



Agilent OpenLab CDS Clients and Instrument
Controllers

Installation and Configuration

Notices

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Software Revision

This guide is valid for revision 2.8 of OpenLab CDS.

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CAUTION

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In This Book

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
Secure Storage	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

Install and Update Windows 8

Install the .NET 3.5 and 4.x Framework 10

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Install and Update Windows

- 1 Access *OpenLab CDS Requirements and Supported Instruments* (*CDS_v2.8_Requirements_en.pdf, D0028027*) from the **Setup\Docs** folder on the installation media. Check that your settings comply with the network requirements, and determine whether your hardware and software will support the system.
- 2 Decide on a computer name, using the following characters (to make sure that a DNS server can resolve the computer name, follow the internet standard for protocols RFC952):

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

NOTE

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

- 3 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.

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.

- 4 Update to the recommended version of Windows. See the [Windows upgrade FAQ](#) section of the OpenLab CDS page (<https://www.agilent.com/>, search for "Windows upgrade").

NOTE

Agilent does not support an in-place upgrade from one Microsoft Windows product (i.e. Microsoft Windows 10 to Microsoft Windows 11) after OpenLab CDS is installed.

Prepare Your PC

Install and Update Windows

- 5 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.
- 6 In the Windows Settings under **Time & language** > **Date & 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, either the System Preparation Tool or the installation wizard automatically triggers their installation. This may require a system reboot. To avoid the system reboot during installation, install .NET in advance.

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:

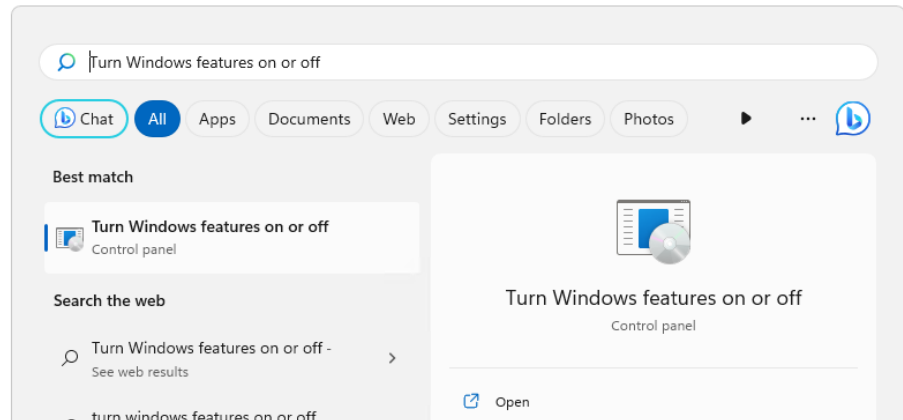
<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/deploy-net-framework-35-by-using-deployment-image-servicing-and-management-dism>

or

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

- 1 In the Windows Start menu, search for *Turn Windows features on or off*.

Open the search result found in the Microsoft Control Panel.



Prepare Your PC

Install the .NET 3.5 and 4.x Framework

- 2 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.

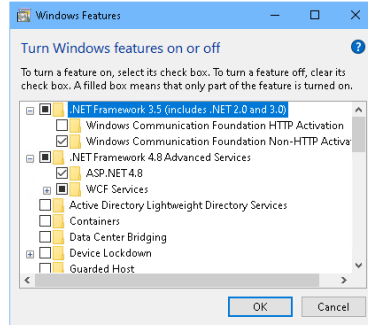


Figure 1: Enable .NET 3.5 (Win 11)

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

NOTE

Check Transport Layer Security (TLS) protocols

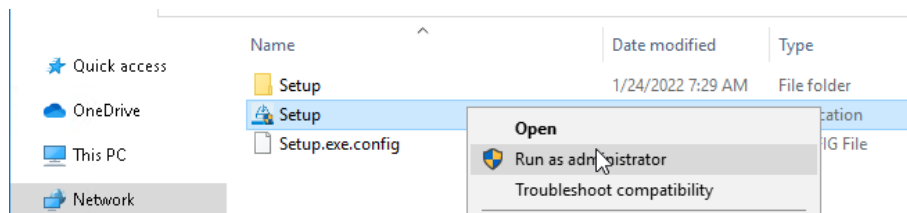
TLS 1.2 (or higher) supports a wide selection of cipher suites, some of which may be vulnerable to attack. OpenLab CDS supports all TLS 1.2 (or higher) cipher suites and is not impacted if any weak or vulnerable cipher suite is disabled by your IT policies. Older Transport Layer Security (TLS) security protocols TLS 1.0, TLS 1.1, and SSL 3.0 are not required by OpenLab CDS and present a security risk. Disable them according to instructions from Microsoft and in accordance to your IT policies.

Some OpenLab CDS components require Microsoft .Net 3.5. By default, this version of framework does not enforce the usage of TLS 1.2 or higher. In most IT environments, TLS 1.2 is enabled for .Net 4.5 or older frameworks. A script to assist making these changes is available on the installation media under `\Setup\Tools\Support\TLS\FixTLSVersions.ps1`. Please contact your system administrator for assistance in running the script.

Run the System Preparation Tool

The System Preparation Tool (SPT) checks and applies Windows settings on your machine. The OpenLab installer applies these settings automatically when run. Running the SPT in advance helps you to shorten the installation process and avoid PC reboots. For an overview of both mandatory and recommended settings, refer to the chapter *System Preparation Tool* in [OpenLab CDS Requirements and Supported Instruments \(CDS_v2.8_Requirements_en.pdf, D0028027\)](#).

- 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.



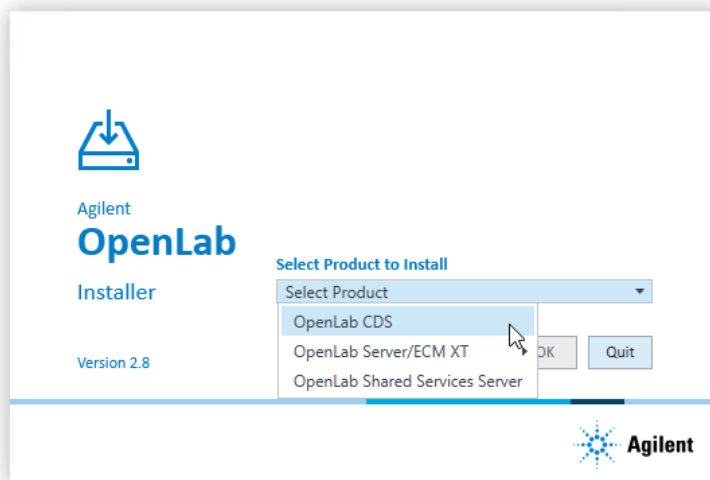
NOTE

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

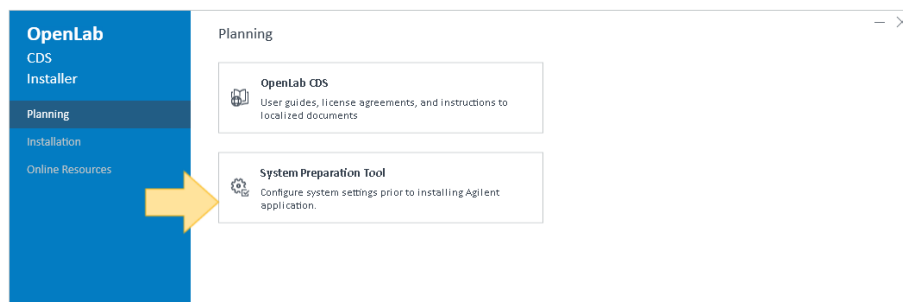
Prepare Your PC

Run the System Preparation Tool

- 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~AIC~Win10
- OpenLab CDS~AIC~Win11
- OpenLab CDS~AIC~Win2019
- OpenLab CDS~AIC~Win2022

Prepare Your PC

Run the System Preparation Tool

For clients:

- OpenLab (CDS, ECMXT)~(Client, CMServices)~Win10
- OpenLab (CDS, ECMXT)~(Client, CMServices)~Win11
- OpenLab (CDS, ECMXT)~(Client, CMServices)~Win2019
- OpenLab (CDS, ECMXT)~(Client, CMServices)~Win2022

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

- 6 Select which recommended settings to apply to the system.

Recommended settings 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.

Prepare Your PC**Run the System Preparation Tool**

11 Click Finish.

12 Reboot your system if requested to do so.



2 Install OpenLab CDS

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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



Prepare

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



- If you use the content management components provided by OpenLab Server or OpenLab ECM XT: Refer to *Agilent OpenLab Server and OpenLab ECM XT Installation (openlab-server-ecmxt-v2.8-installation-guide-en.pdf)*.
- If you use an existing OpenLab ECM v3.x system to store you data, refer to *Configuring OpenLab CDS with OpenLab ECM (CDS_v2.8_configure-with-ECM_en.pdf, D0028024)*.
- 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 12.
- 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



Get Licenses

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



Configure

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

Install at least one AIC first before installing the clients.

- See [Install OpenLab CDS \(Client or Instrument Controller\)](#) on page 22
- See [Post Installation Tasks](#) on page 34
- See [Optional Procedures](#) on page 46

See [Licensing](#) on page 51

See [Configure OpenLab CDS](#) on page 59.

Configuration tasks are performed in the Control Panel. For more details, refer to the Control Panel section in [OpenLab Help & Learning](#).

Before You Begin the Installation of OpenLab CDS

If you plan to upgrade from a previous version of OpenLab CDS, see [Upgrade to OpenLab CDS Version 2.8](#) on page 87.

- 1 Install all required hardware, including any cables, instrument detectors, and communication cables. GPIB interfaces may be required for some non-Agilent instruments.
- 2 Ensure that the Named Pipe Activation is selected for .NET 4.x.
 - a In the Windows Start menu, search for *Turn Windows features on or off*.
 - b Open the search result found in the Microsoft Control Panel.
 - c Expand **.NET Framework 4.8 Advanced Services**.
 - d Expand **WCF Services**.
 - e Select **Named Pipe Activation**.
- 3 Ensure to open the firewall ports listed in the Firewall Settings of [OpenLab CDS Requirements and Supported Instruments \(CDS_v2.8_Requirements_en.pdf, D0028027\)](#).

Use the Windows command **netstat -aon** to display all active ports on which the computer is listening, and the respective process IDs (PID) that you would need to shut down.

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).

The command **net stop http** lists all services that are dependent on the HTTP service and would also be stopped. You may need to disable one of them.

- 4 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**.

Install OpenLab CDS

Before You Begin the Installation of OpenLab CDS

- 5 Protect your system from viruses:
 - a Install an antivirus program.
 - b Make sure that the antivirus software is disabled during the installation.
 - c If you use Trend Micro™ as an antivirus software, turn off **Web Reputation** to allow the installation of all components.
- 6 Prepare an account with administrative privileges to run the installation.

By default, the Windows privilege **Debug programs** is granted to all users. Do not remove this privilege, it is required for installing the OpenLab CDS software.
- 7 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 Secure Storage component will fail, and trying to run the database will return an error.

Install an OpenLab Server

If you use the content management component provided by OpenLab Server or OpenLab ECM XT: Refer to *Agilent OpenLab Server and OpenLab ECM XT Installation (openlab-server-ecmxt-v2.8-installation-guide-en.pdf)*.

If you use an existing OpenLab ECM system to store you data, refer to *Configuring OpenLab CDS with OpenLab ECM (CDS_v2.8_configure-with-ECM_en.pdf, D0028024)*.

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.

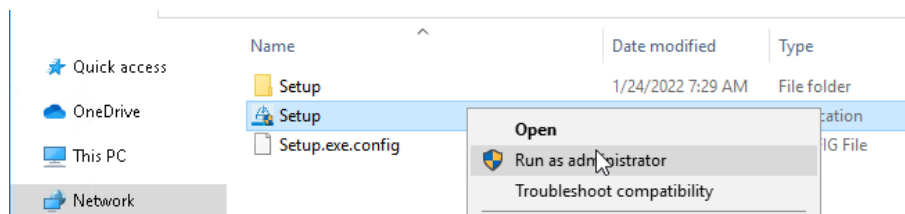
Prerequisites

- 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.
- You have installed at least one AIC before installing the clients.

NOTE

Clients that are installed in an Enterprise topology need to be connected to virtual host (typically, the configured hostname of the load balancer) during the installation.

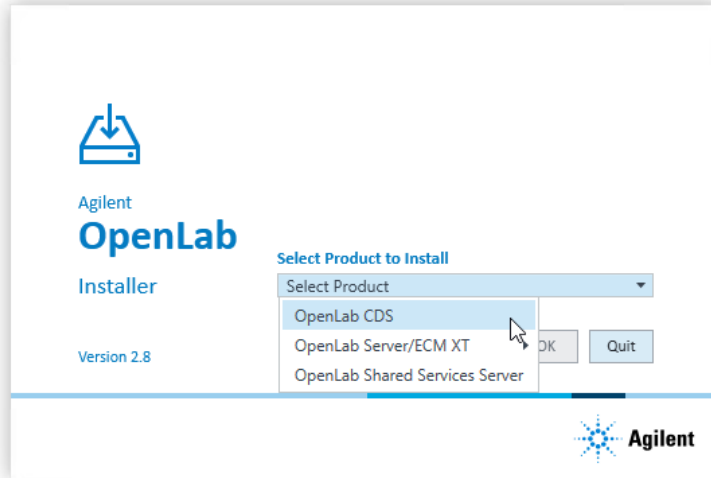
- 1 To open the installer, right-click the **setup.exe** file, and run it as administrator.



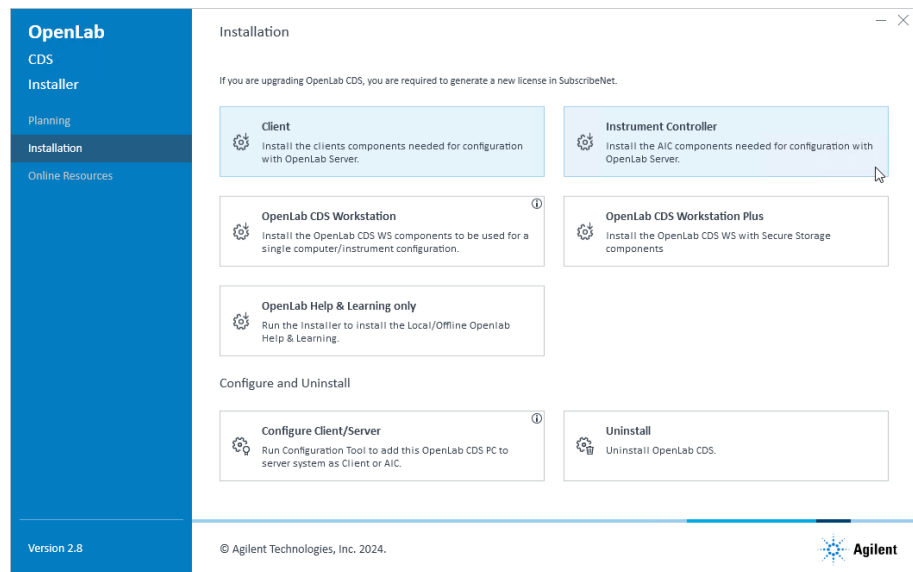
Install OpenLab CDS

Install OpenLab CDS (Client or Instrument Controller)

- 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.



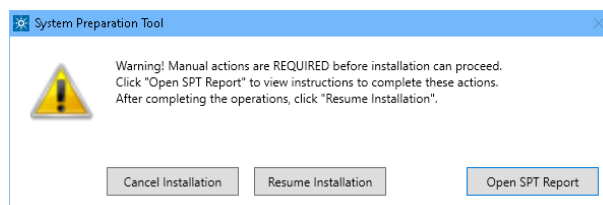
- 4 **License Agreement:** Read and confirm Agilent terms and conditions. Click **Next**.

Install OpenLab CDS

Install OpenLab CDS (Client or Instrument Controller)

- 5 **Installation Folder:** Provide an installation folder for OpenLab CDS. Do not use the root folder of any drive. Click **Next**.
- 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. Click **Next**.
- 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 Control Panel login credentials of an administrator for the specified server. Click **Next**.
- 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 [OpenLab CDS Requirements and Supported Instruments \(CDS_v2.8_Requirements_en.pdf, D0028027\)](#).

Click **Next** to proceed to the **Review** page. The settings will be applied as part of the 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 The following warning is displayed when user actions are required in the operating system:



Options to proceed

- *Recommended:* Click **Open SPT Report**, and review the **Required Actions** section for the instructions to verify if updates are needed. 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**.

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

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 [Connect a New Client or Instrument Controller to the Server](#) on page 102).

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.

¹ To start the tool separately at a later point in time, select **Start > (All apps >) Agilent Technologies > Software Verification Tool**.

Sample Scheduler for OpenLab

The Sample Scheduler instrument dashboard is included with your purchase of OpenLab CDS client/server configuration and installed by default. In order to work with the full edition of Sample Scheduler - e.g. to submit analysis requests to instruments - you need to activate Sample Scheduler.

The following components are available:

- 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 (**All apps** >) **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, or watch the [Activation video](#).

To remove the Sample Scheduler button from the Acquisition clients, see [Remove Sample Scheduler Button from OpenLab CDS Acquisition](#) on page 111.

Install CDS Client on a Terminal Server

- 1 Set up a Terminal Server.
- 2 Install the CDS client as described in this guide.
- 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.

Run silent installation

Prerequisites

- .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 an instrument controller (AIC)

- 1 Copy the content of the USB media to a centralized folder.
- 2 Right-click the executable of the command prompt or Power shell prompt, and run it as administrator.
- 3 Navigate to the location where you have saved the installation files.
For example: **C:\CDS**
- 4 To start the installation, call CDSInstaller.exe with the following syntax:

```
CDSInstaller.exe -s /norestart InstrumentController=True  
LicenseAccepted=True OlssHostName=<HostName>  
OlssAdminKey=<username> OlssAdminPassword=plain-password:<password>  
OlssDomain=<domain>
```

where:

 - <hostname> is the hostname of the OpenLab CDS application server
 - <username> is the user name used to connect to the server
 - <password> is the password used to connect to the server

<domain> is the domain to which the user name and password belong (OlssDomain="" when there is no domain)

With this command, you start the OpenLab Installer without a user interface.

- 5 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.

- 6 After the installation has finished, reboot the PC.

Install a client

- 1 Copy the content of the USB media to a centralized folder.
- 2 Right-click the executable of the command prompt or Power shell prompt, and run it as administrator.

- 3 Navigate to the location where you have saved the installation files.

For example: **C:\CDS**

- 4 To start the installation, call CDSInstaller.exe with the following syntax:

```
CDSInstaller.exe -s /norestart Client=True LicenseAccepted=True  
OlssHostName=<hostname>
```

where:

<hostname> is the hostname of the OpenLab CDS application server

With this command, you start the OpenLab Installer without a user interface.

- 5 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.

- 6 After the installation has finished, reboot the PC.

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: Failure

Code	Return value	Meaning
ERROR_PROCESS_ABORTED	1067	The process terminated unexpectedly.
ERROR_INSTALL_USEREXIT	1602	The user cancelled the installation.
ERROR_INSTALL_FAILURE	1603	A fatal error occurred during installation.
ERROR_INSTALL_SUSPEND	1604	Installation suspended, incomplete.
ERROR_INSTALL_ALREADY_RUNNING	1618	Another installation is already in progress. Complete that installation before proceeding with this install.
ERROR_INSTALL_PACKAGE_INVALID	1620	This installation package could not be opened. Contact the application vendor to verify that this is a valid Windows Installer package.
ERROR_FUNCTION_NOT_CALLED	1626	The function could not be executed.
ERROR_PRODUCT_VERSION	1638	Another version of this product is already installed. Installation of this version cannot continue. To configure or remove the existing version of this product, use Modify or Uninstall in Apps & features in the Windows Settings.
ERROR_ACCESS_DENIED	5(0x5)	Access is denied.
ERROR_NOT_SUPPORTED	50(0x32)	The request is not supported

Table 3: Return codes: Reboot required

Code	Return value	Meaning
ERROR_SUCCESS_REBOOT_INITIATED	1641	The installer has initiated a restart. This message is an indication of success.
ERROR_SUCCESS_REBOOT_REQUIRED	3010	A restart is required to complete the install. This message is an indication of success. This does not include installs where the ForceReboot action is run.
ERROR_FAIL_NOACTION_REBOOT	350(0x15E)	No action was taken as a system reboot is required.

Table 4: Return code: Success

Code	Return value	Meaning
ERROR_SUCCESS	0	The action completed successfully.
ERROR_SKIP_CONFIGURATION	77	Skip step configuration. Execution stopped by user command.
ERROR_NON_VITAL_PACKAGES_FAILED	4010	Installer partially completed. Non vital packages failed.

Logging and tracing

All exceptions, errors and information messages are logged under `Drive:\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 OpenLab CDS Requirements and Supported Instruments* ([CDS_v2.8_Requirements_en.pdf, D0028027](#)).

- 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 [Connect a New Client or Instrument Controller to the Server](#) on page 102.
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 28.

On the relevant clients

Install OpenLab CDS**Install or Upgrade Instrument Driver Software**

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

3

Post Installation Tasks

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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 apps >) 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 **Drive:\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.

Configure the Antivirus Program

- 1 Be sure to open the firewall ports listed in the Firewall Settings. See [OpenLab CDS Requirements and Supported Instruments \(CDS_v2.8_Requirements_en.pdf, D0028027\)](#).
- 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 antivirus program and the CDS application.
 - Storage location that you configured during setup (default on a fresh installation: C:\SSStorage; default on an upgraded system: C:\DsData)
 - Drive:\Program Files (x86)\Agilent Technologies
 - Drive:\ProgramData\Agilent
 - Drive:\ProgramData\Agilent IPB Files
 - Drive:\ProgramData\Agilent Technologies, Inc
 - Drive:\ProgramData\ChromatographySystem
 - Drive:\ProgramData\Firebird
 - Drive:\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.

- 3 The following process should be excluded from Antivirus scan:
 - Drive:\Program Files (x86)\Agilent Technologies\OpenLab Acquisition\AcquisitionServer.exe

Optional configuration steps

Agilent recommends to whitelist certain applications to improve performance. Consider these settings especially if you recognize that your antivirus software consumes a high amount of CPU resources when OpenLab CDS is executed. The following settings are recommended with Trend Micro™. Other antivirus programs may require the same level of configuration; please refer to the respective instructions.

- 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**: Agilent recommends to include certain folders to **Approved programs**. The following list may serve as a starting point.

NOTE

If any of the excluded files get infected, it will not be detected. Take measures to avoid the risk of non-detection. For examples, trigger a scheduled scan on a daily basis to cover these files.

- Program Files (x86)\Agilent Technologies\Certificate Service\
- Program Files (x86)\Agilent Technologies\Data Collection Agent\
- Program Files (x86)\Agilent Technologies\OpenLab\Services\
- Program Files (x86)\Agilent Technologies\OpenLab Services\
- Program Files (x86)\Agilent Technologies\OpenLab Acquisition\

Post Installation Tasks

Configure the Antivirus Program

- Program Files (x86)\Agilent Technologies\OpenLab Backup Utility\
- Program Files (x86)\Agilent Technologies\OpenLab Restore Utility\
- Program Files (x86)\Agilent Technologies\OpenLab Data Analysis\
- Program Files (x86)\Agilent Technologies\OpenLab Platform\
Data Repository\Data Repository\
- Program Files (x86)\Agilent Technologies\OpenLab Platform\
Reverse Proxy\
- Program Files (x86)\Agilent Technologies\OpenSearch\
- Program Files (x86)\Agilent Technologies\Test Services\

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

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

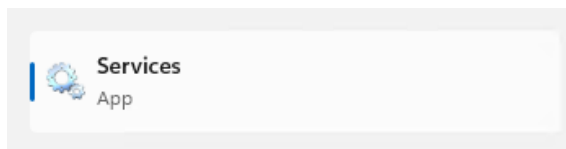
Prepare Centralized Printing

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 Windows Start menu, search for *Services*. Open the **Services** app.



- 2 Right-click **Agilent OpenLab CopyTo 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

Drive:\ProgramData\Agilent\CopyToServer\CacheSizeLimit.ini. The parameter **CacheSizeLimit** can be configured to change the size of the queue.

Post Installation Tasks

Prepare Centralized Printing

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 Control Panel for OpenLab 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 39).

Post Installation Tasks

Prepare Centralized Printing

Issue	Resolution
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

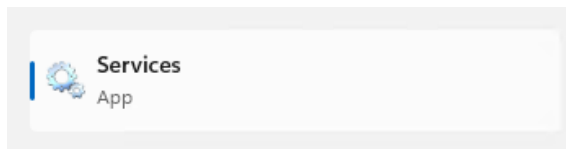
Carry out the following steps if you want to:

- 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 Windows Start menu, search for *Services*. Open the **Services** app.

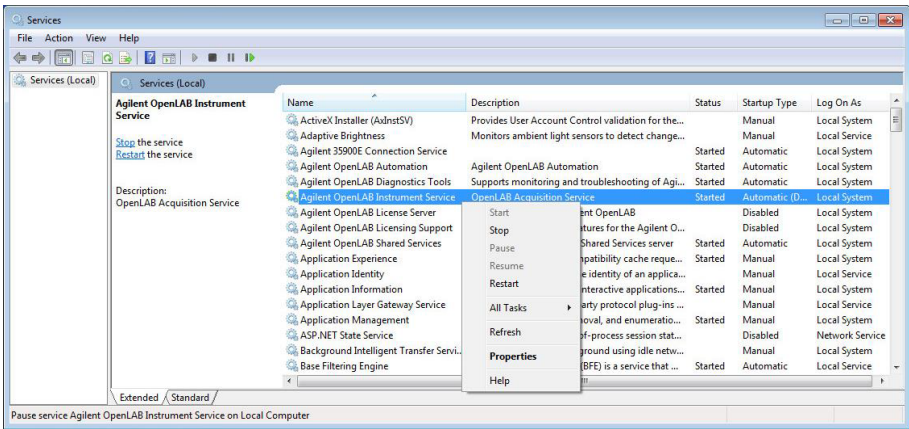


- 3 Make sure the status of **Agilent OpenLab Instrument Service** is **Started** or **Running**. If it is not, right-click and select **Start**.

Post Installation Tasks

Prepare Exports to Network Shares During Unattended Processing

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

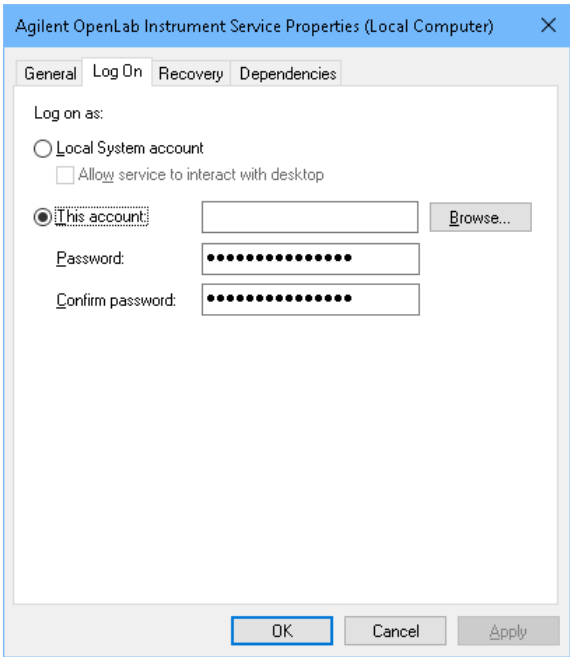


5 Click the **Log On** tab, select **This account** and enter the login credentials of a domain user who has network printing privileges.

NOTE

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

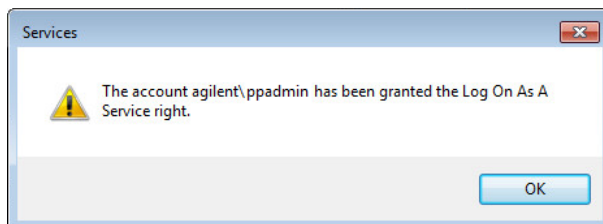
Click OK.



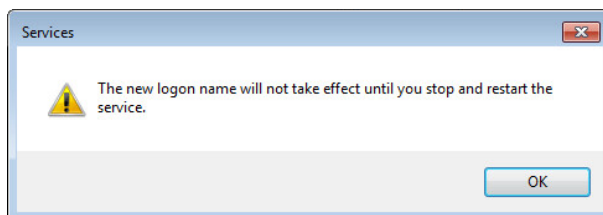
Post Installation Tasks

Prepare Exports to Network Shares During Unattended Processing

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



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



- 8 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 [Set Up Domain User Account on AICs](#) on page 42).

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 In the Windows Settings, open **Devices > Printers & scanners** and click **Add a printer or scanner**.

- 3 Select the required printer from the list. If it is not listed, click **The printer that I want isn't listed** 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.



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Install OpenLab Help and Learning Only

Use this option to install OpenLab Help & Learning content on machines without OpenLab CDS installed.

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 & 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 109).

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.

Change the SecureFileStorage path

For buffering files for transfer, OpenLab CDS creates a folder at a default fixed location `%ProgramData%\Agilent\SecureFileSystem`.

The folder path can be modified if the default location is unsuitable. For more information on changing the location of the secure file storage, please contact your local Agilent Support representative.

About OpenLab CDS licensing

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.

The most efficient way to manage and maintain your licensing is through the internet via <http://agilent.subscribenet.com/>.

License file

A license file contains your software license. It is a collection of product, instrument, and add-on licenses (or activation keys). Information in the license file defines the number of instruments and other options that may be used concurrently with your system.

The license file is installed to the license server, that is 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 without regenerating the license in SubscribeNet..

License types

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.

Get a license

NOTE

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.

Generate, download, and install a license with SubscribeNet

In case you do not have internet access, skip to the section [Other ways to obtain a license](#) on page 55.

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*.

Preparations 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 MAC address, and host name of the computer where the Control Panel is running.

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.

NOTE

If any changes are made to the computer name or domain reference after the license is installed, remove the license, and create a new license in SubscribeNet, download and install it .

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.subscribe.net/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 *).
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 Select **Generate or View licenses** from the left navigation bar.
- 5 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.
- 6 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.

Check for software updates

After registering your authorization codes in SubscribeNet, check for software updates released for your products. If updates are available, open the ReadMe files and follow the instructions.

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:

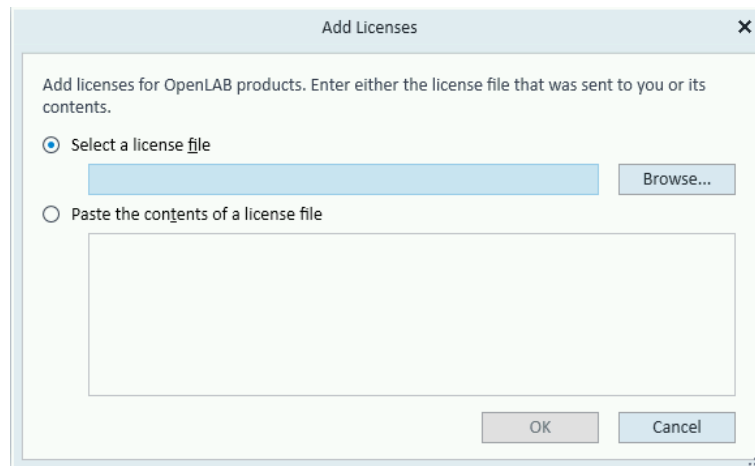
Once the above information is provided Agilent will then work on your behalf to generate a license file through SubscribeNet. The license file will either be sent to your shipping address (on a CD), or your local FSE will deliver it in

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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OpenLab Control Panel

All configuration tasks are performed in the Control Panel for OpenLab. 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:

Configure OpenLab CDS

Configure users and roles

- 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 67). 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 67). 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 5: 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.

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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 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
- Secure Storage
- 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 components and Shared Services are located on a dedicated server. The system supports up to six instrument connections per Analytical Instrument Controller (AIC).

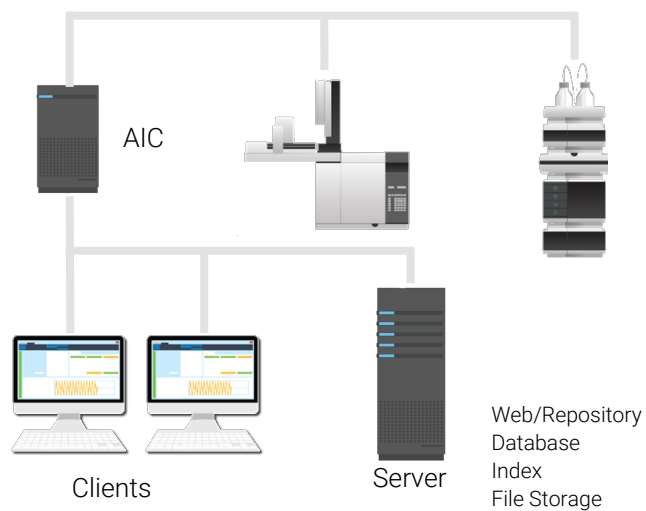


Figure 2: Client/Server System, 1-server system

Components Used in a Client/Server System

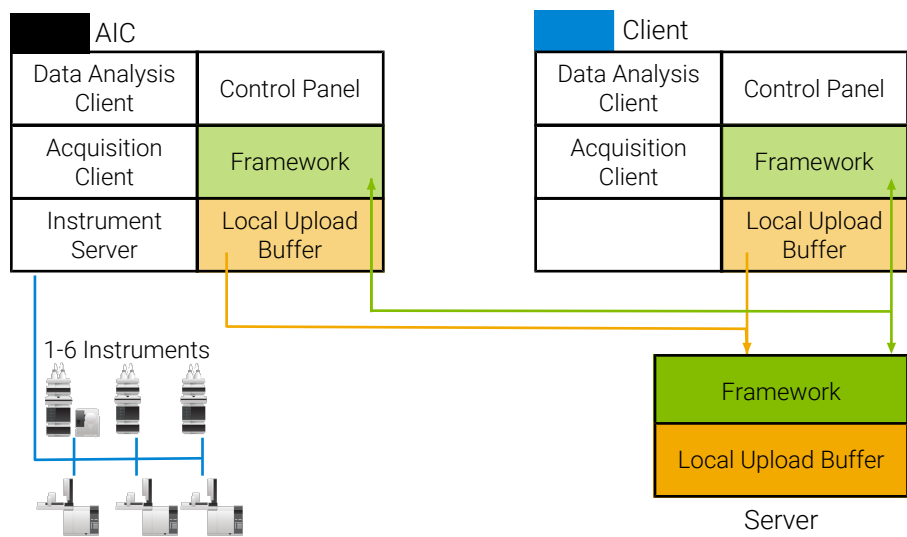


Figure 3: Components on a Client/Server system

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.
Framework	Reusable OpenLab CDS services, components, and tools.
Secure Storage	Content management component, provides the database and the Content Browser.

Installed components

The following Agilent components may be installed with your OpenLab CDS system. It depends on the type of installation (workstation, client, AIC, or server) which components are installed.

- OpenLab Backup and Restore Utility
Toolset for backup and restore operations in an OpenLab system.
- OpenLab CDS
The core application.
- OpenLab CDS instrument drivers
Agilent 35800 A/D, Data Player, GC, GC/MS, LC, LC/MS, and SS420x drivers.
- OpenLab CDS eMethod tool
Helps to import eMethods.
- OpenLab Certificate Service and Tool
Solution to secure network traffic in case commercial certificates are not available. Not used on a Workstation.
- OpenLab CopyTo Server, and CopyTo Client
Manage centralized printing.
- OpenLab Data Collection Service and Agent
Collects system and topology related information in distributed systems.
- OpenLab Data Repository
Storage infrastructure used by the system activity log and other software components and to store diagnostic and topology related information.
- OpenLab Reverse Proxy
Provides secure communication to OpenLab Components.
- Openlab SDMS and Secure Storage
Multiple individual components related to content management.
- OpenLab Storage Client Services
- OpenLab Shared Services
Set of services and tools that offer system configuration, security, application configuration, licensing, and notification capabilities.
- Software Verification Tool

About the OpenLab CDS Software

Software Architecture

Provides documentary evidence that your system has been built and installed correctly, and that all design specifications have been met.

- Test Services
Former QualA. Communicates with the Data Repository.

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 82 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 **Drive:\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**.

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:

- OpenLab 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.



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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 may require specific privileges.

See **OpenLab Help & Learning** for more information on Control Panel functions.

Other Maintenance Procedures

Shared Services and Secure Storage

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

Please refer to *Agilent OpenLab Server and OpenLab ECM XT Administration Guide (openlab-server-ecmxt-v2.8-administration-guide-en.pdf, D0035354)* for information on database maintenance.

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 *Agilent OpenLab Server and OpenLab ECM XT Administration Guide (openlab-server-ecmxt-v2.8-administration-guide-en.pdf, D0035354)*.

Failover mode

In the normal operation of the OpenLab CDS Client/Server system the connection between an AIC and the OpenLab Server is active. Usernames, privileges, and roles are enforced and a user has full access to all projects, instruments, and data. In the event that the connection between the AIC and the OpenLab Server is broken, a Failover mode is available so a user can continue to process samples.

To run an instrument in Failover mode, you must connect and log in to the AIC. This can be done either directly by connecting a keyboard, mouse, and monitor to the AIC, or remotely by using the Windows Remote Desktop Connection utility.

For details on the Failover mode, refer to *OpenLab CDS Acquisition Failover Users Guide (CDS_v2.8_Failover_en.pdf, D0028026)*.

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.

Troubleshooting

Opening the first instance of a software is slow

Opening the first instance of a software application appears slower than subsequent use. This delay may also appear for applications that are infrequently used (for example, when loading OpenLab CDS Data Analysis from Sample Scheduler, Data Analysis may seem slow(er)) ².

Probable cause	Suggested actions
Loading application DLL's the first time takes longer than subsequent loading of the same application due to memory caching for subsequent uses of the same application. The initial time is dependent on reading the DLL from media, whereas subsequent use of the DLL is from memory. This may cause an application to have a different startup time for first (or infrequent) use compared to subsequent use. ²	<ul style="list-style-type: none">Consider using SSD hard drive instead of HDD (spinning drives). Read times from SSD is significantly faster than HDD and in many cases this Initial Application launch time (DLL read) is eliminated.

² After a certain period of inactivity, the cache is emptied, so infrequent use can be equivalent to first-time use.

OpenLab CDS PC is slow

It takes a long time to start a new Data Analysis or Acquisition client. Many CDS instances are running on the PC.

Probable cause	Suggested actions
The PC is running low on available memory, Microsoft Windows starts to swap out memory to the hard drive (memory paging).	<ul style="list-style-type: none">• Close unnecessary applications to free up memory. Close OpenLab clients that are no longer required, and consider closing other applications that run on the same machine.• Consider using SSD hard drive instead of HDD (spinning drives). Any memory swapping process will become significantly faster.• If the problem persists: Consider adding memory.

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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 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**.

<div>Software</div> <div>Product List</div> <div>Product Search</div> <div>Entitlements</div> <div>Licenses</div> <div>Register Authorization Code</div> <div>Generate or View Licenses</div> <div>View Licenses by Host</div> <div>Manage Licenses by Host</div> <div>Administration</div> <div>Account Members</div> <div>Change Password</div>	<div>Electronic Software and License Delivery</div> <div>Manage Licenses by Host</div> <div>Manage Licenses by Host provides a convenient way to upgrade or return all licenses for a license server. For modelocked license Hosts, licenses can only be returned as upgrades do not apply.</div> <div>Please select a host by entering the Host ID or Host Name in its search field, or select a host from the pull-down list. You can use * as a wildcard value.</div> <div><div>Host ID</div><div>Host Name</div><div>What is my Host ID?</div><div>Search</div></div>
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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 123). 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 89).

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.

Upgrade with reduced downtime

To continue running your clients/Analytical Instrument Controllers (AICs) in a temporary setup during the upgrade, carry out the following steps:

Step 1: Prepare Clients and Agilent Instrument Controllers (AICs) on page 93

Step 2: Upgrade the OpenLab Server on page 94

Step 3: Connect existing clients or AICs to new server on page 95

Step 4: Upgrade an Agilent Instrument Controller on page 97

Step 5: Upgrade an OpenLab CDS Client on page 99

Step 6: Install Add-ons and Upgrade Instrument Drivers on page 101

Simple upgrade

The components must be upgraded in the following order:

Step 2: Upgrade the OpenLab Server on page 94

Step 4: Upgrade an Agilent Instrument Controller on page 97

Step 5: Upgrade an OpenLab CDS Client on page 99

Step 6: Install Add-ons and Upgrade Instrument Drivers on page 101

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 2.8 supports using clients and AICs with OpenLab CDS versions 2.5 or higher. Analytical Instrument Controllers and OpenLab CDS clients must always use the same version of OpenLab CDS.

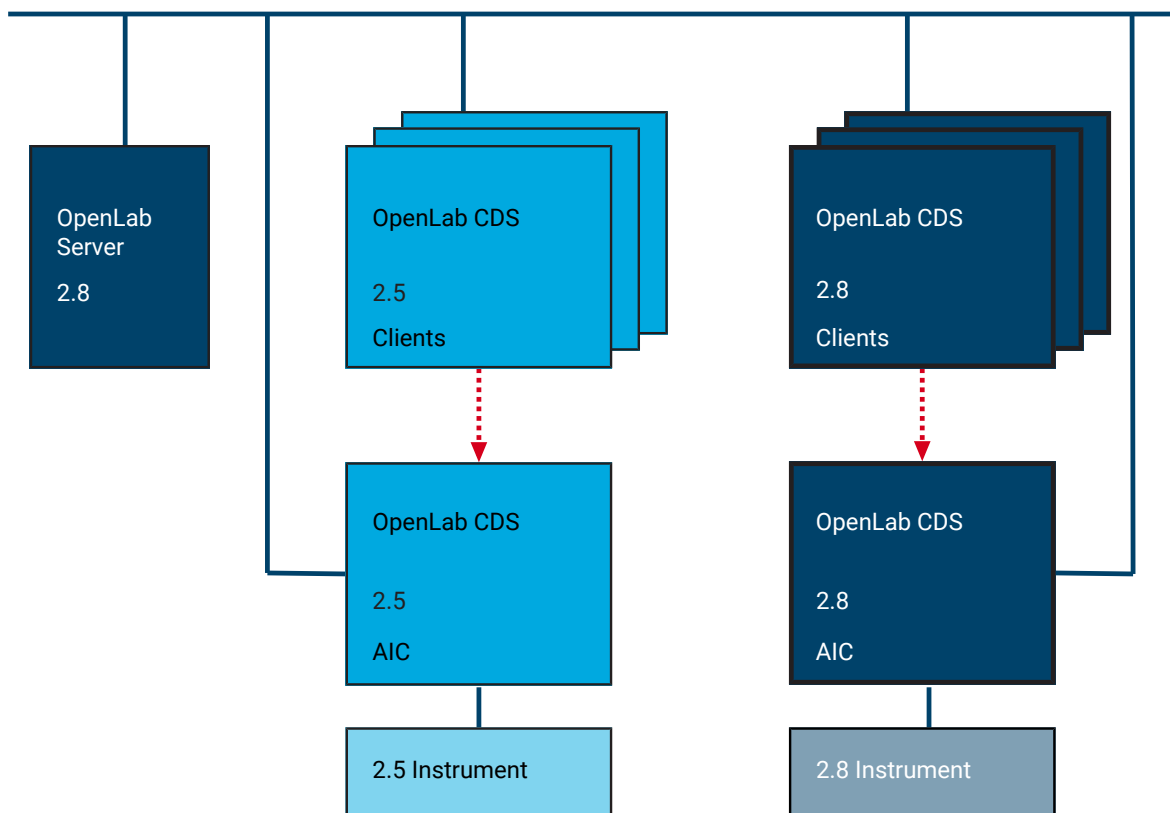


Figure 4: Mixed configuration during upgrade

Use the 2.8 clients to access instruments that are controlled by a 2.8 AIC, and use older clients to access instruments controlled by a corresponding older AIC. The data storage is provided by OpenLab Server 2.8. 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 2.8 and close it from version 2.5/2.6/2.7, 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.

Step 1: Prepare Clients and Agilent Instrument Controllers (AICs)

The following preparation is required to continue running your clients/AICs in a temporary setup during the upgrade.

- 1 On the installation media, navigate to **Setup\Tools\MixedConfiguration**.
- 2 To install the **Agilent OpenLab Secure Storage Plugin**, run **Agilent.OpenLab.SDMS.Storage.Driver.msi**.
- 3 Reboot the client or AIC.
- 4 To ensure that the client or AIC is prepared for connecting over TLS 1.2, run the PowerShell script located at **Setup\Tools\Support\TLS\FixTLSVersions.ps1**.

Step 2: Upgrade the OpenLab Server

All uploads and acquisitions must be finished, and the File Upload Queue must be empty before upgrading.

For more information on upgrading an OpenLab Server, refer to *Agilent OpenLab Server and OpenLab ECM XT Installation (openlab-server-ecmxt-v2.8-installation-guide-en.pdf)*.

Step 3: Connect existing clients or AICs to new server

These steps are only required if you prepared the OpenLab Server 2.8 on a new machine. They are not required with an in-place server upgrade or when you follow the *simple upgrade* approach.

- 1 Open **Shared Services Maintenance** from the Start menu. On the **Server Settings** tab, add the new server.
- 2 For clients or AICs using OpenLab CDS v2.5 or v2.6:
 - a Open Windows PowerShell as an administrator.
 - b Navigate to **Program Files (x86)\Agilent Technologies \ OpenLab Certificate Service Tool\Bin**.
 - c Run the command:
`.\change-default-server.ps1`
 - d Enter the hostname of the new server.
- 3 For clients or AICs using OpenLab CDS v2.7:
 - a Open the Command Prompt as an administrator
 - b Navigate to **Program Files (x86)\Agilent Technologies \ OpenLab Certificate Service Tool\Bin**.
 - c Run the following command (replace <servername> by the name of your server):
`Agilent.OpenLab.CertService.CertTool.exe RegisterRootCert -h <servername>`

- 4 For clients or AICs using OpenLab CDS v2.5:
 - a On the installation media, navigate to **Setup\Tools\MixedConfiguration\RegisterCDS_For25**.
 - b Run **RegisterCDS.exe**.
 - c In the **OpenLab Configuration** tool, enter the hostname of the new server. Click **Connect** to enable the input boxes for the user credentials.
 - d Under **Authentication**, enter OpenLab user credentials for the specified server.
 - e For Instrument Controllers, select the **Register as Instrument Controller** check box. For clients, clear this check box.
 - f Click **Register**.
A **Registration Results** dialog will be shown.
- 5 For clients or AICs using OpenLab CDS v2.6 or v2.7:
 - a In Windows, select **Start > (All apps >) Agilent Technologies > OpenLab Configuration**.
 - b In the **OpenLab Configuration** tool, enter the hostname of the new server. Click **Connect** to enable the input boxes for the user credentials.
 - c Under **Authentication**, enter OpenLab user credentials for the specified server.
 - d For Instrument Controllers, select the **Register as Instrument Controller** check box. For clients, clear this check box.
 - e Click **Register**.
A **Registration Results** dialog will be shown.
- 6 Reboot the client or AIC.

Step 4: Upgrade an Agilent Instrument Controller

- Preparations**
- You have upgraded the OpenLab Server to version 2.8.
 - 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 [OpenLab Server and OpenLab ECM XT Hardware and Software Requirements \(openlab-server-ecmxt-v2.8-requirements-en.pdf\)](#). 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 [Connect a New Client or Instrument Controller to the Server](#) on page 102.

- 1 Uninstall add-on software such as ADFExport or 2D-LC. Do not manually uninstall Sample Scheduler for OpenLab.

NOTE

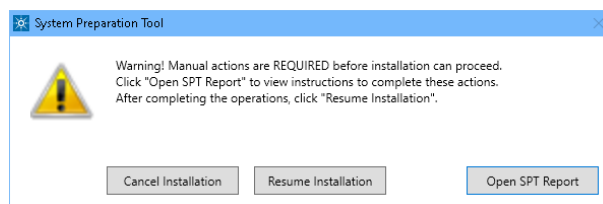
Older revisions of add-on software may not be supported with OpenLab CDS v2.8. Running incompatible add-ons, or uninstalling them after the upgrade, may cause the Data Analysis application to fail.

Please check the documentation of each add-on for information on compatibility.

- 2 Run the **setup.exe** file from the installation media as a user with administrative rights.
- 3 Select **OpenLab CDS**.
- 4 In the OpenLab CDS Installer, select the **Installation** screen.
- 5 Click **Instrument Controller**.
- 6 In the **Storage Configuration** screen, click **Next**.

- 7 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**.
- 8 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 OpenLab CDS Requirements and Supported Instruments (CDS_v2.8_Requirements_en.pdf, D0028027)*.

Click **Next** to proceed to the **Review** page. The settings will be applied as part of the installation.
- 9 In the **Review** screen, click **Upgrade** to start the upgrade.
- 10 The following warning is displayed when user actions are required in the operating system:



Options to proceed

- **Recommended:** Click **Open SPT Report**, and review the **Required Actions** section for the instructions to verify if updates are needed. 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 On the **Finish** page, click **Run Software Verification**.
- 12 On the **Finish** page, keep the **Reboot** check box selected, and click **Finish**.

Step 5: Upgrade an OpenLab CDS Client

Preparations You have upgraded the Analytical Instrument Controller to version 2.8.

NOTE

Older revisions of add-on software may not be supported with OpenLab CDS v2.8. Running incompatible add-ons, or uninstalling them after the upgrade, may cause the Data Analysis application to fail.

Please check the documentation of each add-on for information on compatibility.

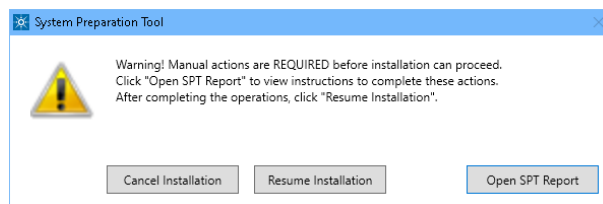
- 2 Run the **setup.exe** file from the installation media as a user with administrative rights.
- 3 Select **OpenLab CDS**.
- 4 In the OpenLab CDS Installer, select the **Installation** screen.
- 5 Click **Client**.
- 6 In the **Storage Configuration** screen, click **Next**.
- 7 In the **Server Information** screen, click **Test Connection** to check the availability of the server. If the server is available, click **Next**.
- 8 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 OpenLab CDS Requirements and Supported Instruments (CDS_v2.8_Requirements_en.pdf, D0028027)*.

Click **Next** to proceed to the **Review** page. The settings will be applied as part of the installation.
- 9 In the **Review** screen, click **Upgrade** to start the upgrade.

Upgrade to OpenLab CDS Version 2.8

Step 5: Upgrade an OpenLab CDS Client

- 10 The following warning is displayed when user actions are required in the operating system:



Options to proceed

- *Recommended:* Click **Open SPT Report**, and review the **Required Actions** section for the instructions to verify if updates are needed. 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 On the **Finish** page, click **Run Software Verification**.

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

Step 6: Install Add-ons and Upgrade Instrument Drivers

- 1 Install compatible revisions of your add-ons.
- 2 Upgrade instrument drivers to the latest revisions.
For more information on driver upgrades, see [Install or Upgrade Instrument Driver Software](#) on page 32.
- 3 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 2.8.

Connect a New Client or Instrument Controller to the Server

This procedure describes how to add a new OpenLab CDS PC to a Client/Server environment, and use it as a client or Instrument Controller.

Follow the steps *Register root certificate* and *Register OpenLab CDS* as outlined below each time when:

- You need to change the server connection of an OpenLab CDS Client or Instrument Controller
- You have manually installed or upgraded instrument driver software. Refreshing the server connection ensures that all instrument types will be available in the Control Panel.

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 or Instrument Controller.

- 1 Open the Command Prompt as an administrator.
- 2 Navigate to the Certificate Service Tool folder:
`C:\Program Files (x86)\Agilent Technologies\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

Upgrade to OpenLab CDS Version 2.8

Connect a New Client or Instrument Controller to the Server

- 1 In Windows, select **Start > (All apps >) Agilent Technologies > OpenLab Configuration**.
- 2 In the **OpenLab Configuration** tool, enter the hostname of the OpenLab server. Click **Connect** to enable the input boxes for the user credentials.

The screenshot shows the 'OpenLAB Configuration' dialog box with three steps. Step 1, 'Server', has a 'Hostname' text box and a 'Connect' button. Step 2, 'Authentication', has 'Username', 'Password', and 'Domain' text boxes. Step 3, 'Additional Options', has a checked checkbox for 'Register as Instrument Controller'. On the right, a blue sidebar contains instructions for each step. At the bottom are 'Cancel' and 'Register' buttons.

OpenLAB Configuration

Step 1 - Server

Hostname

Connect

Step 2 - Authentication

Username

Password

Domain

Step 3 - Additional Options

☒ Register as Instrument Controller

Server

Enter the hostname of the OpenLAB Server that you would like to connect to and click the Connect button.

Changes will be applied to the server specified.

Authentication

Enter your login credentials for the server specified.

Additional Options

Choose any additional options and click the Register button.

Cancel **Register**

- 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

The Sample Scheduler instrument dashboard is included with your purchase of OpenLab CDS client/server configuration and installed by default. In order to work with the full edition of Sample Scheduler - e.g. to submit analysis requests to instruments - you need to activate Sample Scheduler.

The following components are available:

- 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 (**All apps** >) **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, or watch the [Activation video](#).

To remove the Sample Scheduler button from the Acquisition clients, see [Remove Sample Scheduler Button from OpenLab CDS Acquisition](#) on page 111.

New or Upgraded Items

Privileges and roles

On upgrade from a previous version, new privileges and roles may be created (see Appendix for details on roles and permissions).

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. 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.

- In previous revisions, importing raw data was included in the **Import data** privilege for the role **Chemist**. Starting with Shared Services version 3.7 / OpenLab CDS 2.8, the privilege **Import raw data** has been added. This privilege is now required to import raw ChemStation or EZChrom data.

The new privilege is not added automatically to any role. If you still want the role **Chemist** to allow importing raw data, you must add the new privilege manually.

Signature levels

Starting with OpenLab CDS 2.8, signature levels for electronic signatures can include or exclude authors of a result set. For details on adding authors to a signature step, see OpenLab Help and Learning.



10

Uninstall OpenLab CDS

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Uninstall OpenLab Help and Learning Only 109

Order of Uninstallation

Always uninstall in the following order:

- Step 1** Uninstall Clients and AICs.
See [Uninstall OpenLab CDS from clients and Analytical Instrument Controllers](#) on page 108
- Step 2** Uninstall Server(s)
For details on the server uninstallation, please refer to *Agilent OpenLab Server and OpenLab ECM XT Installation (openlab-server-ecmxt-v2.8-installation-guide-en.pdf)*.

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, **ADExport for OpenLab**).
- 4 Select **Agilent OpenLab CDS**, and confirm uninstallation.
The OpenLab CDS Uninstallation Wizard opens ³. 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.

³ 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.

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Remove Sample Scheduler Button from OpenLab CDS Acquisition

1 Run PowerShell as Administrator.

2 To check your execution policy, run:
`get-executionpolicy`

The execution policy must allow scripts to run. This is given, for example, with the execution policy **remotesigned** or **unrestricted**.

NOTE

If the PowerShell execution policy does not allow scripts to run, contact your IT administrator.

3 Copy the following script, paste it into a text editor, and remove superfluous line breaks.

```
[xml]$xml = Get-Content "C:\ProgramData\Agilent Technologies
, Inc\OpenLAB CDS - Acquisition\CustomToolsConfiguration.xml"

$nodes = $xml.SelectNodes("//CustomToolsGroup") | where
{ $_.CaptionForCustomToolsGroup -match 'Sample Scheduler' }

foreach($node in $nodes){$node.ParentNode.RemoveChild($node)}

[xml]$xml.Save('C:\ProgramData\Agilent Technologies
, Inc\OpenLAB CDS - Acquisition\CustomToolsConfiguration.xml')
```

4 Copy the corrected script, paste it into PowerShell, and execute it.

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
- Storage Configuration Manager
- Instrument Administrator
- Secure Storage Viewer
- Project Content Deletion
- Chemist
- Technician
- Secure Storage Approver
- System Administrator
- Project Administrator
- Instrument User
- Activity Log Access
- Secure Storage Contributor
- Secure Storage Archivist
- Secure Storage Administrator
- Secure Storage Delete Content
- Storage Location Manager
- File Storage Location Manager

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

Project Privileges

Table 6: 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 .

Appendix

Privileges in the Control Panel

Table 7: 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 8: 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 <i>Priority</i> 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.

Appendix

Privileges in the Control Panel

Name	Description
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 9: Custom Tools

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

Table 10: Data

Name	Description
Export data	Export data into an OpenLab archive (*.olax).
Import data	Import data from OpenLab archives (*.olax) into the OpenLab system.
Import raw data	Import raw data from ChemStation or EZChrom, or from the AIA data format.
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 11: 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.

Appendix

Privileges in the Control Panel

Name	Description
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 MS Spectral Deconvolution	Manually run MS spectral deconvolution, remove MS spectral deconvolution results.
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.
Reprocess data	Reprocess injections or result sets.
Print results reports	Create reports for your methods or results.

Table 12: E-Signature

Name	Description
E-Signature Sign Data Files	Sign data files
Revoke E-Signature	Revoke the e-signature.
Change method status	Change the status (Generic, Approved, Obsolete) of sample prep methods, acquisition methods and processing methods. This is only applicable to systems with content management.

Appendix

Privileges in the Control Panel

Table 13: 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 14: Lock

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

Table 15: 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.

Appendix

Privileges in the Control Panel

Name	Description
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 Spectral Analysis > MS Library Search section of a method.
Edit MS Spectral Deconvolution parameters	View and edit the parameters in the Spectral Analysis > MS Spectral Deconvolution 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.
Load older master method	Only 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 16: Project Management

Name	Description
Manage project or project group	Create, move, edit, and delete projects and project groups; edit project properties; cannot edit privileges for projects or project groups.
Manage project or project group access	View and edit the project access settings.
View project or project group	View a project and project details but cannot edit. <i>Note:</i> This privilege is required for all users.
Edit content of project	Create new versions of documents (e.g. data, methods, or templates). Delete methods or templates.
Delete content of project	Required to delete templates and methods in the Data Selection view of Data Analysis. 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 Browser web interface. <i>Note:</i> To move or delete files and folders in the Content Browser that are <i>outside</i> of a project, this privilege is not sufficient; the administrative privilege Manage security must be granted!

Table 17: 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 18: 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 19: Secure Storage (Content Browser privileges)

Name	Description
Check-in/out	Check out, check in, and undo checkout for files checked-out by yourself
Copy files/folders	Copy files and folders to another location in secure storage.
Create/Rename folder	Create or rename folder.
Delete files/folders	Delete files and folders from secure storage.
Download files/folders	<ul style="list-style-type: none">• Download files and folders• Download as zip• Preview files• Create file/folder link• Use file/folder link
E-Sign files	Add electronic signature to data files.
Lock files/folders	Lock files and folders so that they cannot be changed, moved, or deleted.
Move files/folders	Move files and folders to another location in secure storage.
Undo checkout for other users	Undo checkout for files checked-out by other users
Unlock files/folders	Unlock files and folders.
Upload files/folders	Upload files and folders to secure storage.
View content	Access core capabilities. <ul style="list-style-type: none">• Log in• Browse content• View file properties• View folder properties• Quick Search
View storage administration content	Browse storage content structure

Table 20: Sequence Template

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

Table 21: Sequence

Name	Description
Edit any users running sequence	Edit any user's running sequence (with 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 (with status Acquiring in the Run Queue).
Edit method override parameters	Override parameters in a predefined acquisition method.

Table 22: Snapshot

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

Instrument privileges

Table 23: 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).

Name	Description
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 24: 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). With OpenLab CDS Workstation, the Activity Log is enabled by default during installation.
Create administrative reports	Can create any of the system admin reports.
Manage system components	Can install/remove components (applications).
Manage security	Can change security settings and assign security roles. Can add, change, or remove users, groups and roles. In the Content Browser web interface: Can move and delete files and folders outside of a project. <i>Note:</i> 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 view instrument controllers in the Control Panel and administrate them.
Unlock any locked UI	Can log in to another user's locked session.

Table 25: Secure Storage (Storage Administration privileges)

Name	Description
Import files/folders	Bulk import files and folders
Manage file storage	Access and move files between storage locations (relocate files).
Manage storage locations	Access and add/edit storage locations
Schedule file locking	Access and manage file locking schedules

Table 26: 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

Local Contact

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 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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