent](#)).

For information on Databases for Shared Services Server, see *Configuring OpenLab CDS with OpenLab ECM (CDS_v3.0_configure-with-ECM_en.pdf, D0141678)*.

Virtualization

OpenLab CDS supports two separate virtualization technologies: *Application Publishing Technologies* such as Microsoft Remote Desktop Services (RDS/ Terminal Server) and *Operating System Virtualization Technologies* such as Hyper-V for Windows Server, sometimes known as hardware virtualization. Basic machine and processing requirements do not change when virtualizing your machine. Ensure to comply with the recommendations provided in this guide.

Thin Client or Remote Access

OpenLab CDS clients and CDS Server Components can be virtualized on application virtualization platforms like Citrix. Note that the resource requirements are equal to those of the physical machines. On-Premises VM hosts must be at less than 50% capacity (client side).

Agilent has tested the following virtualization software.

Table 18: Virtualization support by component

	Operating System Virtualization		Application Publishing	
	VMWare vSphere	Hyper-V	Remote Desktop Services & Citrix	Other
Workstation	✗	✗	✗	
AIC	✓	✗	✗	
Client	✓	✓	✓	contact Agilent
CDS Server components	✓	TBD	n/a	n/a

Tested client application publishing software

- Microsoft Remote Desktop Services (RDS/Terminal Server) for Windows Server 2022, and 2025.
Additional information (Microsoft): <https://docs.microsoft.com/en-us/windows-server/remote/remote-desktop-services/rds-deploy-infrastructure>

- Citrix Virtual Apps and Desktops for Windows Server 2022, and 2025.

Note: It is the customers responsibility to determine if any changes between the tested version and the version of choice may impact the use of OpenLab products in their environment.

Additional information (Citrix): <https://docs.citrix.com/en-us/citrix-application-delivery-management-software/current-release/deploy.html>

Registration

For Citrix or plain Windows RDS, at least the **OpenLab Control Panel** needs to be registered on the server side to allow 'thin client' access. For the default installation folder this is: **C:\Program Files (x86)\Agilent Technologies\OpenLab Services\UI\Agilent.OpenLab.ControlPanel.exe**.

Further programs to optionally register for sharing are:

- OpenLab Help and Learning - C:\Program Files (x86)\Agilent Technologies\OpenLabHelp\en\index.htm
- Parts Finder - C:\Program Files (x86)\Agilent Technologies\Parts Finder\Parts Finder\PartsFinder.exe
- IMPORT - eMethod - C:\Program Files (x86)\Agilent Technologies\eMethodWizard\Agilent.eMethodWizard.OpenLabCDS.exe

NOTE

Terminating client sessions when there is data in the File Upload Queue will result in data loss (for example, when reprocessing a large data set). To avoid the risk of data loss do not use aggressive session management settings that automatically terminate client sessions as a way to save server resources. Session management should only *disconnect* idle sessions but not terminate them.

NOTE

Users opening Data Analysis in a restricted mode (Snapshot, Review completed Injections) may lose access to their Data Analysis sessions in Citrix / RDS OpenLab CDS environments. This could occur when a user closes the Citrix session but not DA. When restarting Citrix, this user may be distributed to a different Citrix client.

To minimize the risk of losing unsaved changes to your results in restricted Data Analysis mode, Agilent recommends to always allocate the user to Citrix / RDS clients for one entire work day or shift (8-10) hours. This mitigates the risk that the restricted Data Analysis closes automatically without saving, due to loss of user server allocation within the persistence time.

NOTE

Be aware of a potential conflict when using an All-in-one Citrix environment: Both Citrix and OpenLab CDS use port 27000 for the License Manager Daemon. See [Firewall Settings](#) on page 87.

Operating System Virtualization software

Virtualizing AICs is supported with VMWare vSphere for Windows Server 2025.

Agilent does not recommend virtualizing AICs. AIC located far from the instrumentation add risks especially if the Instrument-to-AIC connection is outside of the OpenLab communication redundancy protocols. To reduce the chance of non-recoverable communication issues, it is recommended that this connection be in a local network. It is the responsibility of the customer to make the appropriate risk assessment when choosing where and how to deploy the AIC within their environment.

NOTE

To prevent OpenLab CDS licensing issues when using client application virtualization software, disable the (default) dynamic MAC address. Product licensing is based on the MAC address of the server or Workstation / Workstation Plus. A change of MAC address will break licensing, and the application won't be functional.

More Information

Tested by Agilent with OpenLab CDS 3.0

- VMware vSphere (64 bit) for Windows Server 2025.
- Hyper-V (64 bit) for Windows Server 2025.

Please contact Agilent if you are interested in other application publishing technologies such as VMWare Horizon View.

See the Technical Overview *Virtualizing OpenLab CDS Client/Server Systems* at <https://www.agilent.com/cs/library/technicaloverviews/public/te-virtualizing-openlab-cds-5994-3609en-agilent.pdf> for more detail.

For details on virtualization of OpenLab servers contact your Agilent support representative.

Licensing

OpenLab CDS 3.0 uses new electronically delivered licensing (Electronic Licenses). With Electronic Licenses, your Software entitlement is electronically delivered via email and downloaded and activated from your Agilent Online Account on Agilent.com.

Electronic Licensed OpenLab CDS supports on-line and offline license activation. On-Line License activation requires an internet connection, see your installation guide, chapter **Licensing/Electronic Licensing Activation** for more details.

Some add-ons may still use SubscribeNet licensing. These are identified by the use of physical license entitlements. Both license types are supported and can be maintained from within OpenLab, via the Control Panel.

NOTE

OpenLab CDS electronic licenses are located and maintained in the OpenLab Control Panel in parallel to “classic” SubscribeNet licenses that might be required for other Agilent products.

Trial Period

A trial period allows you to run the system for 60 days after the installation. After that trial period, you must install a license.

The trial period starts when you launch OpenLab Control Panel the first time and click **Start Trial**.

Additional Information

Electronic licenses offer new **OpenLab CDS System** licenses, that create a unique system identifier per system. Starting with 3.0 CDS client/server topologies require the new **OpenLab CDS System** license, in addition to the **Instrument Connection** licenses for Agilent and non-Agilent instruments. An OpenLab Server / ECM XT or OpenLab Shared Services server must be present,

and those products will remain on SubscribeNet licensing. System licenses allow adding a free number of AICs, additional AIC licenses are not needed. Server licences are still required to add SDMS to a client/server system.

Other Agilent products such as content management products or add-on software require separate licenses. They may still use SubscribeNet licensing. Dual licensing is possible, with both new (Electronic) and old (SubscribeNet) licenses on the same machine.

Dual licensing also applies when you are upgrading OpenLab CDS configurations with add-on software. For example: If you are upgrading OpenLab CDS installation with Sample Scheduler for OpenLab, you need to retain your old (SubscribeNet) license for Sample Scheduler, and add a new Electronic license for OpenLab CDS.

About Electronic Licensing

Electronic Licensing (Flexnet Operations licensing) provides online license activation and management. It is build on a Common Licensing Layer (CLL).

Electronic Licensing is managed via a personal account on the Agilent website. The Agilent Online Account also provides the option to download your software.

- If you do not have an Agilent Online Account, an email invitation to set a password is sent to the individual indicated as the point of contact after purchase. The sender is *no-reply@mailing.agilent.com* with subject Agilent Software and Licensing Portal: Account and Password Verification.
- If you have an Agilent Online Account, an email with the Entitlement Certificate is automatically sent to the individual indicated as the point of contact. The sender is *donotreply_agilent@flexnetoperations.com* with subject Your Agilent Entitlement Information.

This email contains the **Activation ID** and **Entitlement ID** that you need to activate your software licenses.

If you have not received the expected email for your product, contact your vendor or Agilent support.



3 Network Specifications

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Introduction

OpenLab CDS systems rely on network infrastructure in order to support the communication between various system nodes. This communication is based on standard TCP/IP protocols. In order to provide optimum performance and uptime, the network must meet design criteria for available bandwidth, IP address assignment, name resolution and appropriate isolation of the lab subnet from the corporate network.

Use of other network topologies, such as wide area networks (WAN), are considered *non-standard configurations* and it is your responsibility to ensure performance to these specifications.

NOTE

The communication path between instruments and workstations or instrument controllers is intolerant of latency, competitive traffic or service interruptions. For this reason, the instruments and their controllers should be on an isolated network segment. This means there should be no routing within the segment, switching must provide dedicated resources for instrument communication, and the segment should have no other traffic including broadcast messages or network management traffic.

Failure to isolate instrument traffic properly may make data acquisition unreliable.

Servers used in an OpenLab CDS environment (for example, OpenLab Server or license server) must be accessible via http or https in the network. This might require adjusting the proxy settings.

Cloud topologies are supported for OpenLab CDS. Please see [Cloud Deployments for OpenLab ECM XT](#) for details.

Network Specifications

The specifications provided below apply to one or several of the following OpenLab network points:

- Client running OpenLab CDS
- Analytical instrument controller (AIC)
- Application server (OpenLab Server / ECM XT or OpenLab ECM)
- Database server
- File server
- Shared Services server (only in conjunction with OpenLab ECM)

The following diagram gives an overview of the network recommendations. Depending on the OpenLab products you have configured, your network may or may not include all of the network components described here.

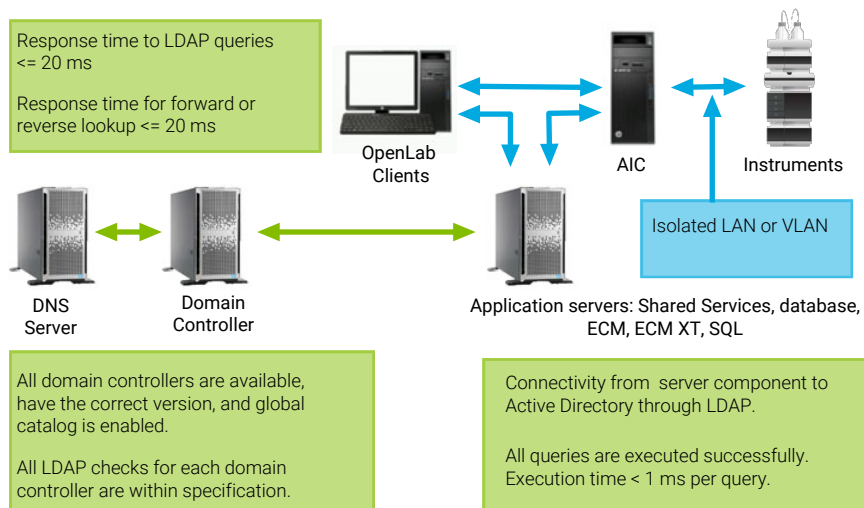


Figure 1: Specification summary (without laaS)

Table 19: Basic network requirements

Network specification description	Specification
Max MTU for Local Interfaces	> 999
MTU size	MTU size on all segments of the packet path is the same
IP Address Resolution Time (DNS Resolution)	<= 20 ms <= 200 ms server to internet
Packet loss	= 0 % : ok > 1 % : warning > 2 % : indicates serious problems
Ping latency	1 - 10 ms : ok 11 - 99 ms : warning > 99 ms : indicates serious problems
Overall throughput for TCP and UDP protocols • Small system • Medium System with local database • Large System • File storage server • Application server with external database	>= 1 Gbps to clients/AIC >= 1 Gbps to clients/AIC >= 2 Gbps to clients/AIC >= 2 Gbps to server backend >= 10 Gbps to server backend, and >= 2 Gbps for ECM server and client
Connectivity from server component to Active Directory through LDAP: • Retrieve 2000 users from AD • Get all available domains • Get global catalog	All queries are executed successfully. Execution time is <1 s per query.
All domains trusted from the currently running domain (a two-way transitive trust is required between domains): • Domain Controller is available and the tool can establish connection • Requires domain functional levels Windows Server 2008 or higher ¹ • Global catalog is enabled • Run all standard LDAP Checks	All domain controllers are available, have the correct version and global catalog is enabled. All LDAP checks for each domain controller are within specification.
Domain names	Consistent with RFC-1034
TLS Protocol	TLS 1.2, or TLS 1.3

¹ Using Domain Controller functional level 2016 with Windows 2025. Windows Server 2025 domain functional level is not supported.

Additional network requirements for connections with a DNS Server:

Applies to e.g. the following topologies

- Shared Service Server and DNS Server or Domain Controller Server
- ECM Server and DNS Server
- SQL Server and DNS Server
- Client and DNS Server

Table 20: Additional network specifications for DNS Server

Check	Specification
Response time	<= 20 ms
• for LDAP queries • for forward lookup like nslookup • for reverse lookup like nslookup	

Network and MAC address continuity

After you completed installation of OpenLab CDS v3.0 (without Update 01 or later) neither network nor MAC address should be changed.

CAUTION

- Do not change wired network connections (any change of network interface card connections e.g. unplugging LAN cable, and plugging into another network card available for internet connection).
- Do not disable network adaptors.
- For laptop installations, do not disable the wireless adaptor. WiFi adaptors must be visible to the system.
- Do not randomize MAC addresses.

If you changed any of the above, this might cause OpenLab CDS issues, due to problems with the licensing engine. Contact Agilent Support in this case.

About LAN Communications

When using LAN communications to connect workstations to an instrument, use one of these methods:

- Connect via an isolated switch using standard Cat-5E or Cat-6 network cabling
- LAN communication hardware should be 1000 Mbps (or higher) speed capable. The J4100 Jet Direct Card is not supported. Use a G1369 LAN interface card instead.
- NIC teaming: LAN cards should *not* be teamed on workstations, instrument controllers, or clients.
- LAN communication must be on the same subnet as instruments, and preferably on the same segment.

NOTE

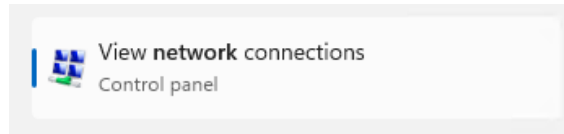
See the separate driver installation guides for further information regarding vendor specific instrument connections. GPIB or RS232 might be required.

Power Management

Avoid data capture or transfer interruptions in your data acquisition system by making network communication cards available for instrument and system component communications.

Windows may be set to turn instruments/components off to save power while sleeping or hibernating. To change this setting:

- 1 In the Windows Start menu, search for *Network*. Open **View network connections**.



- 2 Right-click the relevant connection, and select **Properties**. In the Properties dialog, click **Configure**.
- 3 Select the **Power Management** tab.
- 4 Clear the **Allow the computer to turn off this device to save power** check box.

Specific Requirements for Compliant Systems

If you intend to use your system in a compliant environment, ensure the following settings related to time synchronization:

- Your network must have a time synchronization service to make sure that all systems are using a consistent and valid time.
- To ensure that users cannot change the time, users must not operate using an administrator account.

Firewall Settings - overview

The firewall ports listed in this section may not be in use by other applications to allow communication between the system components of OpenLab CDS.

Please see the Appendix, [Firewall Settings](#) on page 87 for more specific port guidance.

Table 21: Ports required for communication between OpenLab CDS system components

	required port	Protocol
Licensing	52080	HTTP
	52088	HTTPS
	7070	HTTP
	7071	HTTPS
OpenLab CDS Clients inbound	2886 ¹	TCP
	52088	HTTPS
	51000 - 51099	TCP
OpenLab CDS Clients outbound	53	TCP/UDP
	67-68	TCP/UDP
	80	HTTP
	443, or	HTTPS
	6328 (only if https is not available)	HTTP
	6570	TCP
	8084	TCP
	8090, 8098, 8099	HTTPS
	27000 - 27009	TCP
OpenLab CDS AIC inbound	443	HTTPS
	51000 - 51099	TCP
	52081	TCP
OpenLab CDS AIC outbound	53	TCP/UDP
	67-68	TCP/UDP
	80	HTTP
	443, or	HTTPS
	6328 (only if https is not available)	HTTP
	6570	TCP
	27000 - 27009	TCP

	required port	Protocol
Instrument communication inbound	depends on instruments, see Instrument communication on page 98	
Instrument communication outbound	53 67-68 7980-7983	

¹ Local traffic only, does not require open port.



4 System Preparation Tool

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About the System Preparation Tool

The System Preparation Tool (SPT) checks and applies Windows settings on your machine.

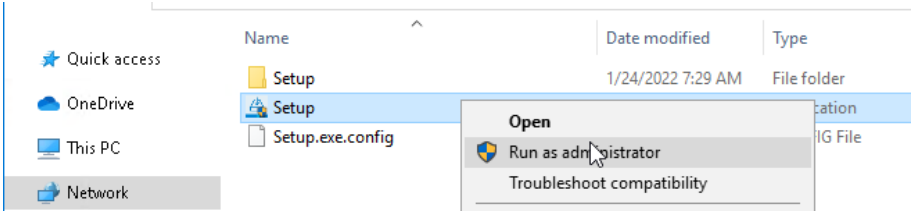
NOTE

The SPT only checks that minimum requirements are met. Work with your Agilent representative to ensure your system is configured sufficiently for your projected number of users, instruments, and load.

Use the System Preparation Tool

The System Preparation Tool (SPT) checks and applies Windows settings on your machine. The OpenLab installer applies these settings automatically when run. Running the SPT in advance helps you to shorten the installation process and avoid PC reboots. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in *OpenLab CDS Requirements and Supported Instruments (CDS_v3.0_Requirements_en.pdf, D0028027)*.

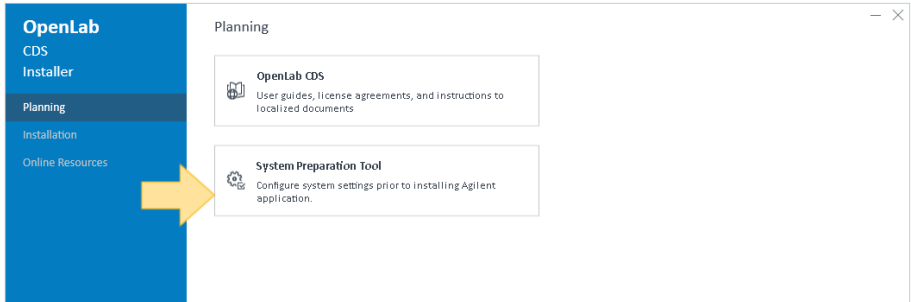
- 1 Optional: Copy the entire content of the installation package to a local drive or centralized folder.
- 2 To open the installer, right-click the **Setup.exe** file, and run it as administrator.



NOTE

If User Account Control (UAC) is switched on, this step requires active confirmation to continue.

- 3 From the **Planning** tab, select **System Preparation Tool**.



The **System Preparation Tool** window opens.

- 4 Select the product configuration corresponding to your system:

System Preparation Tool

Use the System Preparation Tool

- For a Workstation with file system storage, select
OpenLab CDS~Workstation~Win10 or
OpenLab CDS~Workstation~Win11
- For a Workstation with Content Management, select
OpenLab CDS~WorkstationPlus~Win10 or
OpenLab CDS~WorkstationPlus~Win11
- For clients select one of:
OpenLab (CDS, ECMXT)~(Client, CMServices)~Win10
OpenLab (CDS, ECMXT)~(Client, CMServices)~Win11
OpenLab (CDS, ECMXT)~(Client, CMServices)~Win2022
OpenLab (CDS, ECMXT)~(Client, CMServices)~Win2019
OpenLab (CDS,ECMXT)~(Client, CMServices)~Win2025
- For AICs select one of:
OpenLab CDS~AIC~Win10
OpenLab CDS~AIC~Win11
OpenLab CDS~AIC~Win2022
OpenLab CDS~AIC~Win2019
OpenLab CDS~AIC~Win2025

Click **Continue**. The installer automatically applies all mandatory Windows settings to ensure proper installation.

5 Select which recommended settings to apply to the system.

Recommended settings can improve the performance and stability of your system, but are not required to deploy the application.

You can clear the check boxes for recommended settings. Mandatory settings cannot be cleared. Recommended actions are selected by default and will be applied unless they are cleared.

For more information on mandatory and recommended settings, see [Reference of SPT Checks](#) on page 49.

6 Click **Apply Fixes** to apply the correct settings.

The System Preparation Tool attempts to update the selected settings and displays the new status on the **Update Configuration** page. All actions are saved to a log file. A link to the log file is provided at the bottom of the page.

System Preparation Tool

Use the System Preparation Tool

- 7 Click **Next** to proceed to the **System Preparation Report** page.

The System Preparation Report is displayed. It lists the new status for all selected settings.

The System Preparation Report is saved to disk. Its location is shown at the top of the page.

- 8 Click **Print Report** to print the System Preparation Report.

You may print to a file, for example, using the **Adobe PDF** printer, and add comments.

- 9 The System Preparation Report lists any mandatory or recommended settings that are not automatically updated by the System Preparation Tool. Follow the instructions provided in the **Actions Required** section of the System Preparation report to manually update operating system settings.

- 10 Click **Finish**.

- 11 Reboot your system if requested to do so.

Reference of SPT Checks

Table 22: Mandatory settings

	Workstation Workstation Plus	Client CM Services	AIC	OpenLab Server ECM XT OLSS Server
Programs and Features				
Enable/deploy .NET Framework 3.5	●	●	●	●
Top Port Sharing and Activation	●	●	●	●
Windows Communication Foundation Non-HTTP Activation	●	●	●	●
.NET Framework 4.X Advanced Services	●	●	●	
Telnet Client	●	●	●	
TFTP Client	●	●	●	
System				
Local Group Policy Requirements ¹	●	●	●	●
Set Services Timeout	●	●	●	●
HTTP service	●	●	●	●
Set Services Timeout	●	●	●	●
Power options				
Set preferred plan to High performance	●	●	●	●
Set "Put the computer to sleep" to "Never for Performance Power Plan"	●	●	●	●
Set "Turn off hard disk" after to "Never for Performance Power Plan"	●	●	●	●
Disable Quick Start	●	●	●	
Security Options: Set Sharing and security model for local accounts to Classic	●	●	●	●
Network: Disable Power Management options for Network Adapter	●	●	●	●

¹ Local Group Policy Requirements for OpenLab: - Set "Hide entry points for Fast User Switching" to Enabled - Adds "Users" group to "Access this computer from the network" setting

Table 23: System checks

	Workstation Workstation Plus	Client CM Services	AIC	OpenLab Server ECM XT OLSS Server
CPU	●	●	●	●
Minimum Memory	●	●	●	●
OS Compatibility	●	●	●	●
OS Minimum Version	●	●	●	
OS Architecture (64 bit)	●	●	●	
Screen Resolution	●	●	●	●
Language Compatibility	●	●	●	●
Network Availability - Verify active network adapter	●	●	●	●
Ports - configuration	●	●	●	●
Flexera Signing Chain Trust	●	●	●	
Check TLS Cipher Suites	●		●	●
Check for local user profile				●

Table 24: Recommended settings

	Workstation Workstation Plus	Client CM Services	AIC	OpenLab Server ECM XT OLSS Server
System - Startup and recovery settings	●	●	●	
System - Turn off system protection (restore points) for all drives	●	●	●	
Indexing options - Disable indexing options for all drives and locations			●	
Offline Maps - Disable metered connections and map updates	●	●	●	
Windows Update - Disable windows update service	●	●	●	●
Tablet mode: Enable desktop mode ¹	●	●	●	

	Workstation Workstation Plus	Client CM Services	AIC	OpenLab Server ECM XT OLSS Server
Windows Explorer - Enable navigation panel	●	●	●	
Personalization - Disable transparency effects	●	●	●	
Personalization - Disable advertising info	●	●	●	
Personalization - Combine taskbar buttons	●	●	●	
Personalization - Disable advertising info	●	●	●	

¹ Windows 10 only

Table 25: Actions Required section of the SPT report (check settings and update manually)

	Workstation Workstation Plus	Client CM Services	AIC	OpenLab Server ECM XT OLSS Server
Windows Update - Apply pending updates	●	●	●	●
Windows activation	●	●	●	●
System domain membership	●	●	●	●
Region - Change system locale	●	●	●	●
File Explorer - Display Settings	●	●	●	
Recycle Bin - Set Recycle Bin properties	●	●	●	
System - Performance Settings	●	●	●	
Privacy - Set privacy settings	●	●	●	
Apps - Default browser	●	●	●	
Personalization - Turn off show lockscreen background picture	●	●	●	



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Instrument Drivers

Table 26 Agilent driver packages shipped with OpenLab CDS on page 53 list the Agilent instrument drivers that are provided with the OpenLab CDS 3.0 software. Selected instrument drivers are installed by default by the OpenLab installer.

Drivers that are not automatically installed can be found on the media under Setup\Packages\Add-ons. To install these drivers see section *Install or Upgrade Driver Software* in your installation guide.

Table 26: Agilent driver packages shipped with OpenLab CDS

RC .Net Instrument Driver	Driver Software Revision	Installed by default
Agilent LC and CE	3.11	●
Agilent LC/MS SQ	3.2 update 1	●
Agilent LC/MS QTOF	1.0	●
Agilent ELSD	1.8	
Agilent GC	4.4	●
Agilent Headspace for 7697/8697	4.4	
Agilent GC/MS SQ	1.5	●
Agilent Micro GC	2.7	
Agilent Gas Analyzer	2.8	
35900E A/D Converter	2.4	
Agilent SS420X A/D Converter	1.3	●
Agilent Data Player	2.6	●
Agilent PAL 3 (GC only)	3.0	

Agilent driver software is forward compatible with respect to firmware, i.e. the firmware can be updated without the need of updating the driver or CDS. Note that Agilent and other vendors release drivers and firmware independent of the OpenLab CDS releases.

NOTE

Instrument driver versions must always match in a networked system. Accidental use of a method from a different driver version, and accidental launching of an AIC instrument from a client with a mismatched driver version will have unpredictable behavior, including subtle errors that might not be spotted immediately.

More information on instrument drivers and firmware is available in the respective driver release notes.

Non-Agilent instrument drivers

OpenLab CDS 3.0 supports various Non-Agilent instruments. See [Non-Agilent Instruments](#) on page 79, or check with your sales representative if a corresponding driver is available.

Always install the dedicated current driver available from SubscribeNet at [OpenLab CDS > OpenLab 3rd-Party Instrument drivers](#) .

Agilent LC, SFC, and CE Instrument Support

Recommended firmware

OpenLab CDS 3.0 is shipped with Agilent LC and CE Drivers 3.11. This driver will be installed by default.

Note that some driver features like valve-thermostat clusters and new temperature control modes require current firmware versions. Agilent recommends that you always use the most recent firmware revisions with your OpenLab CDS to have access to the latest firmware features and improvements. Download current LC/CE Firmware from <https://www.agilent.com/en-us/firmwareDownload?whid=69761>.

NOTE

Firmware revisions are grouped into sets for each module or system. Firmware sets include just the latest firmware of each module.

Do not mix firmware revisions from one set with older or newer sets. A firmware update within set A/B/C/D.07.xx is required for all modules in that stack, not only new modules.

For detailed information on LC or CE driver and firmware please refer to the current *Agilent LC & CE Drivers Release Note*.

Supported LC modules

Most Agilent LC modules can be controlled with the current version of OpenLab CDS.

NOTE

The Agilent LC drivers are backwards compatible. Modules with identical product numbers are supported. The tables below list the name of the current model version. Look for the product number at the lower right of each module or system.

For more detail please refer to the release notes of the driver revision you are using.

NOTE

OpenLab software continues to include control for legacy instruments that are beyond their hardware support period. However, this functionality is no longer part of the active test matrix and is not supported at the same level as current platforms.

You may continue to use legacy instruments, but compatibility and behavior are not guaranteed.

Instruments containing manual samplers, such as G1328C, and manual injections are supported.

Table 27: Agilent LC - Sampling Systems

Product Number	Module Name	Compatibility Statement
G1313A	1100 Autosampler	supported
G1328C	1260 Manual Injector	supported, without driver
G1328D	1260 Infinity II Manual Preparative Injector	supported, without driver
G1329A	1200 Series Standard Autosampler	supported
G1329B	1260 Infinity Standard Autosampler	supported
G1330A	1200 Series Thermostat	supported
G1330B	1290 Infinity Thermostat	supported
G1367B	1200 Series High Performance Autosampler	supported
G1367C	1200 Series High Performance Autosampler SL	supported
G1367D	1200 Series High Performance Autosampler SL+	supported
G1367E	1260 Infinity High Performance Autosampler	supported
G1377A	1260 Infinity High Performance Micro Autosampler	not supported
G2258A	1260 Infinity Dual-Loop Autosampler	supported
G2260A	1260 Infinity Preparative Autosampler (High flow)	supported
G3167A	1260 Infinity II Prime Online Sample Manager 5067-6680 3-Position/6-Port 800 bar Valve is required	supported as part of solutions with G2954-64000 Online LC Monitoring SW: G3167AA or G3167BA Sets respectively.
G3167B	1290 Infinity II Bio Online Sample Manager 5320-0003 3-Position/6-Port 800 bar Valve is required	
G4226A	1290 Infinity Autosampler	supported

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	Module Name	Compatibility Statement
G4756A	InfinityLab Sample ID Reader for Multisamplers	supported with G7167A, G7167B, G7167C, G7137A. G3167A, G3167B, G4767A and G5668A
G4767A	Agilent 1260 Infinity II/III SFC Multisampler	supported
G5667A	1260 Bio-Inert High Performance Autosampler	supported
G5668A	1260 Infinity II/III Bio-inert Multisampler	supported
G7129A	1260 Infinity II/III Vialsampler	supported
G7129B	1290 Infinity II/III Vialsampler	supported
G7129C	1260 Infinity II/III Vialsampler (Prime LC, 800bar)	supported
G7137A	1290 Infinity II/III Bio Multisampler	supported
G7137B	1290 Infinity III Hybrid Multisampler,	supported
G7157A	1260 Infinity II Preparative Autosampler	supported
G7158B	1290 Infinity II Preparative Open-bed Sampler / Collector	Module is represented by two modules in the driver: G7159B and G7169B
G7167A	1260 Infinity II/III Multisampler	supported
G7167B	1290 Infinity II/III Multisampler	Use legacy addressing scheme (P1-A1)
G7167C	1260 Infinity II/III Hybrid Multisampler	supported, as a part of 1260 Infinity II Prime LC System
G7169B	1290 Infinity II Open-bed Sampler / Fraction Collector - Sampler Driver	supported

Table 28: Agilent PAL Autosampler with Agilent LC

Product Number	Module Name	Compatibility Statement
G4277A	Agilent 1290 Infinity LC Injector HTS	supported
G4278A	Agilent 1290 Infinity LC Injector HTC	supported
G4270	HTC PAL Auto sampler	supported
G4271	HTS PAL Auto sampler	requires motherboard with FW 4.1.5 or higher

Table 29: Agilent LC – Pumps

Product Number	Module Name	Compatibility Statement
G1310A	1200 Series Isocratic Pump	supported
G1310B	1260 Infinity Isocratic Pump	supported
G1311A	1200 Series Quaternary Pump ¹	supported
G1311B	1260 Infinity Quaternary Pump ¹	supported
G1311C	1260 Infinity Quaternary Pump VL ¹	supported
G1312A	1260 Infinity Binary Pump ¹	supported
G1312B	1260 Infinity Binary Pump SL ¹	supported
G1312C	1260 Infinity Binary Pump VL ¹	supported
G1361A	1260 Infinity Preparative Pump ¹	supported
G1376A	1200 Micro Capillary Pump	not supported
G2226A	1200 Micro Nano Pump	not supported
G4204A	1290 Infinity Quaternary Pump ¹	supported
G4220A	1290 Infinity Binary Pump ¹	supported
G4220B	1290 Infinity Binary Pump VL ¹	supported
G4302A	Agilent 1260 Infinity SFC Binary Pump	supported
G4782A	Agilent 1260 Infinity II/III SFC Binary Pump	supported
G5611A	1260 Infinity Bio-inert Quaternary Pump ¹	supported
G5654A	1260 Infinity II/III Bio-inert Pump ¹	supported
G7104A	1290 Infinity II/III Flexible Pump ¹	supported
G7104C	1260 Infinity II/III Flexible Pump ¹	supported
G7110B	1260 Infinity II/III Isocratic Pump ¹	supported
G7111A	1260 Infinity II/III Quaternary Pump VL ¹	supported
G7111B	1260 Infinity II/III Quaternary Pump ¹	supported
G7112B	1260 Infinity II/III Binary Pump ¹	supported
G7120A	1290 Infinity II/III High Speed Pump ¹	supported
G7131A	1290 Infinity II/III Bio Flexible Pump	supported
G7131C	1260 Infinity II/III Bio Flexible Pump	supported

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	Module Name	Compatibility Statement
G7132A	1290 Infinity II/III Bio High-Speed Pump	supported
G7161A	1260 Infinity II/III Preparative Binary Pump	supported
G7161B	1290 Infinity II/III Preparative Binary Pump	supported

¹ Pump valve clusters are possible for marked pumps with up to 2 valves of type G1160A and/or G1170A with 5067-4159 or 5067-4147.

Table 30: Agilent LC – Column Compartments

Product Number	Module Name	Compatibility Statement
G1316A	1260 Infinity Thermostatted Column Compartment	supported
G1316B	1200 Series Thermostatted Column Compartment	supported
G1316C	1290 Infinity Thermostatted Column Compartment	supported
G1330A	1200 Thermostat	Not configurable w/ compact LC
TCC Cluster	Cluster with up to three G1316C with integrated 8pos/ 9port valves (products G4230A/B). Minimum two G1316C TCCs, the third TCC can be a G1316A, B or C.	supported
G4761A	InfinityLab Sample Thermostat	supported with G7129X and G7167X
G7116A	1260 Infinity II/III Multicolumn Thermostat	supported
G7116B	1290 Infinity II/III Multicolumn Thermostat	supported with host- module B.06.75/D.06.75
G7130A	Infinity Integrated Column Compartment	supported as option for G7129A/B
VTC Valve Thermostat Cluster	Combinations of G7116B, G1170A and G1316C (valve or column hosts) and G1316A/B and G7130A	See LC Driver Release Notes: <i>Valve-Thermostat Cluster</i>
G7175A	InfinityLab Level Sensing	supported

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Table 31: Agilent LC – Detectors

Product Number	Module Name	Compatibility Statement
G1314A	1100/1200 Variable Wavelength Detector	supported
G1314B	1260 Infinity Variable Wavelength Detector VL	supported
G1314C	1260 Infinity Variable Wavelength Detector VL+	supported
G1314D	1260 Infinity Variable Wavelength Detector	supported
G1314E	1290 Infinity Variable Wavelength Detector	supported
G1314F	1260 Infinity Variable Wavelength Detector	supported
G1315A	1100/1200 Diode-Array Detector	supported
G1315B	1200 Series Diode Array Detector	supported
G1315C	1260 Infinity Diode Array Detector VL+	supported
G1315D	1260 Infinity Diode Array Detector VL	supported
G1321A	1100/1200 Fluorescence Detector	supported
G1321B	1260 Infinity Fluorescence Detector Spectra	supported
G1321C	1260 Infinity Fluorescence Detector	supported
G1362A	Agilent 1100/1200 Refractive Index Detector	supported
G1365A	1100 Series Multiple Wavelength Detector	supported ¹
G1365B	1200 Series Multi-Wavelength Detector	supported ¹
G1365C	1260 Infinity Multiple Wavelength Detector	supported ¹
G1365D	1260 Infinity Multiple Wavelength Detector VL	supported ¹
G4212A	1290 Infinity Diode Array Detector	supported
G4212B	1260 Infinity Diode Array Detector	supported
HDR-DAD Cluster	2x G4212A, 2x G4212B, 2x G7117A or 2x G7117B, or a combination of either 1x G4212A and 1x G4212B, or 1x G7117A and 1x G7117B	supported: Up to 2 DAD
G4260A	380-ELSD	supported ¹
G4260B	1260 Infinity II/III Evaporating Light-Scattering Detector	supported ¹
G4261A	385-ELSD	supported ¹
G4261B	1290 Infinity II Evaporating Light-Scattering Detector	supported ¹
G7102A	1290 Infinity II Evaporating Light-Scattering Detector	supported ¹
G7114A	1260 Infinity II/III Variable Wavelength Detector	supported

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	Module Name	Compatibility Statement
G7114B	1290 Infinity II/III Variable Wavelength Detector	supported
G7115A	1260 Infinity II/III Diode Array Detector WR	supported
G7117A	1290 Infinity II/III Diode Array Detector FS	supported
G7117B	1290 Infinity II/III Diode Array Detector	supported
G7117C	1260 Infinity II/III Diode Array Detector HS	supported
G7121A	1260 Infinity II Fluorescence Detector	supported
G7121B	1260 Infinity II/III Fluorescence Detector Spectra	supported
G7123B	1290 Infinity III Fluorescence Detector	supported ¹
G7162A	1260 Infinity II/III Refractive Index Detector	supported ¹
G7162B	1290 Infinity II/III Refractive Index Detector	supported ¹
G7165A	1260 Infinity II/III Multiple Wavelength Detector	supported ¹
G7800A	1260 Infinity II Multi Detector Suite	not supported

¹ Not supported in combination with LC/TOF or LC/Q-TOF instrument, or in MassHunter DA

Table 32: Agilent LC – Valve Solutions ¹

Product Number	Module Name	Compatibility Statement
G1156A	1200 Series 6-Position/7-Port Valve (400 bar)	part of purge kit; host required
G1157A	1200 Series 2-Position/10-Port Valve	supported
G1158A	1200 Series 2-Position/6-Port Valve	supported
G1158B	1200 Series 2-Position/6-Port Valve (600bar)	supported
G1159A	1200 Series 6-Position Selection Valve	supported
G1160A	1200 Series 12-Position/13-Port Valve	supported
G1162A	1200 Series 2-Position/6-Port Micro Valve	not supported
G1163A	1200 Series 2-Position/10-Port Micro Valve	not supported

¹ In general all Agilent valve configurations are supported. This table lists selected valves, valve drives and clusters. Please refer to the LC&CE Driver Release Note of your driver version for a complete list of supported Agilent valves.

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	Module Name	Compatibility Statement
G1170A	1290 Infinity II/III Valve Drive	host required. For details see latest LC driver release note.
G4231A	5067-4282 2-Position/6-Port Valve head 800 bar	Includes backward compatibility to the former 600 bar valves. For more detail on required driver versions see customer letter (p/n 01200-90134).
G4232C	5067-4283 2-Position/10-Port Valve head 800 bar	
G4223A	5067-4284 6-Position/14-Port, 6-column selector Valve head 800 bar	
G4237A	5067-4279 4-Position/10-Port, 4-column selector Valve head 800 bar	
G4234C	5067-4273 6-Position/14-Port selector Valve head 1300 bar	supported
G4734B	Preparative 6-column selector valve, 600 bar	supported
G5641A	2-Position/10-Port 1300 bar Bio Valve	supported
G9322A	1260 Infinity II Clustering Valve (solvent selection)	supported

¹ In general all Agilent valve configurations are supported. This table lists selected valves, valve drives and clusters. Please refer to the LC&CE Driver Release Note of your driver version for a complete list of supported Agilent valves.

Table 33: Fraction Collectors

Product Number	Module Name	Compatibility Statement
G1364A	1100 Series Automatic Fraction Collector	supported
G1364B	1260 Infinity Fraction Collector (preparative-scale)	supported
G1364C	1260 Infinity Fraction Collector (analytical-scale)	supported
G1364D	1260 Infinity Micro-Scale Fraction Collector/Spotter	not supported
G1364E	1260 Infinity II Preparative Fraction Collector	supported
G1364F	1260 Infinity II Analytical Fraction Collector	supported
G5664A	1260 Infinity Bio-inert Fraction Collector AS	supported
G5664B	1260 Infinity II Bio-inert Fraction Collector	supported
G7159B	1290 Infinity II Preparative Open-Bed Fraction Collector	supported

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	Module Name	Compatibility Statement
G7166A	1260 Infinity II Preparative Valve-Based Fraction Collector	supported
	Clustering Up to 3×G1364x, or 1×G5664A + 1×G1364; or 1×G5664A for recovery;	supported

Table 34: Other LC and LC/MSD Modules

Product Number	Description	Compatibility Statement
G1390A	Agilent 1100 Series Universal Interface Box	supported Part of fraction collector
G1390B	Agilent InfinityLab Universal Interface Box	supported
G4227A	Agilent 1290 Infinity II Flexible Cube	supported
G4240A	Agilent 1260 Infinity Chip Cube MS Interface	not supported
G4301A	1260 Infinity II/III SFC Control Module	supported
G7170B	Agilent 1290 Infinity II MS Flow Modulator	supported LC/MSD can be used as an analytical detector in the purification Workflow
G7180A	InfinityLab Assist Hub	supported
G7175	InfinityLab Level Sensing	supported

Table 35: Agilent Combined LC Systems

Product Number	System Name
G4286A	1120 Compact LC, Isocratic
G4286B	1220 Infinity LC System Isocratic, Man. Inj., VWD, 600 bar
G4286C	1220 Infinity LC System VL ¹
G4287A	1120 Compact LC, Isocratic with Oven and ALS
G4287B	1220 Infinity LC System Isocratic, ALS, VWD and Oven 600 bar
G4287C	1220 Infinity LC System VL ¹
G4288A	1120 Compact LC, Gradient

Supported Instruments

Agilent LC, SFC, and CE Instrument Support

Product Number	System Name
G4288B	1220 Infinity LC Gradient, Man. Inj., VWD, 600 bar
G4288C	1220 Infinity LC System VL, Gradient, Man. Inj. VWD, 400 bar
G4289A	1120 Compact LC, Gradient with Oven
G4289B	1220 Infinity LC Gradient, Man. Inj., VWD and Oven 600 bar
G4289C	1220 Infinity LC System VL, Gradient, Man. Inj. VWD, 400 bar
G4290A	1120 Compact LC, Gradient with oven and ALS
G4290B	1220 Infinity LC Gradient, ALS, TCC, VWD, 600 bar
G4290C	1220 Infinity LC System VL, Gradient, ALS, TCC, VWD, 400 bar
G4291B	1220 Infinity LC System Isocratic, Man. Inj., VWD and Oven 600 bar
G4291C	1220 Infinity LC System VL ¹
G4292B	1220 Infinity LC System Isocratic, ALS, VWD, 600 bar
G4292C	1220 Infinity LC System VL ¹
G4293B	1220 Infinity LC Gradient, ALS, VWD, 600 bar
G4293C	1220 Infinity LC System VL, Gradient, ALS, VWD, 400 bar
G4294B	1220 Infinity LC Gradient, ALS, TCC, DAD, 600 bar

¹ Manual module, without a driver. Supported within a 1200 LC instrument.

NOTE

Agilent 1120 and 1220 Compact LC Systems are not supported with Fraction Collection.

Agilent 2D-LC Solution

OpenLab CDS 3.0 supports 2D-LC solutions. Together with *2D-LC Software 1.2 for Data Analysis*, OpenLab CDS supports 2D-LC acquisition, method setup, data analysis, custom calculations and reporting. Activating the 2D-LC system driver requires a separate dongle-based license.

Agilent Supercritical Fluid Chromatography (SFC) Modules

Table 36: Agilent SFC Modules

Product Number	Module Name	Compatibility Statement
G4301A	1260 Infinity II SFC Control Module	supported
G4302A	1260 Infinity SFC Binary Pump	supported
G4303A	1260 Infinity SFC Standard Autosampler	supported
G4767A	1260 Infinity II SFC Multisampler	supported
G4782A	1260 Infinity II SFC Binary Pump	supported

Capillary Electrophoresis (CE) instruments

OpenLab CDS supports control of CE as well as CE/MSD instruments.

Starting with OpenLab CDS v2.7 in connection with LC&CE Driver 3.5, the following workflows are supported:

- Configure the 7100 Agilent CE or CE/MSD instruments using instrument type **Agilent LC & LC/MS**.
- Connect to the CE instrument, create methods, and run analyses using CE specific soft configuration options.
- Review CE analytic data with same feature set as for LC.
- Create reports from CE data with same feature set as for LC.
- Capillary Zone Electrophoresis (CZE) workflow (with or without corrected area and CE specific calculations).
- Data Analysis allows for scaled responses using various options.
- Audit trail is supported with CE.

In addition automation is available for method developments, including user vials/sequence overwrite.

Supported Instruments
Agilent LC, SFC, and CE Instrument Support

Table 37: Configurable Agilent Capillary Electrophoresis (CE) instruments

Product Number	System Name	Compatibility Statement
G7150A	Agilent 7100 Capillary Electrophoresis System	supported
G7151A	Agilent 7100 Capillary Electrophoresis System (DAD)	supported

Agilent LC/MS Instrument Support

Recommended firmware

Always use the most recent Firmware installation package that comes with the driver package.

NOTE

The current firmware (embedded software - ESW) is available on the OpenLab CDS 3.0 media at \Setup\Tools\Firmware\LCMS.

Copy the fw.zip file to a local drive, extract it, and open the appropriate MS folder (QCard or SmartCard). For QCard instruments, open the folder for the appropriate model (6160A, 6160B, or 6170A) and run the ESWInstaller.exe to upgrade the MS's ESW. For SmartCard instruments, run AFUpdater.exe to upgrade the MS firmware.

Agilent LC/MS modules

Table 38: LC/MSD Single Quad (LC/SQ) modules

Product Number	Description	Compatibility Statement
612xA 612xB	LC/SQ family	not supported
613xB G6135B	613x LC/SQ 6135 LC/SQ XT	not supported 6125B & 6135B upgrade kits (G4934C) no longer available
G6120C G6125C G6130C G6135C	MS Module 6125 LC/SQ MS Module 6135 LC/SQ XT for OpenLab CDS	supported ¹ , MBFC not available, ESI or AJS capable source required for Tuning

Supported Instruments

Agilent LC/MS Instrument Support

Product Number	Description	Compatibility Statement
G6150B	MS Module	not supported. No upgrade available.
G6160A	6160 InfinityLab LC/MSD iQ	supported ¹ ,
G6160B	6160 InfinityLab Pro iQ Mass Detector	supported for MBFC workflows with LC modules G1364E/F, G5664B, G7159B / G7158B, G7166A.
G6170A	6170 InfinityLab Pro iQ Plus Mass Detector	ESI or AJS source required for tuning. ²

¹ Operational Continuity and Failover not supported. Acquisition will not start in Failover mode for these instruments, any running sequences will abort if the system enters Operational Continuity.

² Note: AJS source is only supported on G6170A model.

Table 39: Time of Flight (TOF) LC/MS and Quadrupole Time of Flight LC/MS modules

Product Number	Description	Compatibility Statement
G6230C	6230 Accurate Mass TOF LC/MS System	Supported with MHDA (Qual and Bioconfirm) ¹
G6549A	6545XT AdvanceBio LC/Q-TOF	Not supported in conjunction with • Infinity III FLD Detector (G7123B) • OpenLab CDS Data Analysis • ECM 3.x • Workstation (Secure File System "AFS") • MBFC
G6575A	Revident LC/Q-TOF ²	
G6230B	6230 LC/TOF	not supported
G6530C	6530 LC/Q-TOF	
G6546A	6546 LC/Q-TOF	
G6560C	6560 Ion Mobility LC/Q-TOF	

¹ Operational Continuity and Failover not supported. Acquisition will not start in Failover mode for these instruments, any running sequences will abort if the system enters Operational Continuity.

² Revident LC/Q-TOF has a 10 GHz data collection mode. This cannot be used for the Max Int workflows.

Table 40: Agilent LC/MS sources

Product Number	Description	Compatibility Statement
G1947B G1971B	APCI LC/MSD Source APPI (Photo Ionization)	supported ESI or AJS capable source required for Tuning
G1948B	ESI Source	supported with MS
G1958B	Agilent Jet Stream	supported
G1978B	Multimode Source	supported with MS
G1951A	Analog Output Accessory	not supported
G4240A	Chip Cube Source	not supported
LC/(Q-)TOF Sources		
G1947B	APCI GC-APCI Source	not supported
G1959A	Dual AJS	supported Dual nebulizer required for autotune
G1971B	APPI (Photo Ionization)	not supported
G1978B	Multimode Source	not supported
G1992A	Nanospray ESI	Supported for G6549A and G6230C (mass calibration and run method only)
G3251B	Dual ESI	supported Dual nebulizer required for autotune
G1948B	ESI Source	supported mass calibration and run method only

Agilent GC System and Sampler support

NOTE

OpenLab software continues to include control for legacy instruments that are beyond their hardware support period. However, this functionality is no longer part of the active test matrix and is not supported at the same level as current platforms.

You may continue to use legacy instruments, but compatibility and behavior are not guaranteed.

Agilent GC firmware interoperability

Agilent releases GC firmware updates independently of software releases. All Agilent GC instrument driver revisions have been designed to be backward compatible to the installed instrument base. Agilent recommends always using the latest module firmware revision to provide the highest level of system capability.

Upgrading firmware is not required in all cases. A firmware upgrade should be done if you face problems or want to add system capability to your GC. Check <https://www.agilent.com/en/support/gas-chromatography/gc-systems/gc-firmware-update> for latest firmware available.

Agilent GC System support

Table 41: Compatibility statements for Agilent GC systems

Product Number	Description	Compatibility Statement
G3950A G3952A G3953A	Intuvo 9000 GC system	supported
G3540A G3542A G3543A G3545A	8890 Series GC System	supported

Supported Instruments

Agilent GC System and Sampler support

Product Number	Description	Compatibility Statement
G2970A	8860 Series GC System	supported
G3440A G3442A G3443A G3445A	7890A	supported
G3440B G3442B G3443B G3445B	7890B	supported
G4350A G4350B	7820A	supported RTL, backflush, and EZ sample prep are not supported
G6589AA G6590AA	7820 VL	supported RTL, backflush, and EZ sample prep are not supported
G1530N G1540N	6890N	supported
G1530A G1540A	6890A 6890Plus	Non-EPC inlets and detectors are not supported
G2629A	6850 Handheld Controller	not supported
G2630A G2630B	6850	supported
G3581A G3582A	490 Micro GC 490 Micro GC Analyzer	supported, LAN only New 4.02 mainboard required (blue power LED or internal USB connector)
G3588A	990 Micro GC System	supported

Agilent GC Autosampler support

Table 42: 7693 GC Autosampler

Product Number	Description	Support Statement
G3420A	GC ALS Controller	supported
G4513A	Injector	supported

Supported Instruments

Agilent GC System and Sampler support

Product Number	Description	Support Statement
G4514A	Tray	supported
G4515A	BCR/Mixer	supported
G4516A	External Controller for 68xx	supported
G4517A	6890 Plus Card Upgrade	supported
G4520A	Tray with BCR/Mixer	supported
G4521A	LVI Syringe Carriage	supported
G4522A	Cooling Accessory	supported

Table 43: 7683A GC Autosampler

Product Number	Description	Support Statement
G2613A	7683A Injector	supported, not compatible with 8860, 8890, and 9000 GC
G2614A	Tray	
G2615A	BCR/Mixer	

Table 44: 7683B GC Autosampler

Product Number	Description	Support Statement
G4516A	ALS Controller Board for 6890 Plus GC	supported, not compatible with 8860 Series, 8890 Series, or Intuvo 9000 GC systems
G2912A	ALS Controller for 6890	
G2913A	7683B Injector	
G2614A	Tray	
G2615A	BCR/Mixer	

Table 45: Sampling Accessories

Product Number	Description	Support Statement
G3535A	GC Gasifier	supported
G3541A	GC Sample Selector	supported

Table 46: 7650 and G2880A GC Autosamplers

Product Number	Description	Support Statement
G4567A	7650A ALS Injector	• Only one 7650 per GC • Operates on front or back inlet • No additional hardware required for the 7890 • Can be mounted and operated with second 7693A Auto injector but no dual injection on 7820A • Not compatible with 7693A 150 vial tray • Not compatible with 6850 and 6890 GC
G2880A	Injector	Supported; Only for 6850 GC

Agilent Headspace Sampler support

Table 47: 7697A Headspace Sampler

Product Number	Description	Support Statement
G4556A	12 Vial	supported Not supported with PTV inlet
G4557A	111 Vial	supported
G4561A	Barcode Reader for 111 Vial	supported
G4562A	Carrier Gas EPC Module	supported
G4565A	Cooling Plate/Tray Assembly	supported with 111 Vial (G4557A) Not supported on 12 vial

Table 48: 8697 Headspace Sampler

Product Number	Description	Support Statement
G4511A	8697 Headspace	supported Instrument control via GC touchscreen (8890, 8860, or Intuvo 9000 GCs)

Table 49: G1888 Headspace

Product Number	Description	Support Statement
G1888A	70 vial G1888 Headspace	Not supported

Installs of Headspace driver version 4.x will uninstall B.01.09 or earlier headspace drivers. Any instrument with a G1888 configured will encounter an error message that the G1888 driver is not installed and the G1888 will be removed from the configuration.

Agilent PAL Sampler support

Table 50: Agilent PAL-3 Autosampler with Agilent GC

Product Number	Description	Support Statement
G7366A	PAL3 LSI 85 Autosampler	Supported on all GC platforms.
G7367A	PAL3 RSI 85 Autosampler	Not supported with additional samplers
G7368A	PAL3 RSI 120 Autosampler	
G7370A	PAL3 RTC 120 Autosampler	
G7366B	PAL3 Series II LSI 85	Supported on 8890, 8860, 7890, 7820, 6890, and 6850 GC.
G7367B	PAL3 Series II RSI 85	
G7368B	PAL3 Series II RSI 120	Not supported with additional samplers
G7370B	PAL3 Series II RTC 120	

Agilent PAL-xt samplers are out of support. They are supported on a best effort basis only. Agilent will not provide defect fixes, enhancements, or active support for these devices. Software control with OpenLab CDS 3.0 for these devices may still be available.

Table 51: Agilent PAL-xt Sampler with Agilent GC

Product Number	Description	Support Statement
G6500	Combi-PAL for Liquid and Headspace	Support on 8890, 8860, 7890, 7820, 6890 and 6850 GC
G6501	Combi-PAL, Liquid Injection only	

Supported Instruments
Agilent GC System and Sampler support

Product Number	Description	Support Statement
G6502	GC PAL for Liquid Injection only	FW can go up to 2.6.8 using driver B.01.08.1 or greater Not compatible with any GC ALS.
G6509	Combi-PAL, 120 cm rail, Liquid Injection only	
G6501B	Agilent GC Sampler 80 - Rail system	Support on 8890, 8860, 7890, 7820, 6890 and 6850 GC systems. FW 4.3.0 using driver B.01.08.1 or greater Not compatible with any GC ALS.
G6502B	Agilent GC Injector 80 - Rail system	
G6509B	Agilent GC Sampler 120 - Rail system	

Mini Thermal Desorber

Table 52: G2880A

Product Number	Description	Support Statement
7667A	Mini Thermal Desorber	supported

Agilent GC/MS Instrument Support

Recommended firmware

Always use the most recent MS Firmware installation package that comes with the driver package.

The supported GC/MS firmware is available after installation of OpenLab CDS in **Program Files (x86) > Agilent Technologies > OpenLab Acquisition > GCMS > Firmware**. Open the appropriate MS folder (5977 or 5975) and run msupdate.exe to upgrade the MS firmware.

Alternatively, the current firmware update tool (no need to have FTP and Telnet enabled) which can work with a SmartCard 3.3, is available on the OpenLab CDS 3.0 media at **\Setup\Tools\Firmware\GCMS**. Copy this folder to a local drive, open the appropriate MS folder (5975 or 5977) and run **MSUpdate2.exe** to upgrade the MS firmware.

GC/MS modules

Table 53 Compatibility statements for Agilent GC/MS Single Quad Series Models on page 76 summarizes the compatibility of Agilent GC/MS Single Quad Series models with OpenLab CDS 3.0.

Table 53: Compatibility statements for Agilent GC/MS Single Quad Series Models

Model number / series	Description	Compatibility Statement
5973	GC/MS family	not supported
5975A 5975B 5975C 5975E	MS System	supported ¹ CI added with GC/MS Driver A.01.02
5975T	Integrated GC/MS	not supported

Supported Instruments
Agilent GC/MS Instrument Support

Model number / series	Description	Compatibility Statement
5977A 5977B 5977E	MS System	supported ¹ CI added with GC/MS Driver A.01.02
5977C	MS System	supported ¹ Expanded mass range (0.6-1091) requires GC/MS driver version 1.5 or higher

¹ Operational Continuity and Failover not supported. Acquisition will not start in Failover mode for these instruments, any running sequences will abort if the system enters Operational Continuity.

For GCs supported as part of a GC/MS system - see [Agilent GC System and Sampler support](#) on page 70.

For Autosamplers, PAL Samplers and Headspace supported as part of a GC/MS system - see [Agilent GC Autosampler support](#) on page 71, [Agilent Headspace Sampler support](#) on page 73, or [Agilent PAL Sampler support](#) on page 74 respectively.

Other Supported Agilent Instruments

Other Agilent instruments or modules that you can connect with the latest revision of OpenLab CDS:

Table 54: Other Agilent modules

Model number	Description	Support Statement
35900E 35900E (Series II)	35900 A/D Interface	supported
SS420x	A/D Converter	supported

Non-Agilent Instruments

OpenLab CDS offers comprehensive multi-vendor instrument control for LC, GC, LC/MS and GC/MS systems.

A list of supported instruments is available at <https://www.agilent.com/en/support/software-informatics/openlab-software-suite/chromatography-data-systems/faq-what-instruments-are-supported-in-openlab-cds>.

On www.agilent.com search for "FAQ: What instruments are supported in OpenLab CDS? "

NOTE

The support matrix for non-Agilent drivers is subject to frequent changes. Check the *Compatibility Matrix non-Agilent Drivers OpenLab CDS* available in PDF format from <https://agilent.flexnetoperations.com> - access via OpenLab Software > OpenLab AddOns.

NOTE

Always download the most recent instrument drivers available from <https://agilent.flexnetoperations.com> to control non-Agilent instruments.

6 Compatibility with Agilent Software

OpenLab CDS System Compatibility

Table 55: OpenLab CDS 3.0 System Compatibility

Component	Supported Revisions	Comments
OpenLab Basic Server	2.8 FP01 ¹	Supported ² ³ . Not supported with LC/(Q-)TOF or MassHunter Data Analysis
OpenLab Server	2.8 FP01 ¹	supported ² ³
OpenLab ECM XT	2.8 FP01 ¹	supported ² ³
OpenLab CDS	2.6, 2.7	supported during an upgrade
	2.8	supported for steady state usage Mixed configuration of CDS v2.8 with CDS v3.0 are supported as part of an upgrade only.
OpenLab ECM	3.6	Details of CDS data usage in ECM are documented within ECM. 3.6 update 2 or greater is required for certain search related features.
Shared Services server	3.8 ⁴ with Framework 1.9	for OpenLab CDS with OpenLab ECM configurations only. Standalone deployment of OpenLab Shared Services Server without a content management solution (aka distributed Workstations) with OpenLab CDS is not supported.
Agilent Framework	1.9 ⁴	includes Shared Services 3.8, Data Repository, Storage Abstraction, Reverse Proxy, Activity log search index, and services
SLIMS	7.2 ⁵	supported

¹ v2.8 with Feature Pack 01 (FP01)

² OpenLab CDS Server Components are required when connecting CDS 3.0 to a 2.8 FP01 server.

³ Enforces TLS 1.2 connections from Client-PCs (e.g. Import Scheduler and Import Services). The respective client OS needs to ensure TLS 1.2 connections can be established, especially for .Net Framework 2/3.5 as well as .NET Framework >= 4.5.

⁴ OLSS 3.8 / FW 1.9 is delivered by installing OpenLab Server 2.8 Feature Pack 01

⁵ Check the SLIMS / OpenLab Sync documentation for information on compatibility with latest releases.

NOTE

For Networked Workstations (Client co-installed on AIC) not all add-ons are supported on all configurations. Check add-on software product documentation for details.

Data Analysis Applications

Alternative data analysis applications can be installed along with OpenLab CDS to expand the capabilities of the system. They can be part of an OpenLab CDS based automation (i.e. included as part of a run definition).

Table 56: Data Analysis products tested as part of OpenLab CDS

DA applications	Revision	support statement	Comments
MassHunter BioConfirm	14.0	supported	Combination with OpenLab CDS is not supported in conjunction with ECM 3.x, or Workstation Advanced File System (AFS).
MassHunter Qualitative Analysis	14.0	supported	
MassHunter Quantitative Analysis	n/a	Not supported	-

NOTE

Qual and BioConfirm can exist independently
It is recommended, but not required, that both are installed. Some functionality may be limited if one or more MHDA components are not installed in appropriate location.

Supported content management configurations

Table 57: Content management configurations available for OpenLab CDS

Content Management	OpenLab Shared Services	Comments
OpenLab Basic Server	Included with OpenLab Server	Supported except with LC/(Q-)TOF or MassHunter Data Analysis Up to 4 total configured instruments – any data system
OpenLab Server	Included with OpenLab Server	Supported
OpenLab ECM XT	Included with OpenLab ECM XT	Supported
OpenLab ECM 3.x	OpenLab Shared Services Server 3.8	Supported except with LC/(Q-)TOF or MassHunter Data Analysis See ECM requirements guide for additional detail regarding capacity requirements.

Refer to documentation on OpenLab ECM XT/ OpenLab Server for supported server configurations.

Mixed configurations

Environments combining OpenLab CDS with other Agilent CDS products are supported per compatibility with the storage backends:

Product	Revision	support statement
OpenLab ChemStation	LTS 01.11	Supported per OpenLab ChemStation compatibility with OpenLab Server, ECM XT, or ECM 3.x
MassHunter LC/MS or GC/MS Acquisition		Supported per MassHunter compatibility with OpenLab Server, or ECM XT

For Mixed Environment – MassHunter is defined as a system containing MassHunter LC/MS or GC/MS acquisition and any supported MassHunter Data Analysis, e.g. MassHunter Quantitative Analysis or MassHunter Qualitative Analysis. With the release of “CDS+MassHunter DA”, certain components can be part of either a MassHunter or “OpenLab CDS+MHDA” deployment.

OpenLab Server/ECM XT Mixed configurations are supported with OpenLab CDS if they can connect to the same OpenLab Server/OpenLab ECM XT.

See Agilent white-paper *Mixed Environment Support in OpenLab CDS* for details on the Mixed Environment design. Check with your Agilent contact for more information on the OpenLab CDS versions supported in mixed configurations.

OpenLab ECM OpenLab CDS can be configured with OpenLab ECM v3.6 or later via an Agilent OpenLab Shared Services server to operate in an environment containing different data systems. OpenLab ChemStation LTS may be connected to OpenLab ECM via a separate Shared Services server.

For more details, refer to [Configuring OpenLab CDS with OpenLab ECM \(CDS_v3.0_configure-with-ECM_en.pdf, D0141678\)](#).

Standalone deployment of OpenLab Shared Services Server without a content management solution is not supported with OpenLab CDS.

Compatible Libraries and Databases

The libraries and databases listed below are compatible with version 3.0 of OpenLab CDS.

NOTE

For distributed environments, MS Search and NIST library versions should be consistent on every client and AIC.

NIST MS Search/ NIST Library

Supported:

- 3.0 / NIST23

This library ships with NIST MS Search

Backwards compatibility to

- 2.4 / NIST20
- 2.3 / NIST17
- 2.3 / NIST17 Demo

Any library in the appropriate NIST format can be opened in NIST MS Search, and a basic search, e.g. name search, can be run against it.

NIST MS Search Software and Demo Library are available for download at <https://chemdata.nist.gov/>

Wiley/NIST Combined MS Library

Supported releases are:

- W23/NIST23
- W12/NIST20
- W11/NIST17

Supported Agilent Software Add-Ons

In general Agilent Add-on Software is supported to be co-resident with OpenLab CDS components. For details consult the respective product information.

Firewall Settings

If you are using a third party firewall or anti-virus software on a network with OpenLab CDS, the firewall ports listed in this section may not be in use by other applications to allow communication between the system components of OpenLab CDS. These apply to workstations as well as to client/server topologies as component communications rely on these communication channels.

Local ports are used for internal communication. They don't need to be opened in the firewall

Terms used in the following tables

- ATS: Audit Trail Service
- CertSvc: Certificate Service
- CM: Content Management component of OpenLab CDS v2.7 and earlier
- DCS: Data Collection Service
- DR: Data Repository
- OLSS: OpenLab Shared Services

NOTE

The ports that must be open on the server are dictated by the OLSS/PL/FW version of the oldest client that is connecting to the server. Only in case of fresh installations of OpenLab CDS 2.8 or higher the ports listed in the columns for v2.7 or earlier are not needed and may be closed manually.

NOTE

Bolded numbers indicate that the port is required in secure systems. If a bolded port is listed in a column of an older system, the port is required for backwards compatibility with older clients/servers in case of mixed systems.

OpenLab Server /OpenLab ECM XT

NOTE

For any mixed distributed configurations (clients or server) also the ports required for the legacy version need to be opened and available. The System Preparation Tool (SPT) of OpenLab installer will check the ports during installation, and set up firewall rules that apply including v2.6 to allow for mixed mode configurations during upgrade.

The ports that must be open on the server are dictated by the OpenLab Shared Services (Framework) version of the oldest client that is connecting to the server.

The following client-software require the ports described by v2.6 or earlier.

- MassHunter Acquisition for LC/MS TOF/QTOF 11.0, 12.0, 12.1
- MassHunter Acquisition for LC/MS TQ 12.0, 12.1, 12.2
- GC/MS MassHunter Acquisition 13.0
- MassHunter Quantitative Analysis 11.0, 12.0, 12.1
- MassHunter Qualitative Analysis 13.0

Table 58: OpenLab Server - inbound rules

Application	v2.8 or later	v2.7 Port	v2.6 or earlier	Remote System	Comments/Description
OpenLab Reverse Proxy: YARP	HTTPS :443/	-	- ¹	-	Reverse Proxy
OLSS Diagnostics	HTTPS 443	HTTPS 443	TCP 3424	Clients, AICs, Servers	Used for collecting diagnostic logs
Data Collection Service ²	HTTPS :443/openlab/dcs	HTTPS :443/openlab/dcs HTTP 6328	HTTPS 52088 HTTP 6328	Any ChemStation on ECM XT Server	DCS Legacy Port (ChemStation and CDS 2.4 and earlier), ECM XT

Application	v2.8 or later		v2.7 Port		v2.6 or earlier Port		Remote System	Comments/Description
DR PostgreSQL Server	TCP	5432	TCP	5433	TCP	5433	DR Services	<i>Required for Sample Scheduler Desktop or configuration</i> Database port Firewall rule gets applied during installation of DR Used by all internal and external applications + services, which connect against DR/PG: e.g. DCS, Audit Trail Service, Test Services, Sample Scheduler Desktop Client
OLSS Server:OpenLab Distributed Cache Service - Scalable topology ³	TCP	5701, 5702, 5703	-	n/a	-	n/a	OLSS Server (Scalable topology only)	Shared Services Instrument Status Caching - Scalable topology only. <i>These should only allow inbound traffic from other cluster nodes.</i>
OLSS Server	TCP	6570	TCP	6570	TCP	6570	Clients, AICs	OpenLab Licensing Flexera Server
	HTTPS -WCF	6577	HTTPS -WCF	6577	TCP -WCF	6577	Clients, AICs	OpenLab Shared Services WCF APIs
	HTTPS	443 8084	HTTPS	443 8084	TCP	8084	Clients, AICs	Licensing API
	HTTP	8085 - 8099	HTTP	8085 - 8099	HTTP	8085 - 8099	Clients, AICs	OpenLab Licensing view-only web UI. Default is 8090. Other ports may be used if 8090 is in use.
		8096		8096				used with OpenLab ECM
OLSS Server: REST API	TCP	27000 - 27009	TCP	27000 - 27009	TCP	27000 - 27009	Clients, AICs	OpenLab Licensing (Flexera) Server
	HTTP HTTPS	6625 ⁴ 443	HTTP HTTPS	6625 ⁴ 443	HTTP HTTPS	6625 443	Clients, AICs	SSL Termination: Shared Services REST API, Licensing Support service REST API

Application	v2.8 or later		v2.7 Port		v2.6 or earlier		Remote System	Comments/Description
					Port			
Licensing	HTTPS	7071	-	n/a	-	n/a	Enterprise (Scalable Topology) Load Balancer (LB) only	Backend service for LIC2 behind the enterprise LB. Not client-facing; callers use https://lic2.<customer-domain> on :443 via LB. Do not expose 7071 beyond the LB.
Backup and Restore	HTTP	8045 8046	HTTP	8045 8046	HTTP	8045 8046	Server, WS/WS+	Backup Notification Service Backup Task Status Cache Service
OpenSearch	HTTPS	9200	-	- ¹	-	- ¹	Server, Search-Server, WS/WS+	REST API of OpenSearch <i>Required in secure systems with Search-Server</i>
Redundant Licensing	TCP	27009	-	- ¹	-	- ¹	inbound server	Required for inter-server license-clustering.
OpenLab Forward Proxy	TCP	52081	-	- ¹	-	- ¹		On the private interface only
The ports listed below are used only in upgrade scenarios, or applications consuming OpenLab CDS 2.7 or earlier								
Content Management PostgreSQL Server	upgrades only		TCP	5432	TCP	5432	Alfresco	<i>Required for secure system on PostgreSQL systems</i> For database access
CM Server ⁵	-	- ¹	FTP	21	FTP	21	Any	Optional - Only if FTP service is turned on for OpenLab Server. By default it is off
OpenLab Reverse Proxy: Apache HTTPD	-	- ¹	HTTP	:80/	HTTP	:80/	Any	OpenLab Reverse Proxy
			HTTPS	:443/	HTTPS	:443/	Any	
Test Services Central Management Service	-	- ¹	HTTPS	:443/	HTTPS	:443/	Any	Central Management Service manages scheduling and email notifications for Test Services

Application	v2.8 or later		v2.7 Port		v2.6 or earlier		Remote System	Comments/Description
						Port		
Test Services Web Service (REST APIs and website)	from version 2.8+, the route is obsolete.		HTTPS	: 443 /testservices/ 443 /openlab/ca/	HTTPS	9092	Any	formerly QualA. The port number can be changed using the Config tool
RabbitMQ Server	TCP	4369 ⁶ 5671 ⁶ 15671 ⁶	TCP	4369 ⁶ 5671 ⁶ 15671 ⁶	TCP	4369 5671 15671	Any server, clients	Peer discovery service, used by RabbitMQ nodes and CLI tools AMQP Ports; HTTPS RabbitMQ Management UI: HTTPS
CM Server ⁵	-	- ¹	HTTP	5701 Footnote: Run the System Preparation Tool	TCP	5701	Cluster Servers	OpenLab scalable servers, between the nodes
OLSS Server	-	- ¹	-	- ¹	HTTP	6624	Clients, AICs, others	until v2.6 Shared Services REST API, Licensing Support service REST API
CM Server ⁵	-	- ¹	HTTP	localhost: 8006	HTTP	8006	Internal for CM	Content Management Server
			HTTPS	8443	HTTPS	8443	CM and Index Server	OpenLab Server website and REST APIs for index service
CM Search Service ^{7 5}	-	- ¹	HTTPS	8983	HTTPS	8983	Index server	Search Service
CM Server ⁵	-	- ¹	HTTP	localhost: 9083	HTTP	9083	Internal	OpenLab Server website and REST APIs, accessed via Reverse Proxy only
Reverse Proxy Configuration Service ⁸	-	- ¹	HTTP	12876	HTTP	12876	Internal (accessible on localhost only)	Disabled after install Reverse Proxy Configuration Service hosts REST APIs to configure the Reverse Proxy Server.

Application	v2.8 or later		v2.7 Port		v2.6 or earlier		Remote System	Comments/Description
						Port		
Sample Scheduler Webserver, Orchestrator, DB-Management	-	- ¹	HTTPS	443	HTTPS	52088	Any	
DCS ⁹ CertSvc ¹⁰ ATS OLSS Server	-	- ^{1 11}	HTTPS	:443/ openlab/ dcs	HTTPS	52088	Any	Needed for backwards compatibility with older clients/servers Audit Trail Service Data Collection Service
			HTTPS	/openlab/ certservice/ e/	HTTPS	52088		Certificate Service: • Required for internal communication • Not required in a secure configuration for incoming traffic

¹ Not required.

² Set the "Programs" property for this port to "Any"

³ C:\Program Files\OpenLab Distributed Cache\Hazelcast\lib\Hazelcast-{version}.jar

⁴ As of 2.7, called only by OpenLab Installer

⁵ C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\bin\tomcat8.exe (deprecated with rev. 2.8)

⁶ Required in secure systems, for applications consuming CDS 2.7 and that require RabbitMQ.

⁷ C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\java\bin\java.exe

⁸ C:\Program Files (x86)\Agilent Technologies\OpenLab Reverse Proxy Configuration Service\ConfigurationService\Agilent.OpenLab.ReverseProxy.ConfigurationService.exe

⁹ C:\Program Files\Agilent Technologies\OpenLab Data Collection Server\Bin\DataCollectionService.exe

¹⁰ No program configured in Windows Firewall - exe path is: C:\Program Files\Agilent Technologies\OpenLab Certificate Service\Bin\Agilent.OpenLab.CertService.CertServiceCore.exe

¹¹ Required in secure systems for backwards compatibility with older clients/servers.

Table 59: OpenLab Server - outbound rules

Application	Protocol	Port	Remote System	Description
OLSS Server	TCP	25	Email Server	If email server uses a different port, or uses secure ports, the destination port will be different.
OLSS Server	TCP/UDP	53	DNS Server	DNS
OLSS Server	TCP/UDP	67 68	DHCP Server	DHCP or BootP
OLSS Server	TCP	137 - 139	NetBios WINS	For NetBios/Name resolution for NT Share
OLSS Server	TCP	389 636	On-prem Active Directory	LDAP LDAPS Server (only if used)
OLSS Server	TCP	445	NAS/Share Server	Server Message Block (SMB). Used for storage on a remote NAS share.
CM Server, OLSS	TCP UDP	1433 1434	SQL Server	Only when using MS SQL Server. Configurable
CM Server, OLSS	TCP	1521	Oracle Server	Only when using Oracle Server; Configurable
OLSS Server	TCP	3268	LDAP Server	Global Catalog LDAP
OLSS Server	TCP	3269	LDAP Server	Global Catalog LDAP SSL
CM Server, OLSS	TCP	5432	PostgreSQL Server	Only when using external PostgreSQL Server. Configurable
CM Server, OLSS	TCP	5701, 5702, 5703	Hazelcast (cluster topology only)	For communication of Hazelcast instances on each redundant node within the cluster topology. They need to communicate with one another but not outside the cluster.
Backup Notification Service	HTTP	6624	OLSS API	Uses OLSS API to send email notifications.
Backup Monitoring Service	HTTP	8045 8046	Backup Notification Service Backup Task Status Cache Service	Backup Monitoring Service uses HTTP connection to track state of the scheduled backups and send notification about their statuses.
Server, Search-Server, WS/WS+	TCP	9200	OpenSearch	REST API of OpenSearch
Redundant Licensing	TCP	27009	other ECM XT servers	Required for inter-server license-clustering.

ECM XT Add-ons

Table 60: ECM XT Add-ons - inbound rules

Application	Protocol	Port	Remote System	Description
Import Scheduler	HTTP	9091	Server, Services for CM	Import Scheduler communication port for Web UI and REST API
Import Scheduler	HTTPS	9093	Server, Services for CM	Import Scheduler communication port for Web UI and REST API

Licensing

Table 61: Common Licensing Layer - inbound rules

Application	Protocol	Port	Remote System	Description
Agilent.Licensing REST API	HTTP HTTPS	52080 52088	Clients	Machine hosting Agilent.Licensing service

Table 62: Common Licensing layer - outbound rules

Application	Protocol	Port	Remote System	Description
License Server	HTTP HTTPS	7070 7071	Clients	Machine hosting FNE Licensing Server

NOTE For Online Activation of Agilent Electronic Licensed products, https://*.flexnetoperations.com needs to be whitelisted.

NOTE CDS Clients/AICs do not connect directly to 7071.
In scalable topology, all LIC2 callers use https://lic2.<customer-domain> on :443 .
The Load Balancer forwards to the licensing backend (HTTPS 7071) and performs /ping health checks.

OpenLab CDS AICs

Table 63: OpenLab CDS AIC - inbound rules

Application	2.8 or later		v2.7		v2.6 or earlier		Remote System	Comments/Description
	Protocol	Port	Protocol	Port	Protocol	Port		
OLSS Storage Client	-	- ¹	-	- ¹	TCP	2886	localhost	Local traffic only, does not require open port OpenLab Automation Service (Work Area, Buffered Upload)
OLSS Diagnostics	HTTPS (WCF)	443	HTTPS (WCF)	443	TCP (WCF)	3424	Clients, AICs, Server	Used for collecting troubleshooting logs
OLSS Storage Client	HTTPS	443	HTTPS	443	HTTP	6628	Clients	Remote Work Area REST API
Test Services (QualA) Website & REST APIs	HTTPS	:443/ testservices/ :443/ openlab/ca	HTTPS	:443/ testservices/ :443/ openlab/ca	HTTPS	9092	Any	Test Services Web Service hosts REST APIs and website on this port. The port number can be changed using Test Services Config tool. As of 2.7 H1 the Test Services are registering with Reverse Proxy to use ports 80 and 443.
Acquisition	WS	:443/ openlab/ Acquisition Services	WS	:443/ openlab/ Acquisition Services	TCP	9753	Clients	CDS 2.5 or earlier messaging communication ²
	WS		WS		HTTPS	9753		CDS 2.6 messaging communication ³
	HTTPS	:443/ openlab/ Acquisition Services/ {ID} 443	HTTPS	:443/ openlab/ Acquisition Services/ {ID} 443	HTTPS	443		CDS 2.7 or later messaging communication ⁴
Sample Scheduler Agent	HTTPS	443	HTTPS	443	HTTPS	52088	Clients	CDS 2.7 or later - messaging communication ⁴

Application	2.8 or later		v2.7		v2.6 or earlier		Remote System	Comments/Description
	Protocol	Port	Protocol	Port	Protocol	Port		
CDS Data Analysis Session Host	TCP	51000 - 51099	-	- ¹	-	- ¹	localhost	TCP connection that the SessionHost (Windows service) establishes to a specific DA API Server process
Forward Proxy	TCP	52081	-	- ¹	-	- ¹	instrument private LAN, not required on the public LAN	Forward Proxy (FP) service acts as a "bridge" between apps and devices in a private IP network (instruments, Smart box) and the public LAN with the OpenLab services.

¹ Not required.

² Reverse proxy is not installed and communication is TCP based

³ Reverse proxy is installed but dormant, so 9753 is used directly

⁴ Reverse proxy is installed and active; all incoming connections are routed through the proxy

Table 64: OpenLab CDS AIC - outbound rules

Application	Protocol	Port	Remote System	Description
	TCP/UDP	53	DNS Server	DNS
	TCP/UDP	67-68	DHCP Server	DHCP or BootP
Content Management	HTTP HTTPS	80 443	OpenLab Server	OpenLab Server secure website & secure REST APIs.
OLSS Licensing API	TCP	6570	OpenLab Server	OpenLab Licensing (Flexera) Server
Acquisition	TCP	27000 - 27009	OpenLab Server	OpenLab Licensing (Flexera) Server
OLCF Data Collection API, Data Collection Agent	HTTPS HTTP	443 6328	OpenLab Server	Data Collection Service 6328 used as fallback only if HTTPS is not available
Sample Scheduler	HTTPS	443	OpenLab Server	Sample Scheduler, connection to Orchestrator service

Please see the instruments "outbound" section at [Instrument communication](#) on page 98 for additional ports that drivers may listen on for incoming communications from instruments. Firewalls on AICs must be configured to allow such traffic.

OpenLab CDS clients

Table 65: OpenLab CDS client - inbound rules

Application	v2.8 or later		v2.7		v2.6 or earlier		Remote System	Comments/Description
			Protocol	Port	Protocol	Port		
OLSS Storage Client	TCP	2886	TCP	2886	TCP	2886	localhost	Local traffic only, does not require open port OpenLab Automation Service: work area, buffered upload
Test Services	HTTPS	52088	HTTPS	9092 ¹	HTTPS	9092	Any	
CDS Data Analysis Session Host	TCP	51000 - 51099	-	- ²	-	- ²	localhost	TCP connection that the SessionHost (Windows service) establishes to a specific DA API Server process

¹ Test Services Web Service hosts REST APIs and Web site on the port 9092. However, it is not necessary to open this port in the firewall for the tool to work. Users can load the web UI and access REST APIs using <https://localhost:9092/> from local system (client) itself. However if remote access is required, then this port should be open and users can access <https://<client-fqdn>:9092/> from remote systems. Reverse Proxy is not available on Client systems. The port number can be changed using Test Services Config tool.

² Not required.

Table 66: OpenLab CDS client - outbound rules

Application	Protocol	Port	Remote System	Description/Comments
	TCP/UDP	53	DNS Server	DNS
	TCP/UDP	67 68	DHCP Server	DHCP or BootP

Application	Protocol	Port	Remote System	Description/Comments
OLSS Client API	TCP	80	OpenLab Server	OpenLab Server website and REST APIs
	HTTPS	443	OpenLab Server	OpenLab Server secure website and secure REST APIs. only if HTTPS is used OpenLab Shared Services WCF APIs
	TCP	6570	OpenLab Server	OpenLab Licensing (Flexera) Server
Control Panel	TCP	8084	Clients, AICs	Licensing API (WCF)
	HTTP	8090 8098 8099	OpenLab Server	OpenLab Licensing view-only web UI (Flexera). Default is 8090. If 8090 is in use, other ports may be used.
	TCP	27000 - 27009	OpenLab Server	OpenLab Licensing (Flexera) Server
Acquisition	TCP	9753	AIC	CDS 2.5 or earlier Messaging communication
	HTTPS	9753	AIC	CDS 2.6 Messaging communication
	HTTPS	443	AIC	CDS 2.7 or later Messaging communication.
OLCF Data Collection API, Data Collection Agent	HTTPS	443	OpenLab Server	Data Collection Service,
	HTTP	6328		6328 used as fallback only if HTTPS is not available
Sample Scheduler	HTTPS	443	OpenLab Server, AIC	Sample Scheduler Sample Scheduler Desktop Client / Configuration
	TCP	5432, 5433	OpenLab Server	OLDR connection (only if activated, and OLDR configuration)
Data Analysis API ("SessionHost" windows service)	TCP	51000 - 51099	AIC, local	Data Analysis API bridge for communication between DA REST Api service and DA Server process(es)

Instrument communication

Table 67: Instruments - inbound rules

Protocol	Port	Remote System	Description
TCP, UDP	20	AIC, Workstation	FTP
TCP	21		Needs to be open from PC used to do FW update to instruments for GCMS SQ 597* and LC/MS SQ FW (SC4 based instruments)

Protocol	Port	Remote System	Description
TCP	22	AIC, Workstation	SFTP - Firmware installation & SmartCard Trace for some instruments, e.g. 7200A GC-QTOF, and LC/MS SQ
TCP, UDP TCP	23	AIC, Workstation	Telnet communications for GC MSD and LC/MS SQ (597*) Instrument communication: LC, CE
UDP	69	AIC, Workstation	TFTP - Required for communication with legacy instruments, Jet Direct Cards
HTTP	80	AIC, Workstation	Embedded web server (9000 and 88x0 series GC, and 5977, 5975 & 5973 MSDs)
TCP	111 1007 1024 - 1026	AIC, Workstation	LC/MS instrument communication GC MSD instrument communication
TCP	2101	AIC, Workstation	ELSD Instrument communication: G4260B ELSD
TCP	2077	AIC, Workstation	LC/MS SQ instrument communication; can be changed via configuration file
proprietary/ SunRPC TCP	2883 - 2886 3068 3071	AIC, Workstation	GC MSD instrument control: 5975, 5973 MSD
TCP	4879	AIC, Workstation	Instrument communication: Headspace
TCP	5813	AIC, Workstation	GC MSD Firmware installation: ICMP/Ping
ICMP/Ping	n/a	AIC, Workstation GCMS Instrument	GC MSD instrument control. In order for CDS 2.x instruments to communicate with any 5975/5977 GCMS SQ instruments - inbound and outbound ICMP packets must not be blocked by the AIC/Workstation firewall.
TCP	5973	AIC, Workstation	GC MSD instrument control proprietary/SunRPC/TCP
TCP	6002 6003	AIC, Workstation	LC/MS SQ instrument communication, SC4 based LC/ SQ LC/SQ models G6160A, G6160B, and G6170A
TCP	7972 7973	AIC, Workstation	GC MSD instrument control : 597* MSD
TCP	8194	AIC, Workstation	PAL3, data subscription
TCP	9001 9002	AIC, Workstation	Instrument communication: GC, LC, CE

Protocol	Port	Remote System	Description
TCP	9100	AIC, Workstation	Instrument communication: GC, LC, CE, 35900
TCP	9101 9110	AIC, Workstation	Instrument communication: GC, LC, CE
TCP	9111	AIC, Workstation	GC instrument: 8697A
TCP	10000 - 10020	AIC, Workstation	GC instrument communication: 78xx, 88xx, 9000
TCP	30718 55055 - 55057	AIC, Workstation	Instrument utilities
UDP	55065	AIC, Workstation	GC MSD instrument control
TCP	60000	AIC, Workstation	PAL XT communication
TCP	61001	AIC, Workstation	Instrument utilities
TCP	64000 64001	AIC, Workstation	PAL3 communication
TCP	64500	AIC, Workstation	PAL3, plain socket protocol

Table 68: Instruments - outbound rules

Protocol	Port	Remote System	Description
TCP/UDP	53	DNS Server	DNS
TCP/UDP	67 68	DHCP Server	DNS or BootP
TCP	7980 - 7983	AIC, Workstation	GC MSD - Reverse Slick
HTTP	8080	web server	LC/MS SQ communication
TCP	52081	AIC, Workstation	InfinityLab Assist Hub

OpenLab ECM server

Table 69: OpenLab ECM server - inbound rules

Application	Protocol	Port	Remote System	Description
	TCP	80	Clients	OpenLab ECM Server website and REST APIs operate on this port. Configurable.
	TCP	443	Clients	OpenLab ECM Server secure website & REST APIs operate on this port.
Reverse Proxy Configuration Service ¹	HTTP	12876	Internal accessible on localhost only	Reverse Proxy Configuration Service hosts REST APIs to configure the Reverse Proxy Server's configuration file. This modifies the Apache HTTPD server's httpd.conf file.

¹ C:\Program Files (x86)\Agilent Technologies\OpenLab Reverse Proxy Configuration Service\ConfigurationService\Agilent.OpenLab.ReverseProxy.ConfigurationService.exe

Table 70: OpenLab ECM server - outbound rules

Protocol	Port	Remote System	Description
TCP	25	Email Server	If email server uses a different port, it can be specified in OpenLab Control Panel.
TCP/UDP	53	DNS Server	DNS
TCP/UDP	67 68	DHCP Server	DHCP or BootP
UDP	161	SNMP Server	Simple Network Management Protocol
TCP	389	LDAP Server	LDAP
TCP	636	Secure LDAP Server	Secure LDAP
TCP	1433	SQL Server	Only when using MS SQL Server. Configurable.
UDP	1434	SQL Server	Only when using MS SQL Server. UDP
TCP	1521	Oracle Server	Only when using Oracle Server. Configurable.
TCP	3268	LDAP Server	Global Catalog LDAP
TCP	3269	LDAP Server	Global Catalog LDAP SSL
TCP	8211	ECM Comm Service	If caller is a Service
TCP	18211	ECM Comm Service	If caller is Forms Host

OpenLab ECM clients

Table 71: OpenLab ECM client - inbound rules

Protocol	Port	Remote System	Description
TCP	1801	MSMQ	MSMQ messages used in ECM Scheduler Agent

Table 72: OpenLab ECM client - outbound rules

Protocol	Port	Remote System	Description
TCP/UDP	53	DNS Server	DNS
TCP/UDP	67 68	DHCP Server	DHCP or BootP
UDP	161	SNMP	Simple Network Management Protocol (SNMP)
TCP	389	LDAP Server	LDAP
TCP	636	Secure LDAP Server	Secure LDAP

Dynamic Ports

Dynamic Ports: used for temporary communications between clients. The ports used depend on the operating system in use and are configurable. See the operating system documentation for more information.

8

Sales and Support Assistance

Local Contact

Software technical support contacts:

<https://www.agilent.com/en/support/software-technical-support-contacts>

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In This Book

This document details the minimum hardware and software requirements that need to be met to run OpenLab CDS. It is valid for Workstation, Workstation Plus, client, or analytical Instrument Controller (AIC) components. It also provides information on supported Agilent- and Non-Agilent instruments.

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