Agilent

OpenLab CDS Clients and Instrument Controllers

Installation and Configuration

Notices

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Software Revision

This guide is valid for revision 2.7 of Agilent OpenLab CDS.

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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In this Guide ...

This document provides instructions for installation, configuration, administration, and maintenance of OpenLab CDS Clients and Instrument Controllers. It includes information on the license generation with SubscribeNet and operating system configuration.

Table 1 Terms and abbreviations used in this document

Term	Description
Content Management	Component of OpenLab Server used to manage your analytical data, including a database. Always used in Client/Server systems, optional for Workstations.
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 Prepare your PC

This chapter describes how to configure your PC hardware, and prepare for installation of your OpenLab CDS software. Agilent-delivered PC Bundle systems are delivered with the supported pre-installed Windows operating system, so you may skip some of the steps.

2 Install OpenLab CDS

This chapter describes the installation of the OpenLab CDS software in a Client/Server environment.

3 Post Installation Tasks

This chapter describes tasks that are relevant after finishing the installation.

4 Optional Procedures

This chapter describes the installation or upgrade of additional software. It also contains information on the installation of OpenLab Help and Learning only, and on performance improvement on offline machines.

5 Licensing

This chapter provides basic information on OpenLab licensing and describes how you generate a license file with SubscribeNet.

6 Configure OpenLab CDS

This chapter describes the initial configuration steps after installing the software. All configuration tasks are performed in the Control Panel. For more details, refer to the Control Panel section in OpenLab Help & Learning.

7 About the OpenLab CDS Software

This chapter contains an overview of the basic software features.

8 System Setup and Maintenance

This chapter contains information on the Control Panel and Shared Services Maintenance. In addition, it contains information on maintenance procedures.

9 Upgrade to the latest OpenLab CDS Version

This chapter describes the upgrade of the OpenLab CDS software in a Client/Server environment.

10 Uninstall OpenLab CDS

This chapter describes the uninstallation of the OpenLab CDS software.

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1 Prepare your PC

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This chapter describes how to configure your PC hardware, and prepare for installation of your OpenLab CDS software. Agilent-delivered PC Bundle systems are delivered with the supported pre-installed Windows operating system, so you may skip some of the steps.

Install and Update Windows

1. Install the Windows operating system from the Microsoft installation media or qualified PC image media provided by your IT department. During the setup, provide the computer name, administrator password, and network settings.

   For the computer name, do not use underscores; installation is not possible if the computer name contains an underscore.

   Both clients and instrument controllers must be in a Windows domain; systems in workgroup mode are not supported. Domain naming has to be consistent with RFC-1034.
2. In the Microsoft Control Panel under **System >Windows activation**, click **Change product key**. Enter a valid value to activate Windows.
3. Update to the recommended version of Windows. See the FAQ section of the OpenLab CDS page (**https://www.agilent.com/** under **Products >Software & Informatics >Chromatography Software >Chromatography Data Systems >OpenLab CDS >Support**).
4. Check for Windows quality updates, and apply all critical security patches. Do not choose to install a newer version of Windows (see previous step). Make sure the Windows quality updates have finished installing before proceeding to install OpenLab CDS.
5. Check that your computer meets all requirements. You can access the *Requirements and Supported Instruments for Instrument Controllers, Clients, or Workstations* guide (CDS_v2.7_Requirements_en.pdf) from the Setup\Docs folder on the installation media.

   Use this PDF to check that your settings comply with the network requirements, and to determine whether your hardware and software will support the system.
6. Be sure to open the firewall ports listed in the Firewall Settings in the *Requirements and Supported Instruments for Instrument Controllers, Clients, or Workstations* guide (CDS_v2.7_Requirements_en.pdf).

   Make sure that the TCP ports 80 and 443 are available.

NOTE

If these ports are occupied by other programs: Try setting the startup type of the **World Wide Web Publishing Service** to **Manual** or **Disabled**, or disable Internet Information Services (IIS).

7 To configure remote settings: In the Microsoft Control Panel navigate to **System >Remote settings**. On the **Remote** tab. In the **Remote Desktop** section, select **Don't allow connections to this computer**.

8 In the Microsoft Control Panel under **Date and Time**: Choose the time zone of your regional location.

Install the .NET 3.5 and 4.x Framework

If .NET 3.5 and .NET 4.x are not installed on your system, their installation will automatically be triggered by the installation wizard. However, this may require a system reboot. To avoid the system reboot during installation, install .NET in advance.

1 Go to the Microsoft Control Panel.

   In the Windows Start menu, enter "Control Panel" in the **Search programs and files** field (alternatively, press [Win+R] and enter "Control panel"). To view all items in the Control Panel view, select **Small icons** in the **View by** field.

2 Go to **Programs and Features**.

3 Go to **Turn Windows features on or off**.

4 Enable .NET 3.5 as follows:

   a Expand the **.NET Framework 3.5 (includes .NET 2.0 and 3.0)** node.

   b Select the **Windows Communication Foundation Non-HTTP Activation** check box.

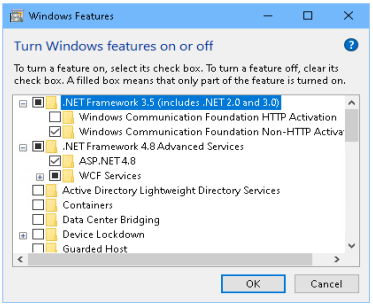


Figure 1 Enable .NET 3.5 (Win 10)

NOTE

This requires an internet connection. If it does not work as expected, or the computer has no internet access, install .NET 3.5 manually. Microsoft offers several options for the installation. For details, refer to:

- **https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/deploy-net-framework-35-by-using-deployment-image-servicing-and-management--dism**

  or

- **https://docs.microsoft.com/en-us/dotnet/framework/install/dotnet-35-windows**

5 Select the **.NET Framework 4.8 Advanced Services** check box. Use the default values for sub items.

Before You Begin the Installation of OpenLab CDS

To simplify installation of the software, it is helpful to decide on some configuration options before you begin the actual software installation.

1 Decide on a computer name.

NOTE

Do not use an underscore. Installation is not possible if the computer name contains an underscore.

To make sure that a DNS server can resolve the computer name, follow the internet standard for protocols (*RFC952*) and use only the following characters:

- Letters (a-z, A-Z)
- Digits (0-9)
- Hyphen (-)

2 Install all required hardware, including any cables, instrument detectors, and communication cables. GPIB interfaces may be required for some non-Agilent instruments.

3 Prepare an account with administrative privileges to run the installation.

4 To allow the successful installation and activation of all components, make sure that the LAN-cable is connected and a network is available. A local network is sufficient. If you install the workstation without a network cable, the activation of the Content Management component will fail, and trying to run the database will return an error.

5 Make sure that the antivirus software is disabled during the installation.

6 Check the Agilent Service Notes for software updates for your installation package and software products. Service Notes are available from your Agilent support representative.

7 If you use Trend Micro™ as an antivirus software, turn off **Web Reputation** to allow the installation of all components.

8 If you plan to upgrade from a previous version of OpenLab CDS please refer to the *Upgrade OpenLab CDS* chapter.

Run the System Preparation Tool

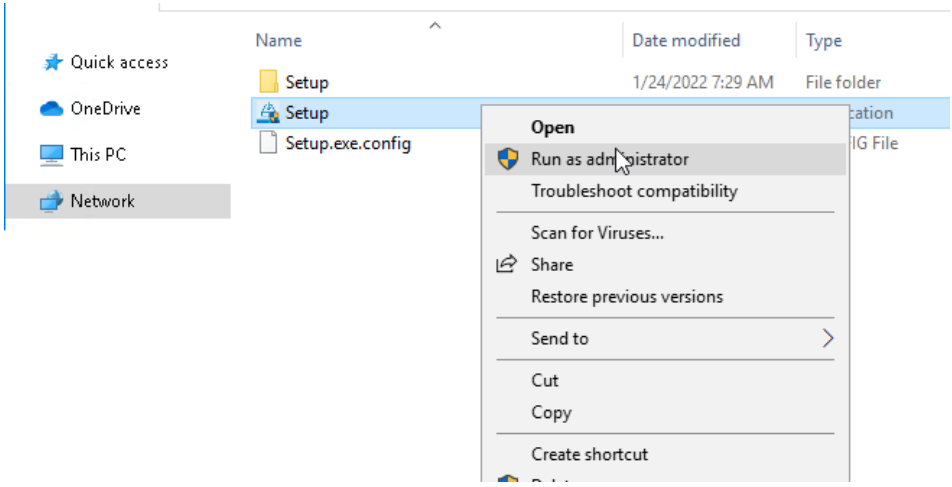
The System Preparation Tool (SPT) checks and applies Windows settings on your machine. The settings are also applied automatically when you run the OpenLab installer. Running the SPT in advance helps you to shorten the installation process. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in the *OpenLab CDS Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).

1 Optional: Copy the entire content of the USB media to a local drive or centralized folder, then remove the USB media from the PC.

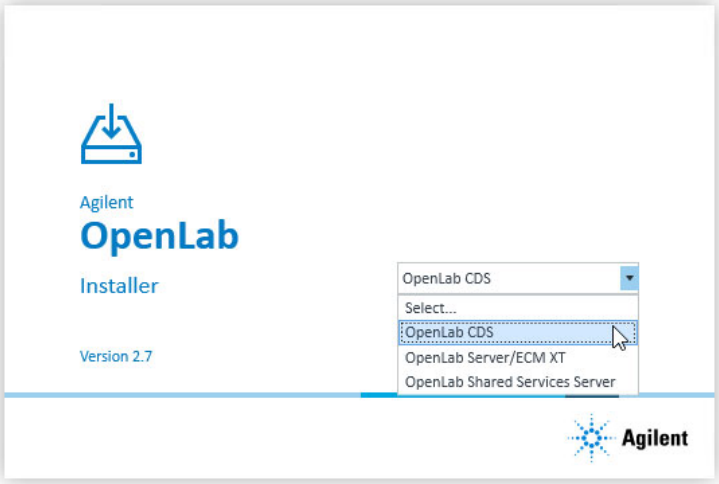
2 To open the installer, right-click the setup.exe file, and run it as administrator.

NOTE

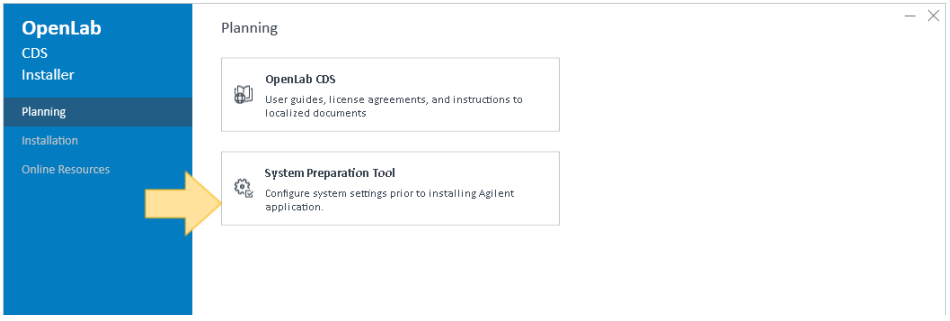
If User Account Control (UAC) is switched on, this step requires active confirmation to continue.



3 On the start screen, select **OpenLab CDS**, and click **OK**.



4 From the **Planning** tab, select **System Preparation Tool**.



The **System Preparation Tool** window opens.

5 Select the product configuration corresponding to your system.

For AICs:

- **OpenLab CDS~2.7~AIC~Win10**
- **OpenLab CDS~2.7~AIC~Win11**
- **OpenLab CDS~2.7~AIC~Win2016**
- **OpenLab CDS~2.7~AIC~Win2019**

For clients:

- **OpenLab (CDS, ECMXT)~2.7~(Client, CMServices)~Win10**
- **OpenLab (CDS, ECMXT)~2.7~(Client, CMServices)~Win11**
- **OpenLab (CDS, ECMXT)~2.7~(Client, CMServices)~Win2016**
- **OpenLab (CDS, ECMXT)~2.7~(Client, CMServices)~Win2019**

NOTE

If you use *Windows Server 2022* as an operating system, select the appropriate *Win2019* product configuration instead. For example, if you are installing an OpenLab CDS 2.7 AIC on Windows Server 2022, select **OpenLab CDS~2.7~AIC~Win2019**.

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

6 Select which recommended settings to apply to the system.

There are several recommended settings that can improve the performance and stability of your system, but do not need to be completed to deploy the application. The recommended settings are listed after the mandatory settings.

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.

7 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.

8 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.

9 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.

10 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.

For example, .NET Framework 3.5 must be installed manually on machines using Windows Server 2022 if you are not connected to the Internet (see "Install the .NET 3.5 and 4.x Framework" on page 11).

11 Click **Finish**.

12 Reboot your system if requested to do so.

2 Install OpenLab CDS

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This chapter describes the installation of the OpenLab CDS software in a Client/Server environment.

Installation Workflow Overview

NOTE

Decide if you want to go for a cloud deployment. In this case, check with your Agilent representative or refer to the manual *OpenLab CDS Configuration in the Cloud* on the Agilent Software Service Desk: **https://servicedesk.li.agilent.com/plugins/servlet/desk**.

Install OpenLab Server

1. Set up the Windows Operating System
2. Install OpenLab Server including Content Management
3. Run Installation Verification

If you use the Content Management component provided by OpenLab Server or OpenLab ECM XT: Refer to the *Agilent OpenLab Server and OpenLab ECM XT* installation guide.
If you use an existing ECM 3.X system to store you data, refer to the *Configuring OpenLab CDS with ECM 3.x* guide.



Prepare

- Check OpenLab CDS Requirements and Supported Instruments for Client/Server Systems
- Run System Preparation Tool
- Configure Windows (manual steps)

Running the System Preparation Tool before starting the installation is recommended to reduce or avoid reboots during the installation.
See "Run the System Preparation Tool" on page 14.
If you plan scripted installations, see "Silent Installation" on page 28.



Install Clients and AICs

1. Install OpenLab CDS
   on AICs and clients
2. Post Installation
   Software verification
   Prepare Centralized Printing
3. Optional
   Improve performance on offline machines
   Install Add-ons

It is recommended to install an AIC first before installing the clients.

- See "Install OpenLab CDS (Client or Instrument Controller)" on page 22
- See "Post Installation Tasks" on page 33
- See "Optional Procedures" on page 43



Get Licenses

1. Obtain licenses via SubscribeNet:
   - OpenLab CDS
   - Instrument products
   - Add-ons
2. Install your licenses

See "Licensing" on page 46



Configure

- Authentication
- Projects, incl. audit trail settings
- Instruments

See "Configure OpenLab CDS" on page 53. All configuration tasks are performed in the Control Panel. For more details, refer to the Control Panel section in OpenLab Help & Learning.

Prepare for Installation

1. Make sure that the antivirus software is disabled during the installation.
2. Do not run the Windows Update Service during installation. Make sure that no Windows updates are performed during the installation.
3. Make sure that no system reboot is pending.

   Pending reboots are indicated in the System Preparation Tool (see "Run the System Preparation Tool" on page 14).
4. Ensure that all required ports can be used by OpenLab CDS. For details, see *Requirements and Supported Instruments for Instrument Controllers, Clients, or Workstations* (CDS_v2.7_Requirements_en.pdf).
5. Ensure that .NET pipe communication is allowed among the OpenLab components.

Install an OpenLab Server

If you use the Content Management component provided by OpenLab Server or OpenLab ECM XT: Refer to the *Agilent OpenLab Server and OpenLab ECM XT Installation* guide (ECM_XT_v2.7_InstallationGuide_en.pdf).

If you use an existing ECM 3.X system to store you data, refer to the *Configuring OpenLab CDS with ECM 3.x* guide (CDS_v2.7_configure-with-ECM_en.pdf).

Install OpenLab CDS (Client or Instrument Controller)

This procedure describes the installation of the OpenLab CDS software on a client or Analytical Instrument Controller (AIC). Carry out this procedure on each client PC and each AIC machine.

Converting an OpenLab CDS client to an AIC is not supported. In this case, to ensure correct fail-over operation, you need to uninstall any existing OpenLab CDS instance, and re-install as an AIC.

Prerequisites

An OpenLab Server is already installed and available in your network.

OpenLab CDS versions on clients and AICs must not be higher than the OpenLab Server version.

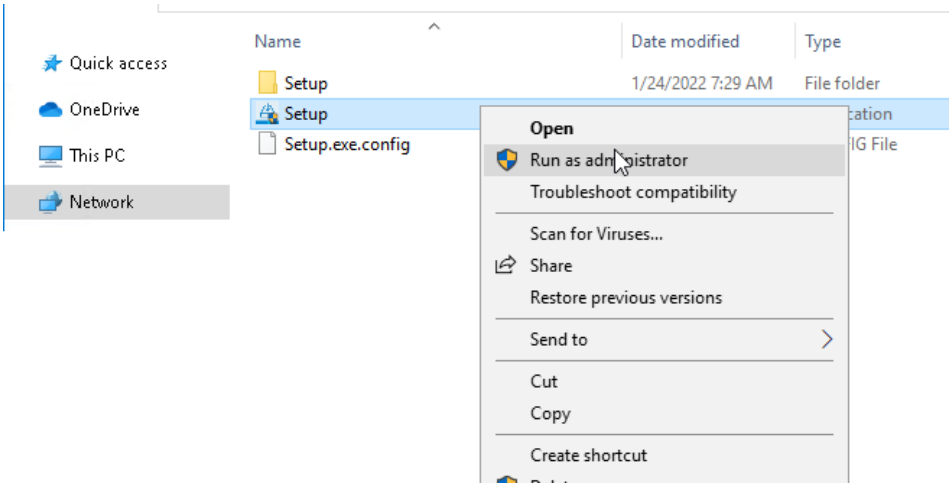
If you use Windows Server 2022 as an operating system:

- You must run the System Preparation Tool before installation ("Run the System Preparation Tool" on page 14).
- You must install OpenLab CDS 2.7 Update 06 or higher.

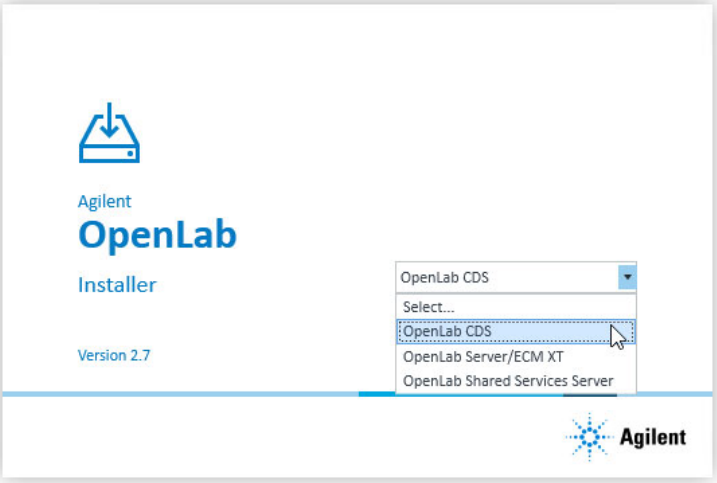
NOTE

Clients that are installed on a scalable system, needs to be connected to virtual host (typically, the configured hostname of the load balancer) during the installation.

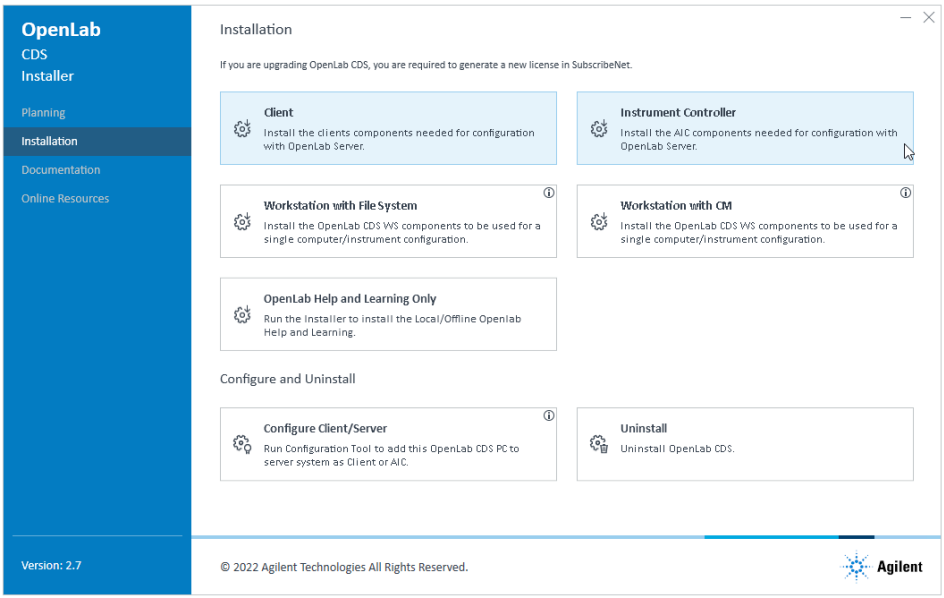
1 To open the installer, right-click the setup.exe file, and run it as administrator.



2 On the start screen, select **OpenLab CDS**, and click **OK**.



3 On the **Installation** tab, click **Client** or **Instrument Controller**, depending on what you are installing.



4 **License Agreement**: Read and confirm Agilent terms and conditions.

5 **Installation Folder**: Provide an installation folder for OpenLab CDS. Do not use the root folder of any drive.

6 **Storage Configuration** (if you are installing an Instrument Controller): Provide a projects root path that can be used to store projects data in a failover scenario.

7 **Server Information**: Enter the hostname of the Shared Services server you would like to connect to, and click **Connect**. If you are installing an Instrument Controller, you must additionally provide the OpenLab Control Panel login credentials of an administrator for the specified server.

8 **System Preparation**: The installer shows the list of recommended settings for the system. You may clear the check boxes for items that you do not want to apply on the system. Mandatory settings will be applied automatically during installation. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in the *OpenLab CDS Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).

Click **Next** to proceed to the **Review** page. The settings will be applied as part of the installation.

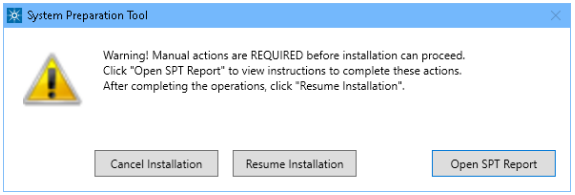
NOTE

If you use *Windows Server 2022* as operating system, the System Preparation Tool will not run. Confirm the error message to skip the step. You can ignore the message if you ran the tool before installation.

9 **Review**: All components that will be installed, and all settings that will be applied are listed here.

- To save a properties file for a future silent installation (see "Silent Installation" on page 28), click **Save to config File**.
- To start the installation, click **Install**.

10 If there are still manual actions required before installation, a warning is shown.



Options to proceed

- *Recommended*: Click **Open SPT Report** to view instructions to complete these actions. In the report, check the **Required Actions** section. After completing the operations, click **Resume Installation**.
- **Cancel Installation**: Installation is aborted. Make necessary updates and restart installation.
- **Resume Installation**: The dialog is closed, and installation continues with the installation of the CDS components even if a setting was not applied. If needed, the settings can be updated after the installation has been completed.

11 **Install**: After the installation has completed, click **Next**.

12 **Finish**:

- To view the report of the applied Windows settings, click the link under **System Preparation**. If you still need to apply settings manually, a warning will be displayed. You will find details in the linked report.
- To confirm everything has been installed correctly, click **Run Software Verification**[1].
- To complete the installation, select the **Reboot the computer now** check box, and click **Finish**.

[1] To start the tool separately at a later point in time, select *Start > Agilent Technologies > Software Verification Tool*.

13 In case of errors during the installation: Check the installation log files under C:\ProgramData\Agilent\InstallLogs\<date and time>. Note that ProgramData is a hidden folder.

As of OpenLab CDS version 2.5, registration of the CDS application is no longer done at the end of the CDS Client installation. For regulated customers, we recommend to:

- Perform the Operational Qualification (OQ) of the CDS Clients after having installed at least *one Analytical Instrument Controller (AIC)*.

  or

- For configuration with no AIC to run the OpenLab Configuration tool after installing the first CDS Client (see "Register a Client or Instrument Controller on the Server" on page 88).

The installation includes a set of standard instrument connections. If you need other instrument driver software, install it in a separate step. See "Install or Upgrade Instrument Driver Software" on page 32.

Sample Scheduler for OpenLab

As of OpenLab CDS version 2.6, Sample Scheduler for OpenLab is installed by default with an OpenLab CDS Client/Server installation. The following components are available in the Client/Server topology after upgrading to 2.6 or higher:

- Server: Sample Scheduler Database as part of the Data Repository, LIMS Agent, Web Server
- Instrument Controller: Sample Scheduler Agent
- Client: Sample Scheduler Client, Sample Scheduler Configuration

Sample Schedule services are disabled after installation. To try out Sample Scheduler for OpenLab, select **Agilent Technologies >Agilent Sample Scheduler** from the Start menu. Click **Access free dashboard**, and follow the instructions. Alternatively, click the **Sample Scheduler** button in OpenLab CDS Acquisition.

If you decide to regularly use Sample Scheduler or want to evaluate more capabilities please activate it first. For details on activation see information page that is launched.

To remove the Sample Scheduler button from the Acquisition clients, see "Remove Sample Scheduler Button from OpenLab CDS Acquisition" on page 95.

Install CDS Client on Terminal Server

1. Set up a Terminal Server.
2. Install the CDS client as described under "Install OpenLab CDS (Client or Instrument Controller)" on page 22.
3. Publish the **Control Panel** RemoteApp program from the Terminal Server setup.
4. From a thin client, access the Terminal Server published link

Silent Installation

OpenLab CDS supports a command-line mode for installation, also referred to as *silent installation*. This mode supports installation, upgrade, and uninstallation. You can execute silent installations either manually or as part of software management systems such as LANDesk or HP CM.

Export Properties File

The OpenLab Installer supports a feature to export the installation parameters into a properties file which you can then use for the silent installation.

1. Launch the OpenLab Installer.
2. Follow the instructions of the wizard.
3. When you have reached the **Review** screen, click **Save to config file**.

   Save the file to a suitable location. The file will automatically be saved as a .properties file.

You can now use the properties file for the silent installation.

Run Silent Installation

Prerequisites

- You have prepared a properties file for silent installation. See "Export Properties File" on page 28.
- .Net Framework is present on your system.

  If it is not present, it will automatically be installed. You must then manually select **Accept** to agree with the license agreement.

Install application on client or AIC

1. Copy the content of the USB media to a centralized folder.
2. Copy the properties file to the same directory as the CDSInstaller.exe.
3. Right-click the executable of the command prompt or Power shell prompt, and run it as administrator.
4. Navigate to the location where you have saved the installation files.

   For example: C:\CDS
5. To start the installation, call CDSInstaller.exe with the following syntax:

   CDSInstaller.exe -s -config <PropertiesFile>

   For example:

   CDSInstaller.exe -s -config Silent.Properties

   With this command, you start the OpenLab Installer without a user interface.
6. Wait about 5 minutes while the installation takes place. To check the process of installation, look at the log files under %ProgramData%\Agilent\InstallLogs.

   If a required installable is missing, the OpenLab Installer will create an entry in a log file, and, depending on the component type, will continue or roll back the installation. An error code will be returned in such scenarios.
7. After the installation has finished, reboot the PC.

Register AIC on the server

1. Call registercds.exe with the required parameters.

   For example, register an AIC on a server named *server01* with the user *admin* and password *admin* in the domain *domain01*:

   registercds.exe -registerapp -regaic -olssserver="server01" -olssuser="admin" -olsspw="admin" -olssdomain="domain01" -log="C:\temp\log.log"

Parameters and Return Codes

Parameters

Use the following parameters when calling CDSInstaller.exe in command line mode:

- *-s*

  Silent mode - no user interface will be shown.

- *-config*

  Configuration file - a properties file contains all parameters.

- *<PropertiesFile>*

  The properties file contains all required inputs for the installer. Replace <PropertiesFile> with the correct file path and file name. The file must be located in the same directory as the CDSInstaller.exe.

- *-ExcludeHelpSystemCP=true*

  Allows to exclude the OpenLab Help&Learning package in the installation. Note: If you do not install the H&L package, no context sensitive help will be available! You may however access OpenLab H&L (Online Help and Manuals) via: **https://openlab.help.agilent.com**.

- *-uninstall*

  Uninstall the currently installed CDS.

Use the following parameters when calling registercds.exe in command line mode:

- *-registerapp*

  Register the OpenLab CDS software on the server. This adds permissions, permission groups, and roles; it enables activity log, creates the RecoveryData folder structure and adds firewall exceptions.

- *-regaic*

  Register the machine as an AIC. This adds the name, hostname, port, and description of the machine to the list of AICs on the server. It also registers the installed drivers, registers the instrument icons, and adds support for multiple instruments.

- *-olssserver="nameOfServer"*

  Connect to the server specified and set default connection.

- *-olssuser="nameOfUser"*

  Username for connecting to the OLSS server specified by the -olssserver flag

- *-olsspw="password"*

  Password for connecting to the OLSS server specified by the -olssserver flag
- *-olssdomain="nameOfDomain"*

  Domain for the user connecting to the OLSS server specified by the -olssserver flag
- *-log="PathAndNameToLogfile"*

  Log the actions performed by the tool
- *-ExcludeHelpSystemCP=true*

  Allows to exclude the OpenLab Help&Learning package in the installation. Note: If you do not install the H&L package, no context sensitive help will be available! You may however access OpenLab H&L (Online Help and Manuals) via: **https://openlab.help.agilent.com**.

Use the following parameters when calling setup.exe in command line mode:

- */RunSpt=no*

  Allows to skip the System Preparation (SPT)

Return Codes

After installation, uninstallation, or upgrade in the command-line mode, the system will return a number code which is explained below.

Table 2 Return codes

Error/return code	Return value
Success. You can see all of the information in the log file.	0
Reboot required. After reboot you need to execute installation command again.	3010 1641 350
Failure. Verify against the log file to see what failed.	any other number

Logging and Tracing

All exceptions, errors and information messages are logged under C:\ ProgramData\Agilent\InstallLogs\<date and time>. Note that ProgramData is a hidden folder.

Install or Upgrade Instrument Driver Software

The following driver software packages are automatically installed and configured with OpenLab CDS. For details, see chapter *Instrument Information* in the *Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).

- Agilent GC & GC/MS
- Agilent LC & LC/MS
- Agilent 35900 A/D
- Agilent SS420x
- Agilent Data Player (Virtual Instruments)

Other instrument driver software, add-on software, or upgrades to existing driver software, must be installed and configured manually. Instrument driver software and add-on software can be found on the installation media under Setup\Packages\Add-Ons.

The latest Agilent drivers are available in SubscribeNet. In the Product List, select **OpenLab Software >OpenLab Agilent Instrument Drivers**.

On the Analytical Instrument Controller (AIC)

1 Run the driver installer package, and follow the installation wizard.

  For details on the installation or upgrade procedures, refer to the respective driver documentation.

2 Register the new drivers on the server. The procedure is identical to registering an existing OpenLab PC as a Client or AIC on the server. See "Register a Client or Instrument Controller on the Server" on page 88.

  New instrument types are now available in the Control Panel.

NOTE

Both steps can alternatively be done via silent installation. For details, see "Run Silent Installation" on page 29.

On the relevant clients

1 Run the installer package on each client from which you will access the instrument.

3 Post Installation Tasks

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Prepare Centralized Printing 35
Troubleshooting Print Folders 36
Prepare Exports to Network Shares During Unattended Processing 37
Enable Automatic Printing to Network Printers 39
Configure the Antivirus Program 40

This chapter describes tasks that are relevant after finishing the installation.

Run a Software Verification after Software Installation

The Software Verification Tool (SVT) provides documentary evidence that your system has been built and installed correctly, and that all design specifications have been met. You do not need to run the software verification again if it has run successfully at the end of the installation.

1. Using your Windows operating system, go to **Start >All Programs >Agilent Technologies >Software Verification Tool**.
2. Select the components to qualify.
3. Select **Qualify**.

   The system will run the application and generate a Software Verification Report. Reports are automatically saved to C:\SVReports.
4. If the report indicates failure, verify the computer requirements and reinstall the data system.

   Do not use the system until the Software Verification Report gives a 'pass' result.

Prepare Centralized Printing

With OpenLab CDS you may automatically process your data during acquisition, without opening Data Analysis. During this processing, injection reports may need to be printed. With centralized printing, these reports are copied into shared print folders. A third party program such as FolderMill then accesses the shared folders and sends the contained files to a printer.

In Client/Server systems, the shared print folders can be located on the server or on a separate machine. Install the third party printing program on the same machine as the shared print folders.

On your OpenLab Server:

1. In the Microsoft Control Panel, navigate to **All Control Panel Items >Administrative Tools**, and double-click **Services**.
2. Right-click **Agilent OpenLab Copy To Server** and select **Properties**.
3. Click the **Log On** tab, select **This account,** and enter the login credentials of a domain user. This service user must be a member of the local Administrators group on the server. In addition, the user must have the privileges to write to the print folders.
4. Confirm your settings, and restart the service.
5. Optional: Configure queue size.

   Each Print Folder will have its own queue. The size of each queue is defined in the configuration file *C:\ProgramData\Agilent\CopyToServer\CacheSizeLimit.ini*. The parameter **CacheSizeLimit** can be configured to change the size of the queue.

   The default value is 500 MB, which means that each queue (print folder) will have a size limit of 500 MB by default. Files will enter the queue until the maximum size of the cache is reached. When this happens, the queue will stop accepting requests. The queue will automatically restart and begin accepting requests after it has been cleared.

On the Client or AIC

1 Set up the shared print folders in the OpenLab Control Panel under **Administration >Print Folders**.

   a Click **Add Print Folder**.

   b Provide a name, folder path (UNC format), and description (optional), and click **Save**.

2 If you set up multiple print folders, you can designate a specific one as default by selecting the desired print folder and clicking **Set Default Print Folder**.

Troubleshooting Print Folders

Issue	Resolution
The **Agilent OpenLab CopyTo Client** or **Agilent OpenLab CopyTo Server** service has crashed	The service should automatically restart.
Network issue between client/AIC and server	Centralized printing requests will be buffered on the client and will be automatically re-transmitted to the server as soon as the network is back.
Network issue between server and print folder	Centralized printing requests will be buffered on the server. The files will be automatically copied to the print folder as soon as the network is back.
Server is down	Centralized printing requests will be buffered on the client and will automatically be re-transmitted to the server as soon as the network is back.
Print folder cache full	Check print folder access. Consider increasing the cache size (see "Prepare Centralized Printing" on page 35).
Print folders are not accessible due to insufficient permissions	Check that the domain user logged into the **Agilent OpenLab CopyTo Server** service is a local administrator and has permissions to write into the print folders.
Reports are stuck in print folders	Check that the third party software being used to access print folders for printing is functioning correctly. Check that there are no printer errors.

Prepare Exports to Network Shares During Unattended Processing

Carry out the following steps if you want to:

- Generate reports and save them as files during unattended processing. Exporting the reports to a network share is a typical way how they are sent to an external system (for example, LIMS)
- Export raw data or results during unattended processing, and save the files to a network share

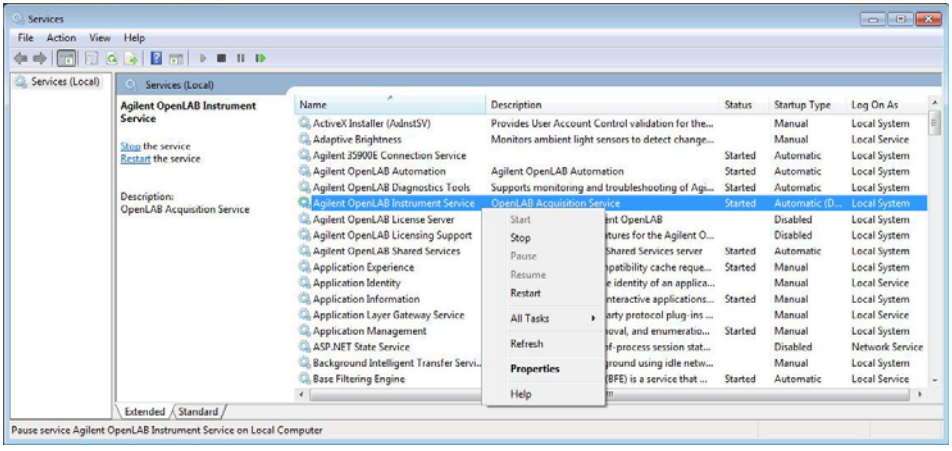
For this approach, specific domain user privileges are required to access a network share and log on as a service.

Set Up Domain User Account on AICs

1 Log in as Windows domain user who has local administrative privileges on the AIC.

2 In the Microsoft Control Panel, go to **All Control Panel Items >Administrative Tools**, and double-click **Services**. Make sure the status of **Agilent OpenLab Instrument Service** is **Started** or **Running**. If it is not, right-click and select **Start**.

3 Right-click **Agilent OpenLab Instrument Service** and select **Properties**.

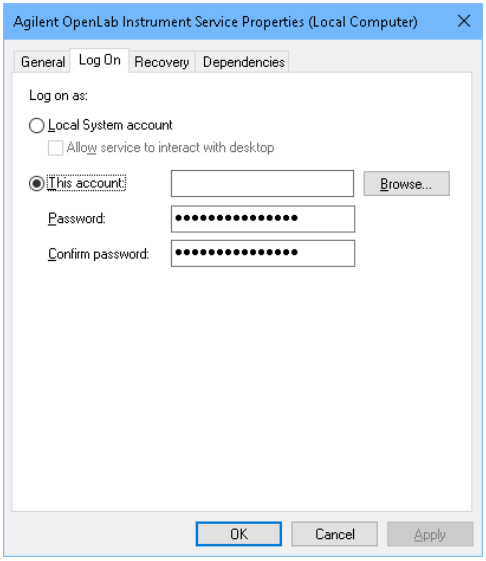


4 Click the **Log On** tab, select **This account** and enter the login credentials of a domain user who has network printing privileges.

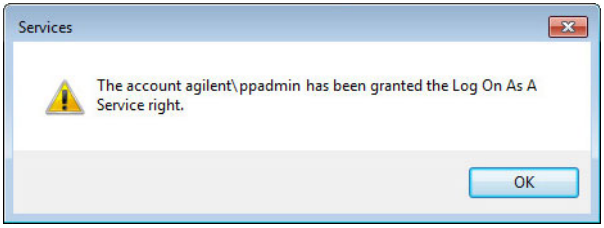
NOTE

The user must be a member of the local Administrators group on the AIC.

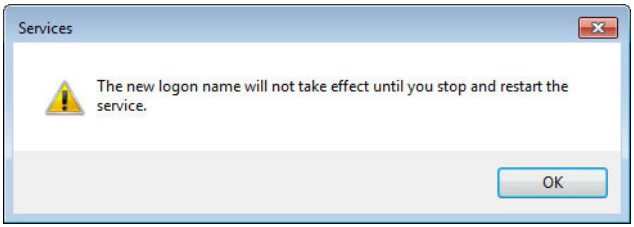
Click **OK**.



5 The **Services** window confirms that the account has been granted the **Log On As A Service** right. Click **OK**.



6 Click **OK** in the Services window to acknowledge that **The new logon name will not take effect until you stop and restart the service**.



7 Restart the PC. This will enable the *Log On* user specified in Instrument Service to automatically export files to network shares in Data Acquisition.

Enable Automatic Printing to Network Printers

Follow this procedure if you do not want to use centralized printing and need to print to network printers during unattended processing.

Prerequisites You have set up a domain user account (see "Prepare Exports to Network Shares During Unattended Processing" on page 37).

On the AICs:

1 Log in using the domain user account specified in the **Log On** tab of **Agilent OpenLab Instrument Service Properties** window.

2 Go to **Control Panel >All Control Panel Items >Devices and Printers** and click **Add a printer**.

3 Select **Add a network, wireless or Bluetooth printer** and browse or type a shared printer name that you want to add. Once the printer is added, print a test page.

4 In the Windows printer settings, set the shared printer as the local default printer.

Configure the Antivirus Program

1. Be sure to open the firewall ports listed in the Firewall Settings in the *Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).
2. The following folders should be excluded from Antivirus scan. If you want to have these folders scanned, you should do this while the system is not acquiring or doing data Analysis as scanning may cause slowness and runs to be aborted due to concurrent access to the same file by the AV program and the CDS Application.
   - [C:\]DsData\DsArchive
   - [C:\]DsData\DsContent
   - [C:\]DsData\DsIndex
   - [C:\]Program Files (x86)\Agilent Technologies
   - [C:\]ProgramData\Agilent
   - [C:\]ProgramData\Agilent IPB Files
   - [C:\]ProgramData\Agilent Technologies
   - [C:\]ProgramData\ChromatographySystem
   - [C:\]ProgramData\Firebird
   - [C:\]ProgramData\IsolatedStorage

   Refer to your specific antivirus software documentation on how to configure folder exclusions.

NOTE For antivirus software with network intrusion prevention, expect to see some degradation in general system performance. To disable network intrusion prevention, refer to your antivirus software instructions.

Settings for Trend Micro™ antivirus software

OpenLab CDS can be used with other antivirus programs as well. If you use Trend Micro™, the following settings are recommended to optimize system performance.

1 If your version of Trend Micro has **Web Reputation**: Turn off to maximize performance.

The risk of turning off Web Reputation is that web traffic through browsing from the machine will not be checked.

Ensure that there is another URL/web scanner on the gateway level to protect the endpoint, or ensure that the endpoints have limited access to Internet. These production machines should not have access to Internet websites where most of the infections are coming from.

2 **Real time scan**: Add exclusions, and modify scan direction from **Created/Modified/Retrieved** to **Created/Modified**.

Exclusions ensure that the working directory of Agilent Technologies will not be scanned, thus improving performance.

The risk is that only files that are created and changed on this machine are scanned. Files that are just accessed will be bypassed. Dormant Files that got infected without being noticed at the time they were created or written to the machine will not be scanned.

Increase scheduled scan to daily to ensure all files on the machine are being checked for infections that are dormant or not moving.

3 **Behavior Monitoring**: Add below list of programs to **Approved programs**.

- OpenLab\Services\Distributed Transaction Coordinator Service\ Agilent.OpenLab.DistributedTransactionCoordinator.Rest.exe
- OpenLab Backup Utility\Monitoring Service\ Agilent.OpenLab.BackupRestore.BackupMonitoringService.exe
- OpenLab Backup Utility\Notification Service\ Agilent.OpenLab.BackupRestore.NotificationService.exe
- OpenLab Backup Utility\Task Status Cache Service\ Agilent.OpenLab.BackupRestore.TaskStatusCacheService.exe
- OpenLab\Services\Electronic Signature Service\ Agilent.OpenLab.ESignature.Rest.exe
- OpenLab Acquisition\ Agilent.OpenLab.Acquisition.AcqInstrumentService.exe
- OpenLab Acquisition\Agilent.OpenLab.AcquisitionClient.exe

- OpenLab Data Analysis\Bin\Agilent.Chromatography.DataAnalysis.Processing.ProcessingServer.exe
- OpenLab Data Analysis\Bin\Agilent.Chromatography.DataAnalysis.UI.CustomCalculationDesigner.exe
- OpenLab Data Analysis\Bin\Agilent.OpenLab.DataAnalysis.exe
- OpenLab Data Analysis\Bin\Agilent.OpenLab.DataAnalysis.Api.ApplicationService.exe
- OpenLab Data Analysis\Bin\Reporting\Agilent.OpenLab.Reporting.RdlDescriptor.exe
- OpenLab Data Analysis\Bin\Reporting\Agilent.OpenLab.Reporting.RdlDescriptorContextMenu.exe
- OpenLab Data Analysis\Bin\Reporting\IntelligentReporting.RenderServiceHost.exe
- OpenLab Data Analysis\Bin\Reporting\TemplateDocumentation.exe
- OpenLab Platform\Data Repository\Data Repository\Base\BaseService\Agilent.OpenLab.DR.BaseService.exe
- OpenLab Reverse Proxy Configuration Service\ConfigurationService\Agilent.OpenLab.ReverseProxy.ConfigurationService.exe
- OpenLab Services\Distributed Transaction Coordinator Service\RegistrationTool\Agilent.OpenLab.DataRepository.RegistrationTool.exe
- OpenLab Services\Automation\AutomationServerHost.exe
- OpenLab Services\Diagnostics\DiagnosticsToolsServiceHost.exe
- OpenLab Services\Licensing\Flexera\lmadmin.exe
- OpenLab Services\Licensing\Licensing.Service.Host.exe
- OpenLab Services\Server\SharedServicesHost.exe
- OpenLab Services\UI\Agilent.OpenLab.ControlPanel.exe
- Test Services\Agilent.TestServices.WebService.exe
- Test Services\Central Management Service\Agilent.TestServices.Server.Main.exe

C:\Program Files (x86)\Agilent Technologies\...

The risk is that if any of the excluded files get infected, it will not be detected. For example, trigger a schedule on a daily basis to cover these files.

4 **Realtime monitoring**: Add below folder to the exclusion list of Realtime Monitoring setting:

C:\Program Files (x86)\Agilent Technologies\

4 Optional Procedures

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Set up NIST Library Search 45

This chapter describes the installation or upgrade of additional software. It also contains information on the installation of OpenLab Help and Learning only, and on performance improvement on offline machines.

Install OpenLab Help and Learning Only

Use this option to install OpenLab Help and Learning content without installing OpenLab CDS applications.

Do not use this option on a machine where OpenLab CDS is, or will be, installed.

1. Insert the USB media, right-click the setup.exe file, and run it as administrator.
2. On the start screen, select **OpenLab CDS**, and click **OK**.
3. In the OpenLab CDS Installer, click **Installation**.
4. Click **OpenLab Help and Learning Only**.
5. Select your language, and click **Next**.
6. Accept the terms on the **License agreement** page, and click **Next**.
7. Review the installation directory. If desired, click **Change...** to specify a different directory.
8. Click **Install**.
9. When the installation is complete, click **Finish**.

You can uninstall or repair OpenLab Help and Learning from the same link in the installer (see "Uninstall OpenLab Help and Learning Only" on page 93).

Improve Performance on Offline Machines

Computers running OpenLab CDS may exhibit slow performance when they are not connected to the Internet.

Use the following system settings on all workstations, clients, AICs, and servers to remedy this problem.

1. In the Windows Settings, search for **Internet Options**. The **Internet Properties** dialog opens. In the **Advanced** tab, clear the following check boxes:
   - **Security >Check for publisher's certificate revocation**
   - **Security >Check for server certificate revocation**
2. Change or add the following registry keys:
   - [HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\SystemCertificates\AuthRoot]

     "DisableRootAutoUpdate"=dword:00000001
   - [HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Policies\Microsoft\SystemCertificates\AuthRoot]

     "DisableRootAutoUpdate"=dword:00000001
3. Document that you turned off the Root Certificates, as this will cause the OpenLab CDS installer to fail. The root certificates need to be turned on to prevent installation failures.

Set up NIST Library Search

In order to use MS library searching within OpenLab CDS, the NIST MS Search program must be installed locally on the workstation (or, in a Client/Server setup, on the client or AIC) which is to perform the library search.

For details on the installation and configuration of the NIST library framework within standalone, Client/Server, or Citrix/Terminal Server setups, please refer to *Setup and Configuration of MS Library Search* (CDS_Configure_MS_Libraries.pdf). That document also discusses the use and management of other commercial and user-created libraries with OpenLab CDS MS library search.

5 Licensing

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This chapter provides basic information on OpenLab licensing and describes how you generate a license file with SubscribeNet.

About OpenLab CDS Licensing

License Types

The license file is a collection of Product, Instruments and Add-on licenses (or activation keys), and is installed to your OpenLab System.

The licenses or activation keys in the license file can either be Shared or Counted:

- Shared licenses — system computers and other components can have shared, or add-on, licenses — because they share a core license.
- Counted licenses — these licenses are part of the OpenLab CDS floating licensing strategy. They are not permanently assigned to any one component. Instead they are automatically assigned to components, such as AICs and instruments, while the components are starting up. The licenses are automatically returned when the component is closed. The license management program controls license issuance and retrieval.

  In this case, the only requirement is that a component is licensed while running. You only need enough licenses for all components running concurrently, rather than for each installed component.

A startup license for the system allows you to run OpenLab CDS for 60 days after the installation. In order to run the data system software after the 60-day period, you must install your license file.

License File

A license file will contain your software license. This file is installed to the license server, that is, the workstation computer, or the server to which your product was installed in a client/server system. The license file is bound to this server address, and cannot be moved to another server.

Information in the license file defines the number of instruments and other options that may be used concurrently with your system.

The most efficient way to manage and maintain your licensing is through the Internet.

If you have not received a lavender envelope for your product, contact your vendor or internal support.

Get a License

Obtain a License with SubscribeNet

Use the following procedure to generate and download your license. In case you do not have internet access, skip to the section "Other Ways to Obtain a License" on page 50.

If you are a new user who has not registered with SubscribeNet, continue with the section *New Users*.

If you have registered with SubscribeNet, skip to the section *Users registered with SubscribeNet*.

Prerequisites

To generate, download, and install a final license for your product, you will need:

- The authorization code label provided in the lavender envelope containing your Software Entitlement Certificate.

  If you have not received a lavender envelope for your product, contact your vendor or internal support.
- The URL for SubscribeNet from the Software Entitlement Certificate.
- The host name of the computer where the Control Panel is running.
- The MAC address.

  To retrieve your MAC address from a computer where OpenLab CDS is already installed, open the Control Panel and browse to the **Administration >Licenses** section. Use the **Copy MAC Address** or **Save MAC Address** function to obtain the MAC address for license generation.

  During this process you will have to enter the MAC address of your license server. For workstations, this is the local computer. For client/server systems, this is the server.

NOTE

If any changes are made to the computer name or domain reference after the license is installed, remove the license. A new license will need to be created in SubscribeNet, downloaded, and installed.

NOTE

If the network adapter that provides the MAC address used during license creation is removed from the machine, your license will no longer be valid. A new license will need to be generated with a currently available MAC on the license server.

New Users

1. Go to **https://agilent.subscribenet.com/control/agil/AgilRegisterToAccount** to register the product with SubscribeNet.
2. On the registration page, enter the authorization code from the label and complete the profile information (required fields are marked with an asterisk *).

   The email address you enter will become your login ID.
3. Click **Submit**. The system will generate and display an account name for you.

   SubscribeNet will send a welcome email with your login ID and password.
4. Log in to SubscribeNet using your login ID and password.

   Once you log in, you can use the online user manual link for help with any questions you have.
5. Select **Generate or View licenses** from the left navigation bar.
6. Follow the prompts to generate your new license. You will be prompted for the HOST NAME of the computer.

   Enter the server hostname. Do not include any DNS suffix (*domain.com*) references in the entered machine name.
7. When the system generates the license, view its details, then click **Download License File**. Save the license file to your computer and to a backup location (such as a portable storage device).

   Use your login ID and password when you revisit the Agilent SubscribeNet site to regenerate a license file, add new authorization codes, or further configure the license for your system.

Users registered with SubscribeNet

1 If you already have a SubscribeNet account, use **https://agilent.subscribenet.com/**.

   Lost your SubscribeNet password? Use **https://agilent.subscribenet.com/control/agil/password** to have it emailed to you.

2 Select the SubscribeNet account associated with this authorization code, if you have more than one account.

3 From the SubscribeNet navigation pane, select **Register Authorization Code**.

   This will allow you to enter your new authorization code and make available the new license entitlements.

4 Follow steps 5 through 7 in the previous procedure, *New Users*, to *generate or view* your new licenses.

Other Ways to Obtain a License

If you are unable to generate a license, contact your nearest Agilent technical support office. A representative will tell you how to submit an OpenLab License Generation Form in your location.

Offline Licensing

If an internet connection is not available in your laboratory:

You or your local on-site service engineer will collect the necessary information from you to allow Agilent to create a license account on your behalf. For phone support in your region, call the sales and service number for your region. See the Appendix for contact information.

Required Customer Information for Agilent License Support:

The following information must be provided to Agilent in order to enable us to create a licensing account on your behalf.

1 Collect Account Information:

Your account name will be your company name and Lab name separated by a comma. Employee information provided here will be used to define the first administrator of your account for future access to the system as required. Please prepare the following pieces of information prior to contacting your local Agilent sales and service center in order to expedite service:

- Company Name
- Lab/Department Name
- First Name
- Last Name
- E-mail address
- Job Title
- Phone #
- Address, City, State/Province, Postal Code, Country

2 Collect Authorization Code(s):

The authorization code is an alpha-numeric code provided on a label which is enclosed in a lavender envelope. If you have received more than one code you must provide all codes to ensure that all ordered licenses are granted to your account.

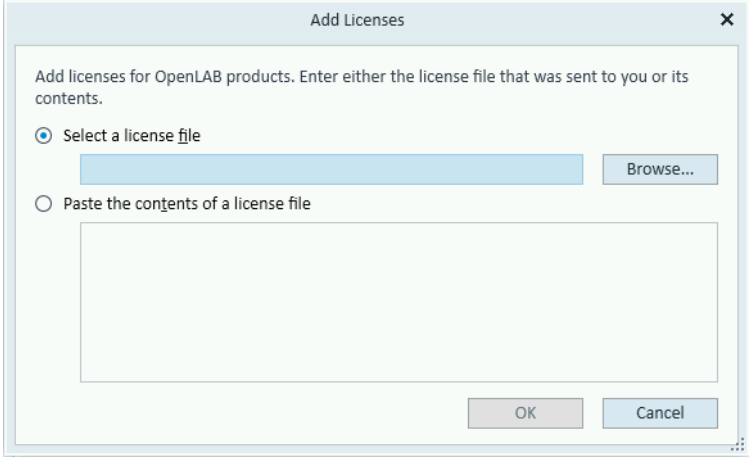
3 Receiving your license:

Once the above information is provided Agilent will then work on your behalf to generate a license file through SubscribeNet. The license file will either be sent to your shipping address (on a CD), or your local FSE will deliver it in person (usually on USB media). Once your license is received follow the below section on “Install your License” to finish installing your license on your system(s).

Install Your License

The license must be added to your system using the Control Panel.

1. Start the Control Panel from any machine connected to the system you want to install the license for.
2. Navigate to **Administration >Licenses**.
3. In the ribbon, click **Add License** + .



4. Choose to install the license by:
   - Using the license file option to browse to and open the license file (.lic) saved from the license generation process in SubscribeNet.
   - Selecting the License Text option and copying the license text from a text file received into the provided field.
5. Click **OK**.

   The **Administration** interface in the Control Panel will now display the status of installed licenses.

NOTE A full restart is required in order for any license to have an immediate effect.

6 Configure OpenLab CDS

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This chapter describes the initial configuration steps after installing the software. All configuration tasks are performed in the Control Panel. For more details, refer to the Control Panel section in OpenLab Help & Learning.

Configure Authentication

OpenLab CDS supports the following authentication providers:

- **Internal**

  In this mode, the user's credentials are stored in the OpenLab CDS system. You are asked to create an administrator account for OpenLab CDS before setting up other users. This is the only mode in which you can create new users within the system; in all other modes you can only map to users that exist in a different system.

- **Windows Domain**

  You import existing Windows users into OpenLab CDS system. The authentication is done either by Windows Active Directory domain or NT 4.0 Domain within the Enterprise. OpenLab CDS only uses the identity and password of the mapped users; roles and privileges for OpenLab CDS are still configured in the Control Panel.

Prior to Client or AIC installation, authentication has been configured on your OpenLab Server. If it is internal authentication, and you are fine with it, nothing needs to be done.

1 Launch the Control Panel. Log in with the internal administrator's credentials.

2 Navigate to **Administration**.

3 In the navigation pane, select **System Configuration**.

4 In the ribbon, click **Edit System Settings** .

5 Select the authentication provider **Windows Domain** from the drop-down list, then click **Next**.

NOTE

Do not change the storage type.

6 Select the check box to use a domain user, and provide user credentials with the rights to obtain user and group information. Then click **Select Account** to open the **Search Users** dialog and select an administrator account.

7 Confirm your settings. When complete, the Control Panel will restart.

Configure Security Policy

If you need to comply with specific standards (for example, 21 CFR Part 11), adjust the security policy as required.

With the authentication provider **Internal**, you can set all parameters in the Control Panel.

With an external authentication provider (Windows Domain), you can set the inactivity time or enable single sign-on; all other parameters are defined by the external system.

1. Launch the Control Panel and navigate to **Administration**.
2. In the navigation pane, select **Security Policy**.
3. In the ribbon, click **Edit Security Policy**.
4. Set the parameters as required, and confirm your changes.

   Restart the Control Panel to apply your changes.

NOTE

To meet 21 CFR Part 11 requirements, set the **Password expiration period** to 180 days or less. Do not change the other default values, they comply with 21 CFR Part 11.

Configure users and roles

To define what users are allowed to view or do, OpenLab CDS offers predefined roles and allows you to define your own specific roles.

Roles are equipped with numerous specific privileges. When you set up a customized role, it is therefore recommended starting from a lower role (that is, with fewer privileges) and adding specific required privileges, rather than removing privileges from a higher role.

Each user can be member of multiple groups. You must assign one or more specific roles to each group. You can also assign roles to single users; however, for the sake of clarity, it is strongly recommended to assign roles only on the group level. Every member of a group automatically has all roles of this group.

1 Launch the Control Panel and navigate to **Administration**.

2 In the navigation pane, select **Users**, **Groups**, or **Roles**.

3 Create new items, or edit the existing ones.

Create or import users

With internal authentication, you create the required users in the Control Panel. With Windows domain as an external authentication system, you import the Windows domain users.

Add users (Internal Authentication only)

1 From the navigation pane, click **Administration >Users**.

2 In the ribbon, click **Create User**.

3 In the **Create User** dialog, provide the relevant parameters:

- Enter the name and password for the new user.
- By default, the new user will need to change the password at next logon. If this is not required, clear the **User must change password at next logon** check box.
- In the **Role Membership** tab, assign the user to an appropriate role. You can use the default roles, or prepare your own roles in the Control Panel under **Administration >Roles**.

4 Click **OK**.

Import users (Windows Domain Authentication only)

To add users to your system, you must have privileges to obtain user and group information from the domain.

1. From the navigation pane, click **Administration >Users**.
2. In the ribbon, click **Import User**.
3. In the **Search Users** dialog box, enter search string for the Windows domain username.
4. From the **Search Results** list, select the user you want to import, and click **Add**. The user is added to the **Selected Users** list.
5. Repeat steps 2 to 4 until you have added all the user names that you want to import to the **Selected Users** list, then click **OK**.

Groups

If you use an external authentication provider, you can either import the names of groups that exist in the external system, or create new internal groups. There is no limit on the number of groups that can be mapped or created.

Assign users to groups either in the external system or in the Control Panel. If you need additional user assignments that are relevant only for OpenLab CDS, create them in the Control Panel. Otherwise it is sufficient to only import the groups and assign the required roles to the groups.

If you delete or unmap a group, the users who were members in this group remain unchanged.

Roles and Privileges

Roles are used to assign privileges to a user or a user group globally or for a specific instrument, project, project group or location. The system contains a list of predefined roles which are installed as part of the system installation (for example, **Instrument Administrator**, **Instrument User**, or **Everything**). Each role has certain privileges assigned.

Privileges are grouped according to the three main role types (Project role, Instrument role, and Administrative role). When you assign privileges to a role, you first select the required role type and then select the privileges related to this role type. Each role can only have privileges of one specific role type; the only

exception is the predefined role **Everything**, which has all privileges of all role types. Users or groups may require multiple roles to perform system functions. For example, a user with the role *Chemist* may need another role such as *Instrument User* with the privilege to run an instrument.

You can create a tree of different locations in the Control Panel, and add instruments to the relevant locations. For each instrument or instrument group, you can assign different instrument roles (see also "Specific Roles for Individual Instruments or Projects" on page 59). For example, a user can have the role **Instrument Administrator** for one instrument, and **Instrument User** for another instrument.

You can also create a tree of different projects or project groups in the Control Panel, and assign different Project roles for different projects (see also "Specific Roles for Individual Instruments or Projects" on page 59). For example, a user can have the role **Project Administrator** in one project, so that he can manage the settings in the Control Panel. In a second project, he may have a role that allows him to edit the content of a project, but not to change the project settings.

For more information on privileges, see the Appendix.

Table 3 Description of role types

Role Type	Description
Administrative privileges	These privileges are globally assigned to a user or group and cannot be changed on the instrument/location level. They are the typical administration privileges such as **Backup and restore**, **Manage security**, **Manage printers**, etc.
Instrument privileges	These privileges can be assigned globally or on the instrument/location level. Privileges for instruments are, for example, **View instrument or location** and **Run instrument**. Users need the **View instrument or location** privilege on the global level to see the locations and instruments tree in the Control Panel.
Project privileges	Privileges for accessing or modifying different levels of data. You can assign these privileges globally or on project or project group level.

Add users or groups to a role

1. From the navigation pane, click **Administration >Roles**.
2. In the **Roles** window, select the role you want to assign to users or groups.
3. In the ribbon, click **Edit Role**.
4. In the **Edit Role** dialog box, click the **Members** tab.
5. Click **Add user or group**.
6. In the **Search Users and Groups** dialog box, enter the name of a user or group, and click **Search** to view a list of all users and groups that meet the search criteria.
7. Under **Search Results**, select a user or group, and click **Add**.
8. Click **OK**.

Specific Roles for Individual Instruments or Projects

By default, the roles of users or groups are globally set for all locations, instruments, project groups, or projects. The role settings are inherited from the root node **Instruments** or **Projects**, respectively. In order to assign a different role to a user or group for one specific project:

1. Select the relevant project.
2. In the ribbon, click **Edit Privileges**.
3. In the **Edit Privileges** dialog, clear the **Inherit privileges from parent** check box.

Afterwards, you can assign a different role that will be valid only for the specific node.

You can assign **Instrument** roles to individual locations or instruments.

If you use projects, you can assign **Project** roles to individual project groups or projects.

Administrative roles are always set globally.

Configure Initial Project

1. Launch the Control Panel and navigate to **Projects**.
2. Click **Create** in the ribbon to create a new project.

   On the **CDS Settings** tab:

   - Enter the locations for Methods, Sequences, Results, Sequence Templates and Report Templates.
   - Consider the required audit trail settings for this project.

For more details, refer to the Control Panel section in OpenLab Help & Learning.

Configure Initial Instrument

1. Launch the Control Panel and navigate to **Instruments**.
2. Click **Create** in the ribbon to create a new instrument.
3. Select the new instrument, and click **Configure Instrument** in the ribbon.
4. It is recommended that you use Auto Configuration (if available) to configure your instruments: Click **Auto Configuration**, and provide the instrument's IP address or hostname.

For more details, refer to the Control Panel section in OpenLab Help & Learning.

Other settings in the Control Panel

Consider also other settings in the Control Panel, such as:

- Changing the instrument status reporting frequency
- Changing audit trail settings for a project
- Editing signature levels for a project

For more details, refer to the Control Panel section in OpenLab Help & Learning.

7 About the OpenLab CDS Software

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This chapter contains an overview of the basic software features.

Software Architecture

OpenLab CDS is a data system solution for analytical workflows that controls a wide variety of instruments including the industry-leading GC and GC/MS-SQ instruments, along with best-in-class LC and LC/MS-SQ. By combining chromatography and single-quad mass spectrometry into a single scalable solution with centralized system administration, you can streamline your laboratory workflows and maximize productivity. A tailored and simplified user interface with a new state-of-the-art user experience, along with e-learning tools, helps you to get up to speed and productive as fast as possible.

The Agilent OpenLab CDS software is provided on read-only USB media that contain all required installables and documents. This includes:

- Acquisition
- Data Analysis and Reporting
- Shared Services
- Content Management
- Custom Calculation Editor
- Help and Learning Platform
- User documentation
- Instrument driver software for Agilent LC, GC, LC/MS, GC/MS, or A/D
- Instrument driver software for non-Agilent instrument drivers
- Instrument driver software for virtual instruments (Data Player)
- Agilent Parts Finder
- Third party tools

With *Client/Server* systems, Content Management and Shared Services are located on a dedicated server. The system supports up to six instrument connections per Analytical Instrument Controller (AIC).

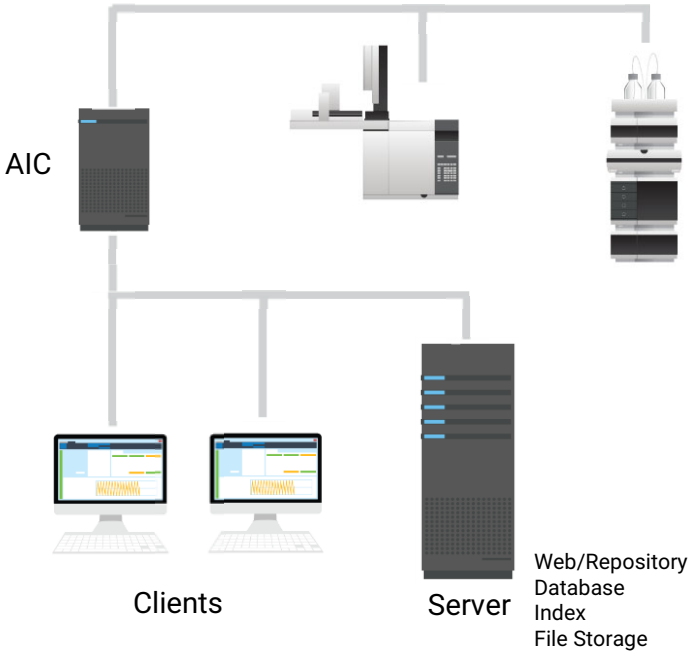


Figure 2 Client/Server System, 1-server system

Components Used in a Client/Server System

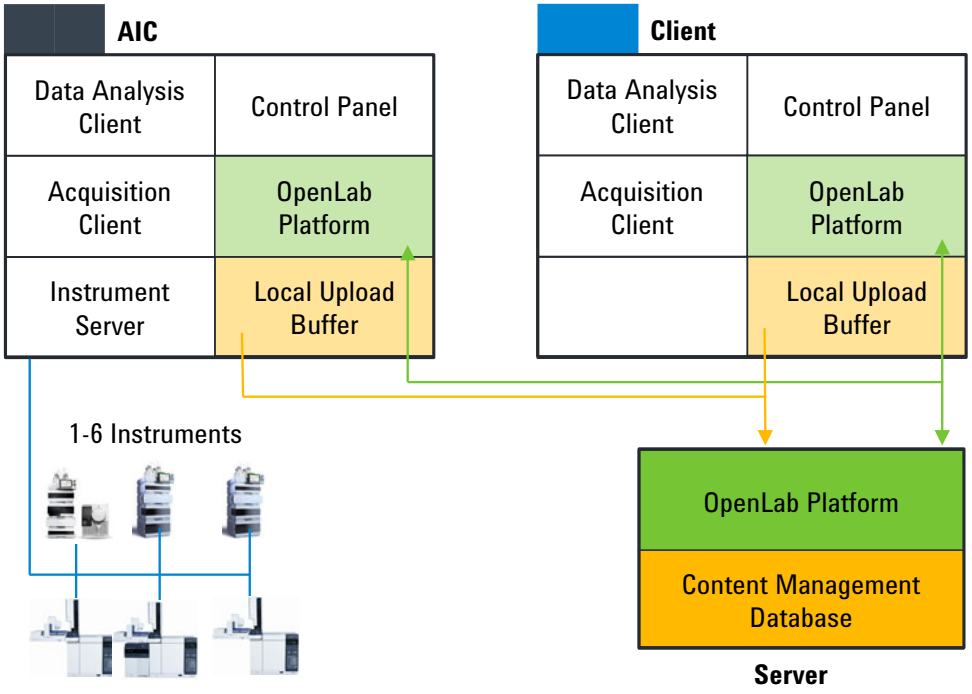


Figure 3 Components on a Client/Server system

Acquisition client	Acquire raw data with a configured instrument.
Data Analysis Client	Analyze acquired data.
Instrument Server	Control connections to all configured instruments.
Control Panel	User interface to access Shared Services control features.
OpenLab Platform	Provides services and tools that run in the background.
Content Management	Secure storage for your analytical data.

OpenLab Platform Services and Components

The following services and components are installed as part of the OpenLab Platform. It depends on the type of installation (client, AIC, or server) which services are installed.

- Certificate Service and Tool

  Serves as a solution to secure network traffic in case commercial certificates are not available.
- Data Collection Service and Agent

  Service to collect system and topology related information in distributed systems.
- Data Repository

  Storage infrastructure to store diagnostic and topology related information.
- Shared Services

  Set of services and tools that offer system configuration, security, application configuration, licensing, logging, and notification capabilities.
- Data Analysis Service

  Manages Data Analysis instances for improved performance.
- Distributed Transaction Coordinator Service

  Handles transaction coordination between microservices. Ensures that all connected actions succeed or fail as one unit.
- ECM XT Backup services

  For systems with Content Management or ECM XT: Services to monitor the backup on a schedule, send notifications, and customize the notification process.
- Electronic Signature Service

  Provides document signing as a service. To achieve this, Electronic Signature service is based on a centralized storage of electronic signatures.
- Proxy Configuration Service

  Provides access to OpenLab components to software applications through an Apache reverse proxy.
- Test Services

  Former QualA. Communicates with the Data Repository.
- CopyTo Server, and CopyTo Client

  Manage centralized printing.

- Automation Server
- Diagnostic Tools Service
- Instrument Service
- License Server and Licensing Support Services
- Audit Trail Service

  Service that encapsulates the retrieval and display of Audit Trail content. Currently not used by OpenLab CDS.

21 CFR Part 11 Compliance

To fulfill the FDA rules and guidelines for compliant electronic records and computerized systems, it is important to understand the basic aspects of secure data handling.

- *Data security:* physical protection of data by limiting access to the system and preventing unauthorized access.
- *Data integrity:* protecting raw data and metadata and preventing these from unauthorized modification, and linking raw data and results to reproduce the original results at any time, for example, in an audit situation, and document each new result copy.
- *Audit traceability:* documenting who did what to the results and when, and tracing the user adding new reanalyzed versions to the original raw data.

Data Security

The Shared Services functionality related to security includes the following (see "Control Panel" on page 72 for details):

- System Activity Log
- Selection of authentication provider
- Management of users, groups, roles, and privileges
- Security Policy

Data Integrity

OpenLab CDS stores data in a manner that ensures compliance with 21 CFR Part 11. It provides secure data storage with access control and an audit trail. Data files are versioned to ensure data integrity and traceability. In addition, OpenLab CDS provides electronic signatures allowing users to sign off on data.

Audit traceability

There are different types of audit trails:

- The *sequence audit trail* is a record of changes made to the sequence when acquiring the data.
- The *method audit trail* provides a detailed list of modifications to a sample preparation method, an acquisition method, or a processing method.
- The *injection audit trail* is the record of a single injection that lists all modifications during the run and in Data Analysis.
- The *result set audit trail* is a superset of injection audit trails for all injections that are contained in a sequence/result set.

The specific behavior of an audit trail depends on the project settings in the Control Panel.

Customization

OpenLab CDS can be customized to support various workflows and applications. Customizing capabilities are available via different approaches.

For more information on how to use the different tools, refer to OpenLab Help & Learning.

Customization via custom calculations

Data Analysis can be enriched by calculating additional values. The calculations are done with the Custom Calculation Editor and referenced by or embedded in a processing method.

These calculations can be quite complex. The calculation results are directly visible in Data Analysis, no report generation is needed.

Custom calculations are processed on result set level. They are only computed if all injections of the result set are processed together.

Customization via report templates

In a report template you can call calculation results from a method-specific custom calculation, or define additional, template-specific calculation expressions. The template-specific values are only visible in the report preview or the final report.

Reports are generated on either injection level, result set level, or across multiple result sets. Reports can be used for automated result evaluation on all the mentioned levels.

Example report templates for typical petrochemical or pharmaceutical applications are provided with the application and can be imported in Data Analysis (see *Import default templates* in OpenLab Help & Learning).

Customize application to start external programs

The customization capabilities allow to add ribbon groups and icons in the **Data Selection** and **Data Processing** views of OpenLab Data Analysis.

It is possible to start an external program via an icon and to hand over the project data path and the path of the current injection as parameters to the program.

The customization is based on a file CustomToolsConfiguration.xml at C:\ ProgramData\AgilentTechnologies\OpenLab DataAnalysis\ that needs to be created by the user. An example CustomToolsConfiguration.xml file is included on the media at **Setup >Tools >Support >UCL >Customization** folder.

For more information, refer to OpenLab Help & Learning.

Export raw data and results

Data Analysis offers the possibility to execute post processing plug-ins as part of the processing method. These post processing plug-ins allow to export raw data or results as part of the processing routine of single runs as well as sequence runs, also in unattended mode. Scripts are available for the export in the following formats:

- ChemStation Export (.D/.ch format)
- AIA Export (OpenLab CDS 2.x raw data and peak results as netCDF format (revision 3.4) according to AIA Chromatography Data Standard Specification V1.0)
- ASR Export (OpenLab CDS 2.x raw data as an ASR (Analytical Studio Reviewer) file format)
- OpenLab CDS 2.x raw data export (native .dx files for ACE)
- CSV export (OpenLab CDS 2.x raw data as comma separated values in .csv file format)

Other plug-ins such as the Allotrope Data Format (ADF) plug-in are available via SubscribeNet.

8 System Setup and Maintenance

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This chapter contains information on the Control Panel and Shared Services Maintenance. In addition, it contains information on maintenance procedures.

Control Panel

Using the Control Panel, you can access Shared Services control features such as security policy, central configuration, or lab status at a glance.

Accessing the functions described below may require specific privileges.

Instrument Management / Lab Status at a Glance

The **Instruments** view in the Control Panel offers an overview of all instruments in the network or on the workstation. You can see the following information for all instruments, summarized on one page:

- Status of the instrument with related color code
- Status of the software
- Instrument name
- Instrument location
- Instrument type
- Last change of configuration

Depending on the configuration, this information may be accessed from a single workstation PC or from multiple clients in a network.

You can create a tree of different locations in the Control Panel, and add instruments to these locations. Using locations, you can organize your instruments for example by department, by laboratory, or by lab bench. For each instrument, you can provide basic information such as the name, description, and instrument type.

Depending on your privileges in OpenLab CDS, you can perform several operations on the instruments:

- View instrument information (instrument status, instrument details, activity log)
- View the locations and instruments tree
- Edit the instrument information
- Configure the instrument

  The instrument configuration is stored in the Shared Services database. You access the configuration tool from the Control Panel.
- Launch the instrument

  On a Workstation, you can only launch instruments that are configured on this PC.

  With a Client/Server system, you can launch instruments remotely from any OpenLab CDS client in the network.

Your privileges can differ for the different locations and instruments (see "Specific Roles for Individual Instruments or Projects" on page 59).

License Management

This service includes the administration of all licenses that are required for your system.

Before adding a license file, you must first purchase the license and generate the license file using SubscribeNet. For more information on generating new license files, see "Obtain a License with SubscribeNet" on page 48.

License Management in the Control Panel provides the following functions:

- You can add license files to the license server.
- You can navigate to the license monitor and view the properties of all licenses installed on a given license server.
- You can remove license files from the license server. This may be useful if an invalid license file has been added.
- You can view or change the license server.
- You can view, copy, or save the MAC Address of the license server.
- You can navigate to the Agilent Electronic Software and License Delivery web page to obtain a license.

The following properties are shown for installed licenses:

- **Feature**: This indicates the type of license used.
- **Version**: If a license is versioned, you can see the version number. For licenses that are not versioned, the version is always shown as 1.0.
- **In Use (Available)**: This indicates the number of licenses that are currently in use and, in brackets, the total number of licenses. With the OpenLab CDS licensing strategy, a license is only in use as long as a software instance is running (see "License Types" on page 47).
- **Expiration**: If the license is only valid for a certain period of time, the expiration date is displayed.

In the **Alerts** pane, you are informed if the number of available licenses has gone down to zero for a specific feature, or if you have started a software instance which requires a license that is unavailable.

For more information on adding license files and viewing the license properties, refer to the Control Panel section in OpenLab Help & Learning.

System Activity Log

The System Activity Log allows users with the **View Activity Log** privilege to centrally access all system activities. It contains information on the various events associated with Shared Services or with specific instruments. You can filter the list in order to view only events of a specific type, in a specific time range, created by a specific user, or containing a specific description.

The following types of events are recorded:

- System
- Instrument Management
- Instrument
- Project Management
- Instrument Controller
- User
- Group
- Security
- Printer
- License

The messages can come from other components, such as the user management, or from an instrument module. Instrument messages include error messages, system messages, or event messages. The System Activity Log records these events irrespective of whether you have been alerted to them or not. To get more information on an event, expand the line of interest in the activity logbook viewer.

Diagnostics

The **Diagnostics** view allows you to access several reports and tools for diagnostic purposes:

- Ping the server.
- Create a report, either for the local system or for the server, with information on the operation system, processors, disk drives, processes, network, and connections.
- Centrally access and download all the log files, trace files, etc. that are created by the registered modules.

Administrative Reports

In the **Administrative Reports** view, you can additionally create and export various XML or PDF reports related to the system configuration:

Instrument Controllers Report

Detailed information of all Instrument Controllers. When this report is generated on a Workstation, the information presented relates to the local system. When this report is generated on a client-server system, all Instrument Controllers are included.

Instruments Report

Provides detailed information about configuration and access privileges for all instruments on the system. On client-server systems, this report includes all instruments on all Instrument Controllers.

Projects Report

Provides detailed information about configuration and access privileges for all projects on the system.

Roles and Privileges Report

Describes all roles defined on the system, including details of all privileges included in each role.

System Report

This report provides a consolidated view of the system, which includes all information about instrument controllers, instruments, projects, roles, users, and groups.

User's and Group's Role Assignment Report

This report provides an overview of all users and groups with their assigned roles.

Authentication Provider

The authentication provider is described under *Configure OpenLab CDS*. For details, see "Configure Authentication" on page 54.

Security Policy

The security policy is described under *Configure OpenLab CDS*. For details, see "Configure Security Policy" on page 55.

User Management

The user management is described under *Configure OpenLab CDS*. For details, see "Configure users and roles" on page 56.

Other Maintenance Procedures

Shared Services and Secure Storage

The Shared Services and secure storage databases run on the OpenLab Server.

Please refer to the *Agilent OpenLab Server and OpenLab ECM XT Administration Guide* (ECM_XT_v2.7_AdministrationGuide_en.pdf) for information on:

- FTP server protocol settings
- Database statistics
- Resource monitoring
- Disaster recovery planning

Backup and Restore

It is mandatory that every OpenLab Server/ECM XT server is backed up regularly. Periodic full backups and differential backups between the full backups are created by OpenLab Server/ECM XT server administrators. These backups are the only way to restore an OpenLab Server/ECM XT server if a hardware or software failure occurs.

The backup only reduces the amount of data loss if a catastrophic system failure occurs. Performing backups guarantees that any data that was committed at the time of the backup can be restored. Data that was queued for upload and not yet committed or was added or updated in the system after the backup was performed will not be recoverable by restoring a backup.

It is also mandatory that the restore procedures are tested to ensure that the backups are performed properly, and can be used for a restore. To do an effective restore, a disaster recovery plan must be created. For details, refer to the *Agilent OpenLab Server and OpenLab ECM XT Administration Guide* guide (ECM_XT_v2.7_AdministrationGuide_en.pdf).

Other Products or Databases

For backup procedures of other products, such as the GC Column Database, please refer to the documentation of the respective product.

9 Upgrade to the latest OpenLab CDS Version

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This chapter describes the upgrade of the OpenLab CDS software in a Client/Server environment.

License Upgrade

Get Upgraded License File

You will need to upgrade your licenses in SubscribeNet prior to upgrading to the next version of OpenLab CDS. We strongly recommend upgrading your licenses *before* upgrading the core software. Standalone workstations or AICs which are upgraded to the new core software version, without a new license, will not work until the new licenses are added to the OpenLab Control Panel.

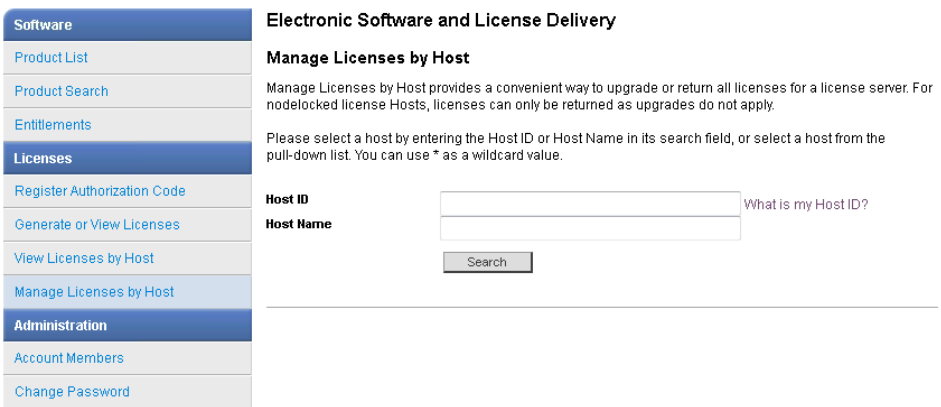
If you are under SMA subscription, proceed as follows to upgrade your licenses:

1 During the following process, you will be prompted in SubscribeNet for the host name or MAC address of the server where OpenLab CDS is already installed.

   To retrieve this hostname and MAC address, open the Control Panel on the AIC or a client, and browse to section **Administration >Licenses**. Note down the host name and use the **Copy MAC Address** or **Save MAC Address** function to obtain the MAC address.

2 Log into the Agilent Electronic Software and License Delivery (**https://agilent.subscribenet.com/**).

3 Navigate to **Manage Licenses by Host**. In the **Host ID** field, enter the previously noted MAC address, and click **Search**.



   If the relevant host name does not appear, you may be managing your licenses in multiple SubscribeNet accounts. You will need to log into those accounts to upgrade those licenses.

4 If your license(s) are eligible for an upgrade, you will see the **Upgrade All** button. Otherwise you will need to contact your Agilent Sales Representative to renew your Software Maintenance Agreement (see "Sales and Support Assistance" on page 106). To proceed with generating your upgrade license, click the button.

5 On the **Upgrade All Licenses for License Host** page, review the data, and confirm by clicking **Upgrade All**.

This upgrades the license file to the most current version. SubscribeNet will send you an email with a new license file.

6 Put the new license file on your system (see "Add Upgraded License File to the System" on page 80.

Add Upgraded License File to the System

If you have purchased new options, such as additional instrument controls or client license and regenerated your license in SubscribeNet, the upgraded license file must be re-applied to the system.

1 Start the Control Panel from any machine connected to the system you want to install the license for.

2 Navigate to **Administration >Licenses**.

3 Select a license, then click **Remove License** ✕ .

4 In the ribbon, click **Add License** + .

5 Browse to and open the license file saved from the license generation process in SubscribeNet.

NOTE

A full restart is required in order for any license to have an immediate effect.

Upgrade Process

Planning the Upgrade

NOTE

Ensure that all active acquisitions are halted prior to the upgrade.

The components must be upgraded in the following order:

1. OpenLab Server
2. Analytical Instrument Controller (AIC)
3. OpenLab CDS Clients
4. If required, upgrade instrument drivers

Temporary Configuration During Upgrade

During an upgrade project there might be different versions of OpenLab CDS in your environment. An environment with an OpenLab Server 2.7 supports using clients and AICs with OpenLab CDS versions 2.4 or higher. Analytical Instrument Controllers and OpenLab CDS clients must always use the same version of OpenLab CDS.

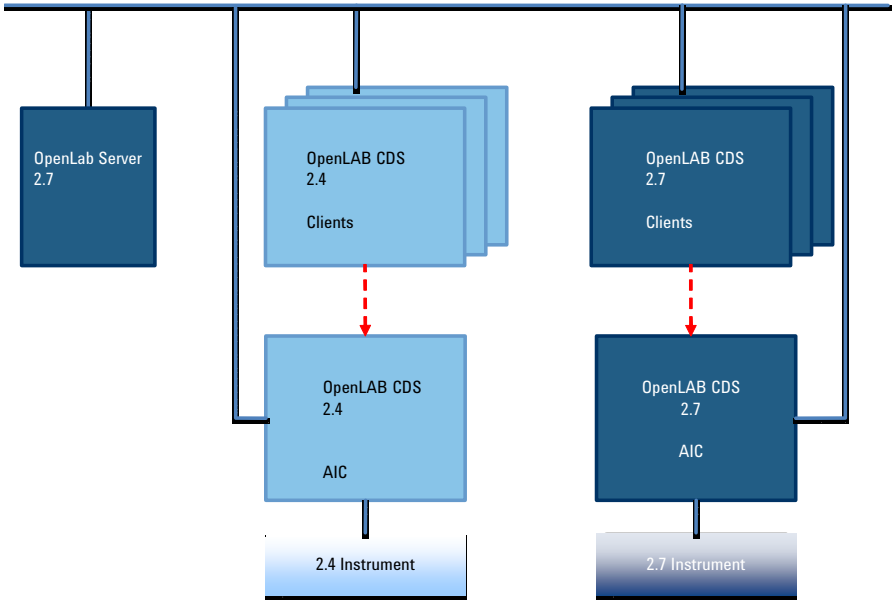


Figure 4 Mixed configuration during upgrade

Use the 2.7 clients to access instruments that are controlled by a 2.7 AIC, and use older clients to access instruments controlled by a corresponding older AIC. The data storage is provided by OpenLab Server 2.7. Both environments share the same storage. Use an instrument structure in the Control Panel that helps you differentiating the instruments.

NOTE Always launch and close instruments from the same system. Do not launch an instrument from version 2.7 and close it from version 2.4/2.5/2.6, or vice versa.

NOTE The analysis and reprocessing of data is supported only on versions that are the same as or higher than the one used for the acquisition or last reprocessing.

New Privileges and Roles

On upgrade from a previous version, new privileges and roles may be created. For example, Starting with Shared Services version 3.6 / OpenLab CDS 2.7, the privilege **View activity log** has been added. This privilege is now required to view activity logs and audit trails (see Appendix for details on roles and permissions). This privilege is by default assigned to the new role **Activity Log Access**. During the upgrade, this new role is automatically assigned to all existing users and groups.

The **View activity log** privilege is also automatically added to the **System Administrator** default role.

Step 1: Upgrade the OpenLab Server

For more information on upgrading an OpenLab Server, refer to the *OpenLab Server and OpenLab ECM XT* installation guide (ECM_XT_v2.7_InstallationGuide_en.pdf).

Step 2: Upgrade an Analytical Instrument Controller

Prerequisites

You have upgraded the OpenLab Server to version 2.7.

Prior to upgrading the instrument controller, verify that the domain and DNS settings for the existing installation are conform with the Domain Guidelines specified in the ECM XT Hardware Software Requirements guide (ECM_XT_v2.7_HardwareSoftwareRequirements_en.pdf). Specifically, ensure that the settings for communication are based on hostnames, not IP addresses.

If the previous domain and DNS settings are defined with IP addresses instead of hostnames, you need to re-register your OpenLab CDS clients and Acquisition Controller. This is necessary so that client to server communication will work in the secure communication setup enforced with OpenLab 2.7 and greater. Note: If

re-registration of OpenLab clients or acquisition controllers is required, Agilent recommends to use the Fully qualified Domain Name (FQDN).

For re-registering a client or AIC with a fully qualified domain name instead of an IP Address, refer to "Register a Client or Instrument Controller on the Server" on page 88.

CAUTION

Uninstallation of ADFExport 1.3 or lower after an upgrade may cause the Data Analysis application to fail to start.

Rev. 1.3 or lower of ADFExport is not compatible with OpenLab CDS 2.7. Uninstallation of one of those ADFExport versions after an upgrade (e.g. during its own upgrade) may remove vital files from OpenLab CDS. This may cause the Data Analysis application to fail to start. Automated processing and data analysis during acquisition may fail. A re-installation of OpenLab CDS might become necessary.

✓ **If Rev. 1.3 or lower of ADFExport for OpenLab was installed with your OpenLab CDS version, uninstall it *before* upgrading OpenLab CDS to Rev. 2.7.**

1 Run the setup.exe file from the installation media as a user with administrative rights.

2 Select **OpenLab CDS**.

3 In the OpenLab CDS Installer, select the **Installation** screen.

4 Click **Instrument Controller**.

5 In the **Storage Configuration** screen, click **Next**.

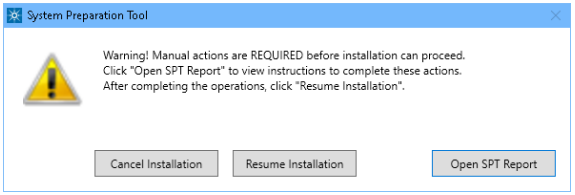
6 In the **Server Information** screen, click **Test Connection** to check the availability of the server. If the server is available, provide the OpenLab CDS credentials and click **Next** (Credentials do not need to be provided for client installs).

7 In the **System Preparation** screen, the upgrade wizard shows the list of recommended settings for the system. You may clear the check boxes for items that you do not want to apply on the system. Mandatory settings will be applied automatically during the upgrade. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in the *OpenLab CDS Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).

   Click **Next** to proceed to the **Review** page. The settings will be applied as part of the installation.

8 In the **Review** screen, click **Upgrade** to start the upgrade.

9 If there are still manual actions required before installation, a warning is shown.



Options to proceed

- *Recommended*: Click **Open SPT Report** to view instructions to complete these actions. In the report, check the **Required Actions** section. After completing the operations, click **Resume Installation**.
- **Cancel Installation**: Installation is aborted. Make necessary updates and restart installation.
- **Resume Installation**: The dialog is closed, and installation continues with the installation of the CDS components even if a setting was not applied. If needed, the settings can be updated after the installation has been completed.

10 On the **Finish** page, click **Run Software Verification**.

11 On the **Finish** page, keep the **Reboot** check box selected, and click **Finish**.

Step 3: Upgrade an OpenLab CDS Client

Prerequisites You have upgraded the Analytical Instrument Controller to version 2.7.

CAUTION

Uninstallation of ADFExport 1.3 or lower after an upgrade may cause the Data Analysis application to fail to start.

Rev. 1.3 or lower of ADFExport is not compatible with OpenLab CDS 2.7. Uninstallation of one of those ADFExport versions after an upgrade (e.g. during its own upgrade) may remove vital files from OpenLab CDS. This may cause the Data Analysis application to fail to start. Automated processing and data analysis during acquisition may fail. A re-installation of OpenLab CDS might become necessary.

✓ **If Rev. 1.3 or lower of ADFExport for OpenLab was installed with your OpenLab CDS version, uninstall it *before* upgrading OpenLab CDS to Rev. 2.7.**

1 Run the setup.exe file from the installation media as a user with administrative rights.

2 Select **OpenLab CDS**.

3 In the OpenLab CDS Installer, select the **Installation** screen.

4 Click **Client**.

5 In the **Storage Configuration** screen, click **Next**.

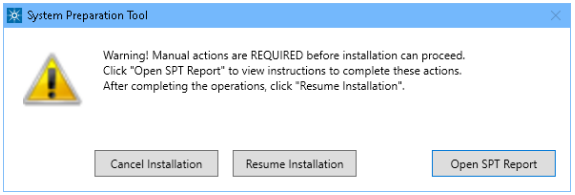
6 In the **Server Information** screen, click **Test Connection** to check the availability of the server. If the server is available, provide the OpenLab CDS credentials and click **Next** (Credentials do not need to be provided for client installs).

7 In the **System Preparation** screen, the upgrade wizard shows the list of recommended settings for the system. You may clear the check boxes for items that you do not want to apply on the system. Mandatory settings will be applied automatically during the upgrade. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in the *OpenLab CDS Workstations, Clients, and Instrument Controller Requirements and Supported Instruments* guide (CDS_v2.7_Requirements_en.pdf).

   Click **Next** to proceed to the **Review** page. The settings will be applied as part of the installation.

8 In the **Review** screen, click **Upgrade** to start the upgrade.

9 If there are still manual actions required before installation, a warning is shown.



Options to proceed

- *Recommended*: Click **Open SPT Report** to view instructions to complete these actions. In the report, check the **Required Actions** section. After completing the operations, click **Resume Installation**.
- **Cancel Installation**: Installation is aborted. Make necessary updates and restart installation.
- **Resume Installation**: The dialog is closed, and installation continues with the installation of the CDS components even if a setting was not applied. If needed, the settings can be updated after the installation has been completed.

10 On the **Finish** page, click **Run Software Verification**.

11 On the **Finish** page, keep the **Reboot** check box selected, and click **Finish**.

Step 4: Upgrade Drivers

If you use a GC/MS instrument: Upgrade the GC/MS firmware to the latest revision. The upgrade is required for the GC/MS software to work properly with OpenLab CDS 2.7.

It is recommended to reconfigure the instrument in the Control Panel.

For more information on upgrading drivers, see "Install or Upgrade Instrument Driver Software" on page 32.

Register a Client or Instrument Controller on the Server

This procedure describes how to add an existing OpenLab CDS PC to a distributed environment as a client or Instrument Controller.

Carry out the procedure also after manually installing or upgrading instrument driver software to make sure that all instrument types will be available in the Control Panel.

Ensure that the OpenLab CDS version of your PC is compatible with the OpenLab Server version. See "Temporary Configuration During Upgrade" on page 81.

Register root certificate

When using self-signed certificates issued by Certificate Service, registering a new server for a client or Instrument Controller requires additional configuration steps. These steps have to be executed so that the root certificate of the new server is available on the respective machine. Otherwise, connecting to an instrument might fail. Follow these steps to download the root certificate and register it in the local certificate store of a client of Instrument Controller.

1. Open the Windows Command Prompt as an administrator.
2. Navigate to the Certificate Service Tool folder: C:\Program Files (x86)\Agilent Technologies\OpenLab Certificate Service Tool\Bin.
3. Run the following command (replace <servername> by the name of your server):

```
Agilent.OpenLab.CertService.CertTool.exe
RegisterRootCert -h <servername>
```

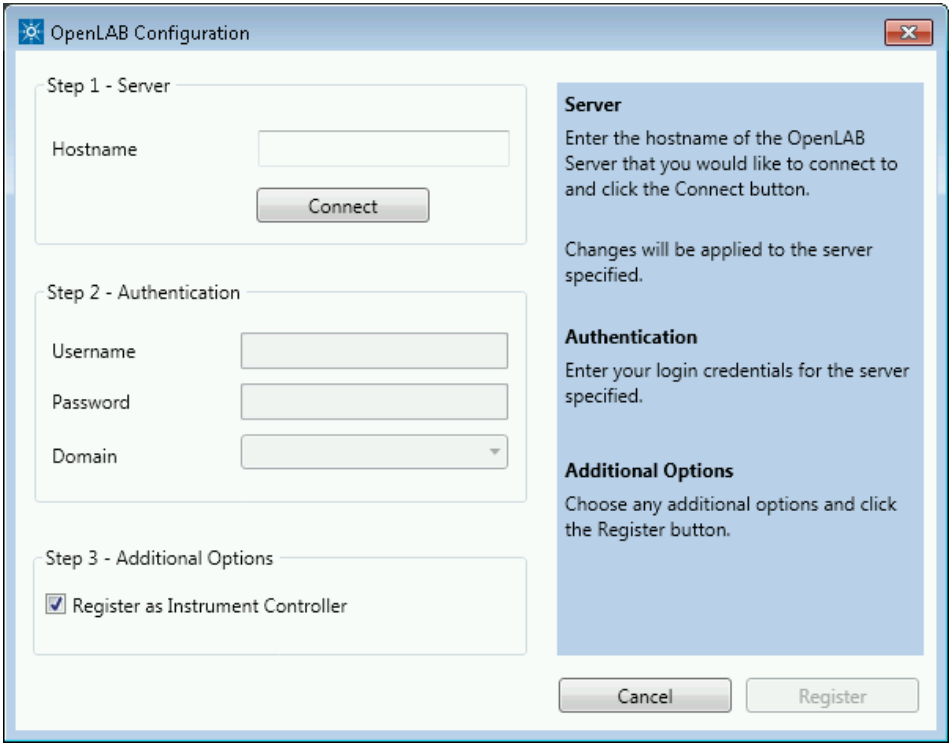
Register OpenLab CDS

1 In Windows, select **Start >Agilent Technologies >OpenLab Configuration**.

2 In the **OpenLab Configuration** tool, enter the hostname (without \\) of the OpenLab server. Click **Connect** to enable the input boxes for the user credentials.

NOTE

If you register an *Instrument Controller*: Be sure to provide the correct server name. Random switching of Instrument Controllers from one server to another is not supported. Servers can only be switched by following a defined process in the context of a fallback solution in case of network failures.



3 Under **Authentication**, enter OpenLab user credentials for the specified server.

4 For Instrument Controllers, select the **Register as Instrument Controller** check box. For clients, clear this check box.

5 Click **Register**.

A Registration Results dialog will be shown.

6 Reboot the client or AIC.

Sample Scheduler for OpenLab

As of OpenLab CDS version 2.6, Sample Scheduler for OpenLab is installed by default with an OpenLab CDS Client/Server installation. The following components are available in the Client/Server topology after upgrading to 2.6 or higher:

- Server: Sample Scheduler Database as part of the Data Repository, LIMS Agent, Web Server
- Instrument Controller: Sample Scheduler Agent
- Client: Sample Scheduler Client, Sample Scheduler Configuration

Sample Schedule services are disabled after installation. To try out Sample Scheduler for OpenLab, select **Agilent Technologies >Agilent Sample Scheduler** from the Start menu. Click **Access free dashboard**, and follow the instructions. Alternatively, click the **Sample Scheduler** button in OpenLab CDS Acquisition.

If you decide to regularly use Sample Scheduler or want to evaluate more capabilities please activate it first. For details on activation see information page that is launched.

To remove the Sample Scheduler button from the Acquisition clients, see "Remove Sample Scheduler Button from OpenLab CDS Acquisition" on page 95.

New Privileges and Roles

On upgrade from a previous version, new privileges and roles may be created. For example, Starting with Shared Services version 3.6 / OpenLab CDS 2.7, the privilege **View activity log** has been added. This privilege is now required to view activity logs and audit trails (see Appendix for details on roles and permissions). This privilege is by default assigned to the new role **Activity Log Access**. During the upgrade, this new role is automatically assigned to all existing users and groups.

The **View activity log** privilege is also automatically added to the **System Administrator** default role.

10 Uninstall OpenLab CDS

Uninstall a Client or Analytical Instrument Controller (AIC) 92
Uninstall the OpenLab Server 92
Uninstall OpenLab Help and Learning Only 93

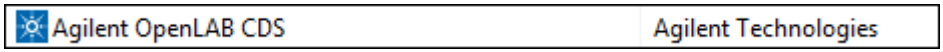
This chapter describes the uninstallation of the OpenLab CDS software.

To uninstall OpenLab CDS:

1. Uninstall OpenLab CDS from clients and Analytical Instrument Controllers.
2. Uninstall the OpenLab Server.

Uninstall a Client or Analytical Instrument Controller (AIC)

1. Log in as an administrator.
2. In the Windows Settings, open **Apps >Apps and features**.
3. Uninstall OpenLab CDS add-ons that you installed separately (for example, **ADFExport for OpenLab**).
4. Select **Agilent OpenLab CDS**, and confirm uninstallation.



   The OpenLab CDS Uninstallation Wizard opens[1]. In the wizard, click **Uninstall**, and follow the wizard.
5. In the Windows Settings under **Apps >Apps and features**, select **Agilent Software Verification Tool** and confirm uninstallation.
6. Drivers installed by OpenLab CDS are uninstalled automatically. If you installed other drivers, they are still listed under **Apps and features**. Uninstall them manually.
7. Reboot.

Uninstall the OpenLab Server

For details on the uninstallation, please refer to the *Agilent OpenLab Server and OpenLab ECM XT Installation Guide* (ECM_XT_2.7_InstallationGuide_en.pdf).

[1] The Uninstallation wizard can also be started from the Installation Wizard used to install the software.

Uninstall OpenLab Help and Learning Only

If you installed OpenLab Help and Learning only, follow this procedure to uninstall it.

1. From the installation media, right-click the setup.exe file, and run it as administrator.
2. On the start screen, select **OpenLab CDS**, and click **OK**.
3. On the **Installation** page, select **OpenLab Help and Learning Only**.

   The **Agilent OpenLab CDS Help and Learning** wizard opens.
4. Click **Remove**.

   The wizard removes OpenLab Help and Learning from your system.
5. After completion of the uninstallation, click **Finish** to close the wizard.

11 Appendix

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Remove Sample Scheduler Button from OpenLab CDS Acquisition

To remove the Sample Scheduler button from the Acquisition clients, execute the following script on the relevant clients.

```
$ErrorActionPreference = "stop"

$installDir = "not found"

Try {

 $installDir = Get-ItemProperty -Path HKLM:\SOFTWARE\
ChromatographySystem\OpenLABAcq

}

Catch [System.Management.Automation.ItemNotFoundException]

{

$installDir = Get-ItemProperty -Path HKLM:\SOFTWARE\
WOW6432Node\ChromatographySystem\OpenLABAcq

}

Write-Output "Found Acquisition, installed on:"

Write-Output $installDir.ChromDir

$schedulerFile = Join-Path -Path $installDir.ChromDir
-ChildPath "Layouts\
AcquisitionClient.workspace.extensions\
Agilent.Scheduler.Acquisition.Plugin.xml"

if ($installDir -ne "not found") {

 try {

  $destination = $schedulerFile + ".old"

  Move-Item -Path $schedulerFile -Destination $destination

  Write-Output "Sample Scheduler extension succesfully
disabled"

 } catch {
```

```
    Write-Warning "Could not move extension file
$($schedulerFile), make sure to run this with Administrator
privileges"
    }
}
else {
    Write-Warning "Could not find OpenLab Acquisition
Installation directory"
}
```

Privileges in the Control Panel

The privileges described in the following can be associated with different roles in the Control Panel. The following roles are available:

- Everything
- System Administrator
- Instrument Administrator
- Project Administrator
- Project Content Deletion
- Instrument User
- Technician
- Chemist
- Activity Log Access
- Archivist
- Content Management Approver
- Content Management Contributor
- Content Management Reader
- Content Management PDF Template Manager
- Content Management Administrator

In the Control Panel under **Administration >Roles**, you can view or change the associated privileges, or create your own roles.

Project Privileges

Table 4 Acquisition Method

Name	Description
Create and modify acquisition method	Create, edit and save an acquisition method file (*.amx)
Use generic acquisition methods	Use acquisition methods that have the status **Generic**.

Table 5 Audit Trail

Name	Description
Change method audit trail settings	Edit and save method audit trail settings (project properties in the Control Panel).
Review audit trail	Confirm that you reviewed a changed audit trail.
Add manual audit trail entry	Add a manual entry to document your own actions in the audit trail.

Table 6 Control

Name	Description
Abort any running sample	Abort any running sequence or single run.
Manual control (in run)	Access manual control functions while the instrument is running.
Manual control (only when instrument idle)	Access manual control functions while the instrument is idle.
MS autotune and manual tuning	Access all MS tune and maintenance functionality, including manual tune, autotune, and check tune.
MS autotune	Perform MS autotune and check tune.
Cancel any pending run	Cancel pending runs in the run queue submitted by any user.
Cancel my pending run	Cancel own pending runs in the run queue.
Reorder pending runs	Reorder pending run queue items in the run queue. Moving items around in the run queue.
Run priority sample	Submit *Priority* single samples.
Run single sample	Submit regular single samples.
Modify Instrument configuration in CDS Client	Change instrument configuration directly from a running Acquisition client . Note: This privilege is not yet used by all instrument drivers.
Request access	Request access to a sequence, run queue, or instrument that is currently locked by another user.
Enable Ad Hoc mode	Enable and disable Ad Hoc mode for an instrument
Override Ad Hoc mode	Disable Ad Hoc mode that was enabled by any other user

Table 7 Custom Tools

Name	Description
Access Custom Tools section	Start external programs that were added to the application via the customization tool

Table 8 Data

Name	Description
Export data	Export data into an OpenLab archive (*.olax).
Import data	Import data from OpenLab archives (*.olax) into the OpenLab system.
Save reports to disk	Save or export a report to a location on a disk or network share.
Edit sample information	Edit information in the **Injection List** window.

Table 9 Data Processing

Name	Description
Create new result set	Combine single samples or sequences from different sources in a new, self-assembled result set.
Disable/enable calibration points	Disable or enable individual points of a calibration curve.
Do manual compound identification	Manually assign a compound to a peak.
Do manual chromatogram extraction	Manually extract MS (TIC-SIM/TIC-SCAN) chromatograms from your data.
Do manual integration	Activate manual integration in the **Chromatograms** window.
Do manual MS library search	Manually search for matches in an MS library.
Do manual spectrum extraction	Manually extract UV or MS spectra from your data.
Integration Optimizer: Display peak results	Show the retention time, area, and area % for each integrated peak in the Integration Optimizer.
Launch Custom Calculation Editor	Start the Custom Calculation Editor from Data Analysis.
Update master processing method	Save changes from a result set method to the corresponding master processing method in the Methods folder.
Use Integration Optimizer	Edit parameters for the integration optimizer, step through the wizard, and use functions offered by the wizard.

Table 9 Data Processing

Name	Description
Reprocess data	Reprocess injections or result sets.
Print results reports	Create reports for your methods or results.

Table 10 E-Signature

Name	Description
E-Signature Sign Data Files	User can sign data files
Revoke E-Signature	User can revoke the e-signature.
Change method status	User can change the status (Generic, Approved, Obsoleted) of sample prep methods, acquisition methods and processing methods.

Table 11 File and Folder Operations

Name	Description
Delete report templates	Delete report templates (*.rdl) in the **Data Selection** view of Data Analysis (requires also the **Project Management >Delete content of project** privilege).
Delete sequence templates	Delete sequence templates (*.stx) files in the **Data Selection** view of Data Analysis (requires also the **Project Management >Delete content of project** privilege).
Delete methods	Delete processing methods (*.pmx) or acquisition methods (*.amx) in the **Data Selection** view of Data Analysis (requires also the **Project Management >Delete content of project** privilege).

Table 12 Lock

Name	Description
Lock Results	Lock a result set to protect it from being changed.
Unlock Results	Unlock a locked result set.

Table 13 Processing Method

Name	Description
Create processing method	Create a new processing method (*.pmx), or save a method under a new name.
Save master method	Save changes to a processing method in the Methods folder.
Save result set method	Save changes to a processing method in the result set folder.
Edit integration parameters	View and edit the parameters in the **Integration Events** section of a method.
Edit identification parameters	View and edit the parameters in the **Compounds >Identification** section of a method.
Edit chromatogram extraction parameters	View and edit the parameters in the **Extraction >Chromatogram** section of a method.
Edit spectrum extraction parameters	View and edit the parameters in the **Extraction >Spectrum** section of a method.
Edit MS library search parameters	View and edit the parameters in the **MS Library Search >Properties** section of a method.
Edit calibration parameters	View and edit the parameters in the **Compounds >Calibration** section of method.
Edit spectra parameters	View and edit the parameters in the **Compounds >Spectra** section of method.
Edit system suitability parameters	View and edit the parameters in the **Compounds >System Suitability** section of method.
Edit custom calculation parameters	View and edit the parameters in the **Tools >Custom Calculation** section of a method.
Edit signal parameters	View and edit the parameters in the **General >Signals** section of a method.
Edit sample purity parameters	View and edit the parameters in the **MS Sample Purity** section of a method.
Edit reporting parameters	View and edit the parameters in the **Reports >Injection Report** section of a method.
Edit general parameters	View and edit the parameters in the **General >Properties** section of a method.

Table 13 Processing Method

Name	Description
Load older master method	With Content Management, load an older version of a master method.
Edit Post Processing Plugins parameters	View and edit the parameters in the **Post Processing Plugins** section of a method.
Use generic processing methods	Use processing methods that have the status **Generic**.

Table 14 Project Management

Name	Description
Manage project or project group	User can create or edit project properties and can move the project but cannot view or edit the project access settings.
Manage project or project group access	User can view and edit the project access settings.
View project or project group	User can see a project and project details but cannot edit. *Note:* This privilege is required for all users.
Access content using web client	User can view the data via the Content Management web interface.
Edit content of project	User can create new versions of documents (e.g. data, methods, or templates).
Delete content of project	If using OpenLab CDS with Content Management: • Required to move and delete project files or folders (e.g. data, methods, or templates) via the Content Management web interface. • Required to delete templates and methods in the **Data Selection** view of Data Analysis. *Note:* To move or delete files and folders in the Content Management database that are *outside* of a project, this privilege is not sufficient; the administrative privilege **Manage security** must be granted!

Table 15 Report Template

Privilege	Description
Unlock/lock report template items	Lock and unlock report template items (tables, chromatograms, groups of items, ...) to control who is allowed to modify those.
Validate report template	Confirm usage of report templates that have been modified outside OpenLab CDS.
Create report template	Create and edit report templates in the Reporting view.

Table 16 Sample Prep

Name	Description
Create and modify sample prep	View, edit, and save an autosampler sample prep file
Use generic sample prep methods	Use sample prep methods that have the status **Generic**.

Table 17 Sequence Template

Name	Description
Create and modify sequence template	Create, edit and save sequence creation templates (*.stx).

Table 18 Sequence

Name	Description
Edit any users running sequence	Edit any user's running sequence (status **Acquiring** in the Run Queue).
Create and modify sequence	Create, edit and save sequences (*.sqx)
Edit users own running sequences	Edit your own running sequences (status **Acquiring** in the Run Queue).
Edit method override parameters	Override parameters in a predefined acquisition method.

Table 19 Snapshot

Name	Description
Review snapshot results	From Acquisition, open a currently running sample in Data Analysis.

Instrument Privileges

Table 20 Instrument Management

Name	Description
View instrument or location	User can view and access a location in the tree, but not edit access security, can view properties.
Manage Instrument or location	User can create and move locations and edit properties (name, description, etc).
Manage instrument or location access	User can view and edit the location access settings.
Run instrument	User can start an instrument session.
Service instrument	User can lock or unlock an instrument (to service it).

Administrative Privileges

Table 21 System Administration

Name	Description
Manage printers	Can add/remove printers and print server.
Edit activity log properties	Can change the Activity log Settings in the Control Panel (that is, can turn logging on for the System Activity Log).
Create administrative reports	Can create any of the system admin reports.
Manage system components	Can install/remove components (applications).

Table 21 System Administration

Name	Description
Manage security	Can change security settings and assign security roles. Can edit (add, change etc) users, groups and roles. In the Content Management web interface: Can move and delete files and folders outside of a project. *Note:* A user with this privilege can grant himself access to all settings in Shared Services. Be careful who you grant the Manage Security privilege.
Manage instrument controllers	Can edit Instrument Controllers in the Control Panel.
Unlock any locked UI	Can log in to another user's locked session.

Table 22 Content Management

Name	Description
Archive content	User can archive the content of the Content Management data repository.
Manage Templates	View, create, update and delete PDF templates.

Table 23 Activity Log Access

Name	Description
View activity log	Access to the System Activity Log (recording of log entries is not impacted)

Sales and Support Assistance

Please check the following web site for your local sales and support contact:

https://www.agilent.com/en/support

Agilent Community

To get answers to your questions, join over 10,000 users in the Agilent Community. Review curated support materials organized by platform technology. Ask questions to industry colleagues and collaborators. Get notifications on new videos, documents, tools, and webinars relevant to your work.

https://community.agilent.com/

In This Book

This document provides instructions for installation, configuration, administration, and maintenance of OpenLab CDS Clients and Analytical Instrument Controllers. It includes information on the license generation with SubscribeNet and operating system configuration.

The manual describes the following:

- Install an OpenLab CDS Client or AIC
- Generating and Downloading Your Software License
- Configure OpenLab CDS
- Optional Procedures
- Customization
- About the OpenLab CDS software
- System Setup and Maintenance

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