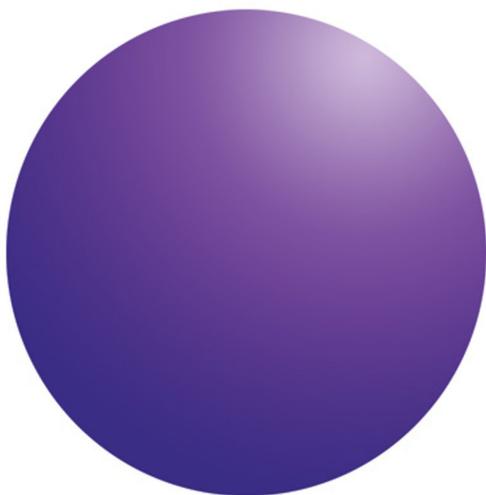


**Agilent OpenLAB
CDS Secure
ChemStation
Workstation**



Maintenance Guide



Agilent Technologies

Notices

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A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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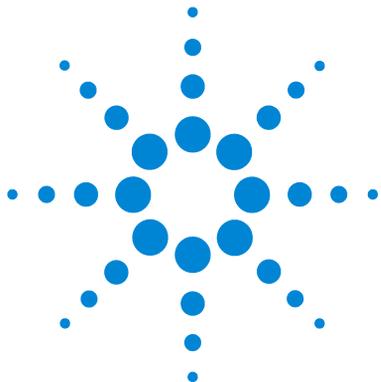
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1 Introduction

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The Agilent OpenLAB CDS Secure ChemStation Workstation provides the functionality of an OpenLAB CDS ChemStation Edition with Data Store on one computer.

Data Store is used to centrally manage data files generated by supported analytical systems. This document provides information about maintenance procedures that must be taken to ensure that the system remains stable and performs well over time.

It also provides guidelines for backing up and restoring your system in the event of a disaster such as a hardware failure.



Who Should Read This Guide?

This document is targeted for the system administrator of the OpenLAB CDS Secure ChemStation Workstation system. Basic administrative knowledge of the underlying database management system is required. In addition, familiarity with Windows backup/restore is also required.

Disaster Recovery Planning

Prepare a recovery plan for the unlikely case of the CDS Secure ChemStation Workstation becoming inoperable due to a hardware or software failure. This plan must include information and procedures for completely restoring the operating system, the software and data. Make sure that the disaster recovery plan has been tested and confirmed to be working.

The “Disaster Recovery Plan” must include the following:

- 1** Hardware information: CPU, Memory, and Hard disk configuration information.
- 2** Computer identity: Name, IP, domain, URI, etc.
 - Computer administrator information: username and passwords for logging into the server
 - If applicable, usernames and passwords for the database
- 3** Software information: OS version, Patch level.
- 4** Installation parameters:
 - Installation folder
 - Installation log file
 - OpenLAB Data Store database type
 - OpenLAB Data Store content directory
 - OpenLAB Data Store indexes folder
 - OpenLAB Shared Services language
 - OpenLAB Shared Services database name
 - Installed licenses
 - Registered applications
- 5** 3rd party software information: applications and their revisions and install paths.
- 6** Backup procedures (“[Data Backup Procedure](#)” on page 17).
- 7** Backup media location and organization details.
- 8** Restore procedures (“[Software Restore Procedure](#)” on page 27).

Backup and Restore Procedure Overview

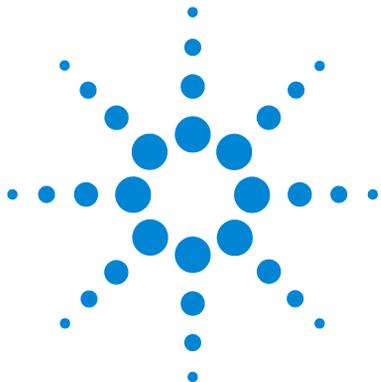
The backup procedure for an OpenLAB CDS Secure ChemStation Workstation includes all software and data. This guide describes how to create an image of the current system on a portable USB hard drive and a Windows system repair disc. The USB drive and repair disc are used together to restore your system to the original state, if needed.

It is mandatory that every workstation be backed up regularly. Periodic full backups and differential backups between the full backups must be created by administrators. These backups are the only way to restore a system in the event of a hardware or software failure.

It is also mandatory that a disaster recovery plan and restore procedures are tested to confirm that the backups are sufficient to restore your system.

A full backup captures a complete set of data in the CDS Secure ChemStation Workstation, including uploaded files and databases. A differential backup contains changes that have occurred since the last full backup. The differential backup process is generally faster, when compared to the full backup, since it will backup only the changed elements.

This procedure requires that the user has administrative rights on the workstation.



2 Software Backup Procedure

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Stop Windows Services

Open Windows Services (Figure 1) and **Stop** the following services in the order listed below. See Microsoft Management Console help for more information on stopping these services.

- 1 alfrescoTomcat
- 2 Agilent OpenLAB Shared Services
- 3 PostgreSQL

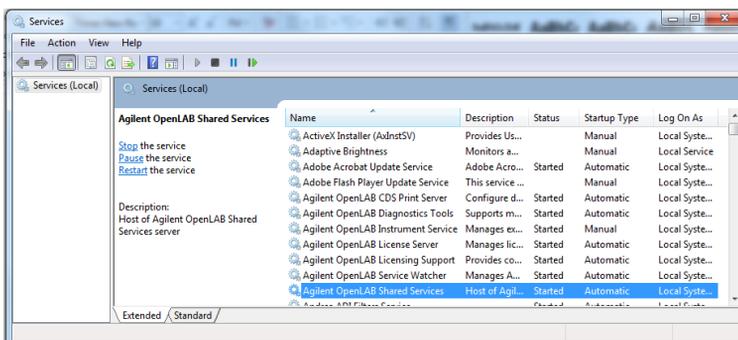


Figure 1 Stop Services

Create an Image of the Current System

The system image

Create a new system image after any change in your Secure ChemStation Workstation instrument configuration.

- 1 Connect a portable USB drive to a (blue) 3.0 USB port on the computer.

Note: The AutoPlay window displays the first time the drive is connected to the PC. Close the AutoPlay window.

- 2 Use the appropriate Windows program to create a system image. See Windows Help for more information.

- **In Windows 7**, click **Backup and Restore** in the Windows Control Panel ([Figure 2](#)).

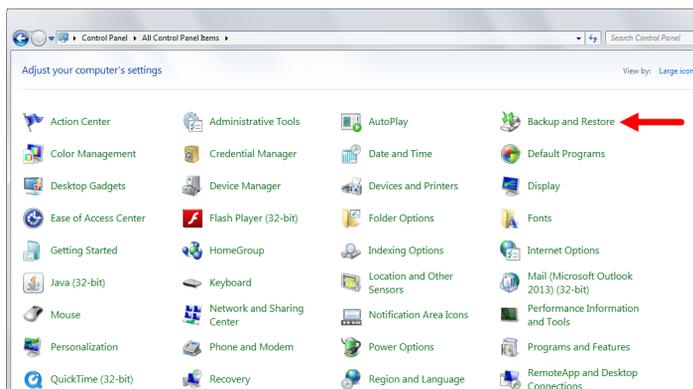


Figure 2 Windows 7 Backup and Restore

- In Windows 8.1,
 - a Click **File History** in the Windows Control Panel (Figure 3).

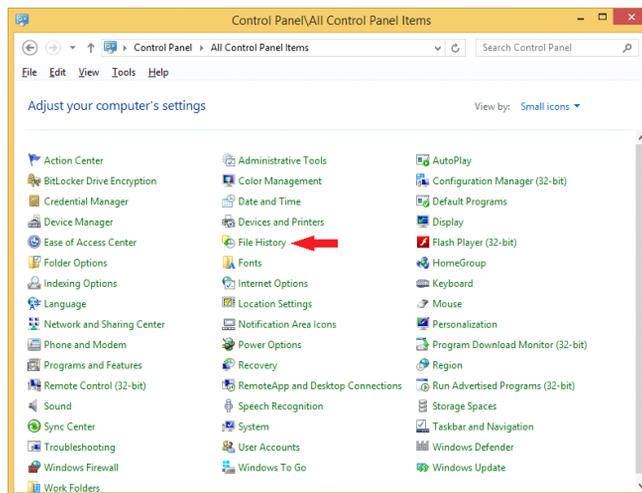


Figure 3 Windows 8.1 File History

- b Click **System Image Backup** (Figure 4).

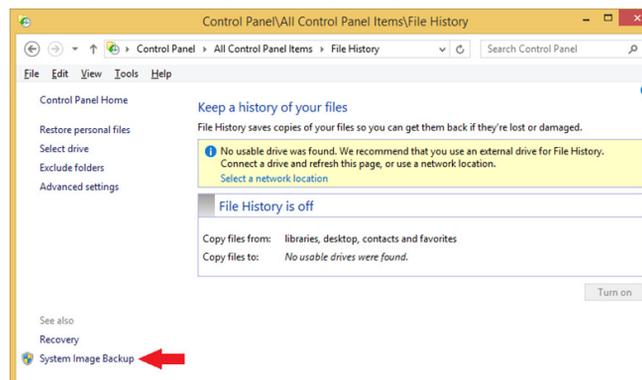


Figure 4 Windows 8.1 System Image Backup

- 3 Click **Create a system image**.
- 4 Click **Next**.

5 Select the drives you want to include in the backup.

If the OpenLAB product was installed in a location other than **C:** drive, you must select that particular drive when asked **Which drives do you want to include in the backup?** (Figure 5).

6 Click **Next** (Figure 5).

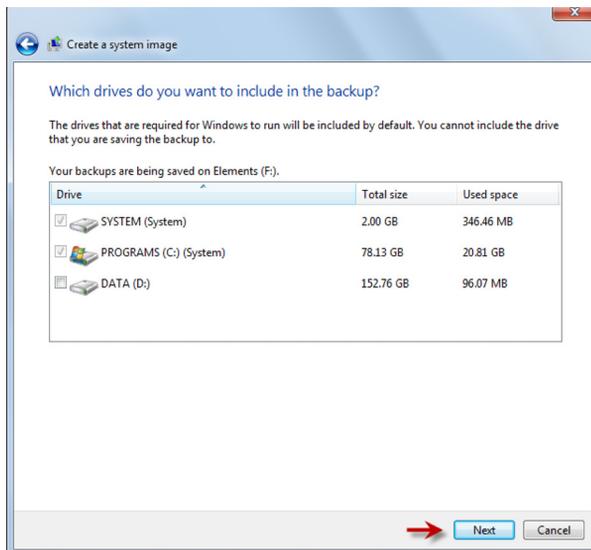


Figure 5 Drives included in the backup

7 Click **Start backup**.

8 If you are using Windows 7, create a system repair disc according to the Windows instructions (Figure 6).

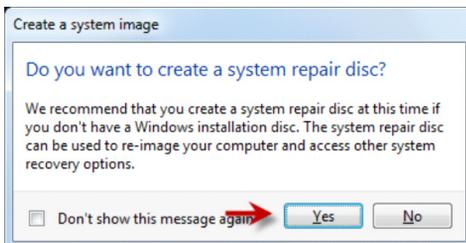


Figure 6 Create a system repair disc

If you are using Windows 8.1, use the **Recovery** program from the Windows Control Panel and create a recovery drive according to the Windows instructions.

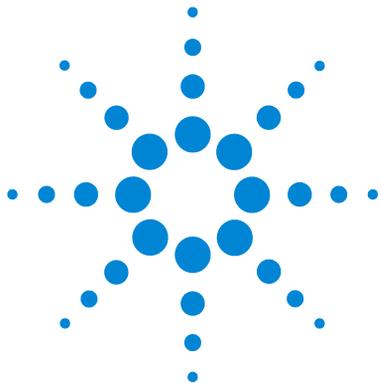
- 9** Close all remaining windows.
- 10** Eject the newly created Windows Recovery disc.
- 11** Disconnect the USB drive.
- 12** Complete the backup Solution Checklist.
- 13** Keep the USB drive, Windows Recovery disc, completed Backup Solution checklist, Backup Guide, and Backup Solution Recovery checklist in a safe place.

Start Windows Services

Open **Windows Services** (**services.msc**) and **Start** the services in the order listed below. See Services Microsoft Management Console help for more information.

- 1** PostgreSQL
- 2** Agilent OpenLAB Shared Services
- 3** alfrescoTomcat

You will need to wait a couple of minutes for the services to fully start.



3 Data Backup Procedure

The OpenLAB Secure ChemStation Workstation software includes a batch script to backup your data.

The backup script performs both incremental and full data backup. When the backup script is used for first time for a particular backup destination directory, a full backup is performed. All subsequent backups performed with the backup script where the same backup destination is used, will result in a differential backup.

The script can be used three ways.

- **From the .bat file in your directory** – To enter your folder locations consecutively. Administrator rights required.
- **From the Windows Administrator Command Prompt Window** – To enter your folder locations at one time. Administrator rights required.
- **From the script using the Windows Task Scheduler program** – To schedule automatic data backups. Once the automated task is set up by an administrator, the backups will occur even if the user logged in at the scheduled time does not have administrator rights.

This data backup procedure does not backup the ChemStation instrument configuration. Create a new system image after any configuration change.

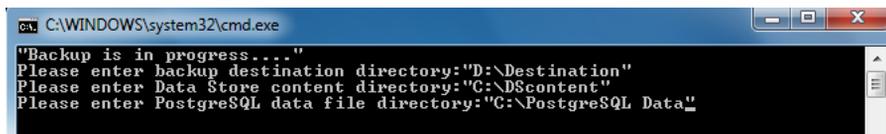


To run the script from the .bat file:

- 1 Navigate to your OpenLAB folder (i.e., ...**Agilent Technologies\OpenLABCDSBackup\BackupScript**).
- 2 If the Windows **User Account Control** settings are configured to notify the user before programs make changes to the computer, right click **Secure_ChemStation_backup.bat**, and select **Run as administrator**.

If the Windows **User Account Control** settings are configured to never notify the user before programs make changes to the computer, double click **Secure_ChemStation_backup.bat**.

- 3 At the prompt, enter the data backup destination directory folder where you want to save your data and press **Enter** (Figure 7). The destination directory may reside in the same machine, a network location, or in an external USB drive. The destination path must be a valid Windows directory name in quotes.
- 4 At the prompt, enter the Data Store content directory folder path in quotes that was specified during installation and press **Enter** (Figure 7). To confirm the Data Store Content Directory path, use the Agilent OpenLAB Data Store Utility located at Install **Location\OpenLAB Data Store OpenLabDataStoreUtility.exe**.
- 5 At the prompt, enter the PostgreSQL data file directory path in quotes that was specified during installation and press **Enter** (Figure 7).



```
C:\WINDOWS\system32\cmd.exe
"Backup is in progress..."
Please enter backup destination directory: "D:\Destination"
Please enter Data Store content directory: "C:\DScontent"
Please enter PostgreSQL data file directory: "C:\PostgreSQL Data"
```

Figure 7 Running the script from the .bat file

To run the script using Windows Administrator Command Prompt Window:

- 1 Open a **Windows Administrator: Command Prompt** window.
- 2 Enter the command shown in [Figure 8](#) with your locations in quotes, where:
 - “**D:\Destination**” represents the data backup destination where you want to save your backup.
 - “**C:\DSContent**” represents your Data Store Content directory specified at installation.
 - “**C:\PostgreSQL Data**” represents PostgreSQL data File directory specified at installation.



Figure 8 Running the script from the Windows Administrator Command Prompt Window

To run the script using the Windows Task Scheduler program:

Start the **Windows Task Scheduler** program (Figure 9). See Windows Help for detailed information on using this program.

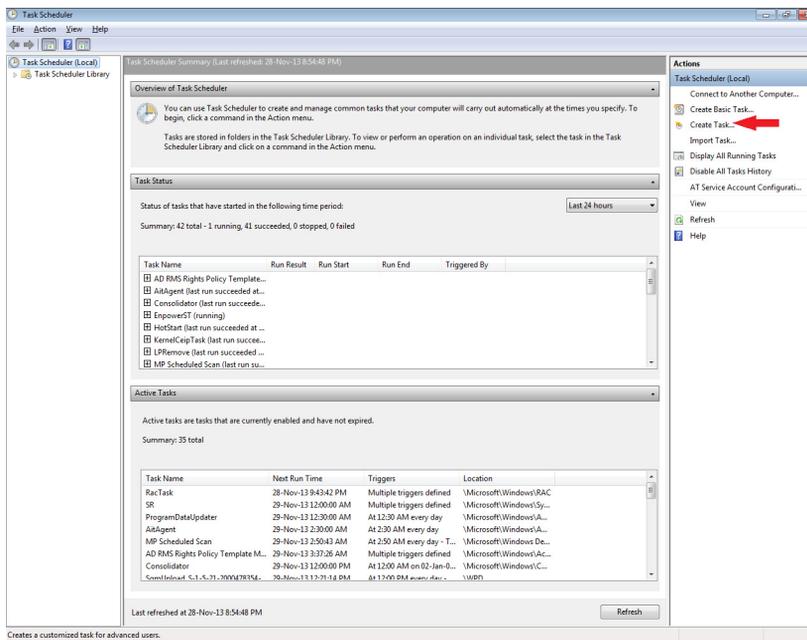


Figure 9 Windows Task Scheduler program

Tips for using this program for OpenLAB

1 Create a task according to your needs using:

- **Program/script:** Browse to <InstallLocation>\OpenLabCDSBackup\BackupScript\Secure_ChemStation_Data_Backup_TaskScheduler.bat .

- To execute the data backup irrespective of the current logged-in user, use **Change User or Group** (Figure 10) to set the task running account to **System** (Figure 11).

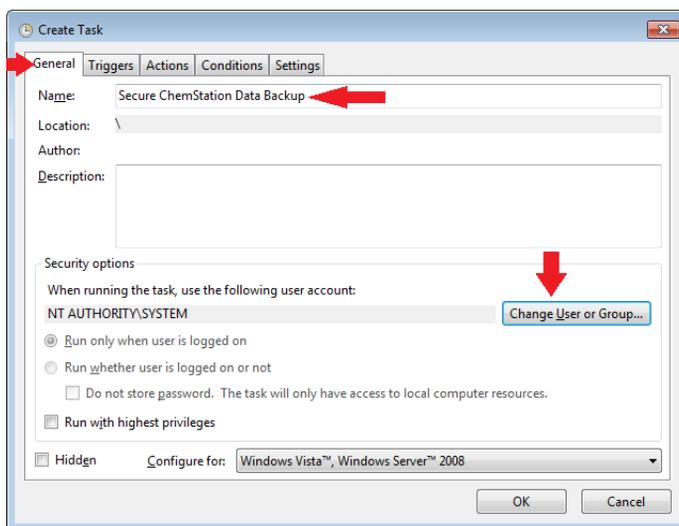


Figure 10 Change Users or Group

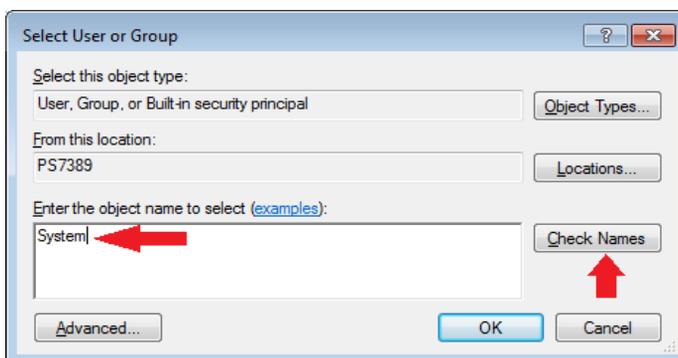


Figure 11 Select User or Group

- Schedule the data backup process as needed from **Triggers > New** (Figure 12). Agilent recommends that you do not schedule the backup task and the full virus scan to be executed at the same time.

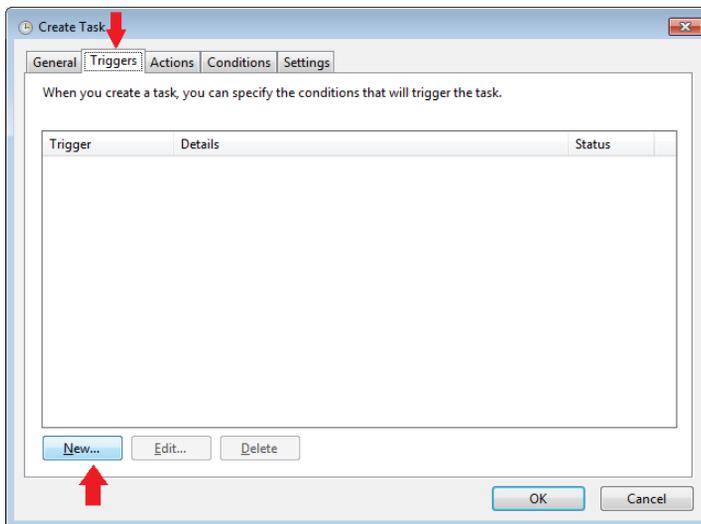


Figure 12 Triggers

- **Add arguments** from **Actions > New** and enter the following directory paths consecutively, in quotes, and separated by a space: Data Backup Destination, Data Store Content, PostgreSQL Data file (Figure 13).

For example:

“E:\Databackup” “C:\DContent” “C:\PostgreSQL Data”

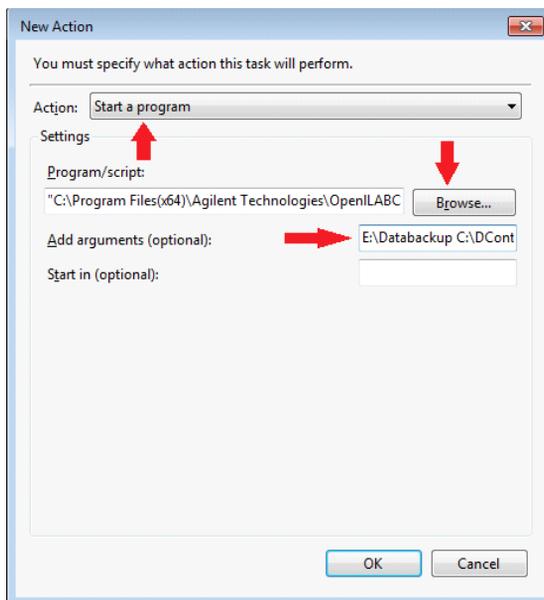


Figure 13 Example arguments

For Windows 8.1, copy the BackupScript from **<InstallLocation>\OpenLabCDSBackup** to your computer (C:\). Browse to the newly copied folder and select Secure_ChemStation_Data_Backup_TaskScheduler.bat (Figure 14).

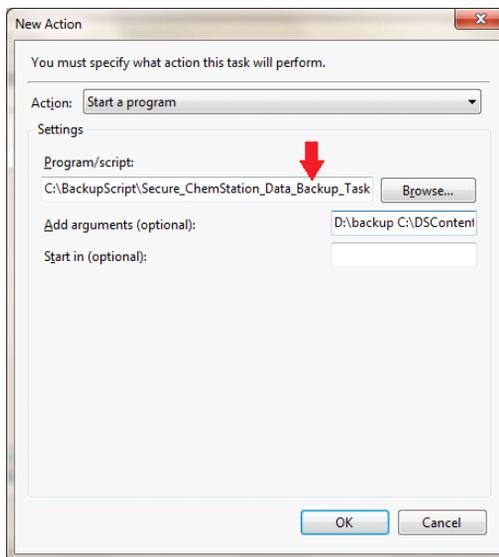


Figure 14 Windows 8.1 directory path

- To speed up the backup process, assign a higher priority to your task. Export the task XML file from **Task Scheduler > Task Scheduler Library > task name > Export** (Figure 15). Update the XML tag <Priority> with any number between 4 to 6 (normal priority) and import the updated XML file back into the Task Scheduler.

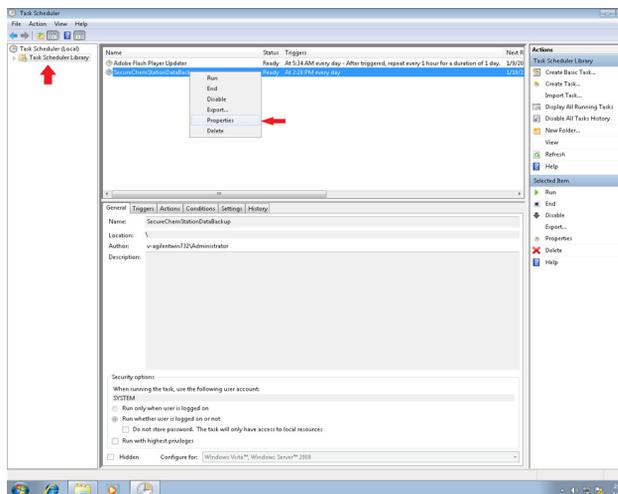
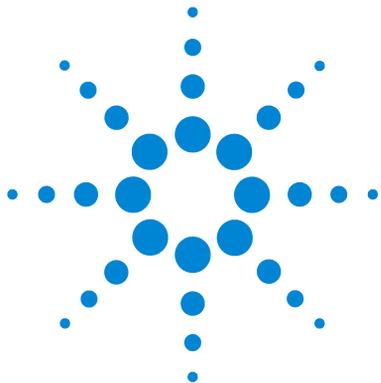


Figure 15 Export task

- When the **Windows Task Scheduler** begins the backup, the logged on user is notified. The user cannot use OpenLAB or antivirus software during the backup process. The backup starts 10 minutes after the time shown in the header of the message window.



4 Software Restore Procedure

Use this procedure to restore your system from an existing backup system image. See the Windows Installation documentation for detailed information.

- 1 Connect the recovery USB drive to a (blue) USB 3.0 port and insert the Windows Recovery DVD in the DVD drive.
- 2 Start or restart the PC and watch the PC monitor carefully during the restart process for the message **Press any key to boot from CD or DVD....** Press the space bar or any other key when the message appears.

The PC will boot from the DVD.

- 3 Enter the appropriate information to start the **Install Windows** program.
- 4 Select **Repair your computer**.

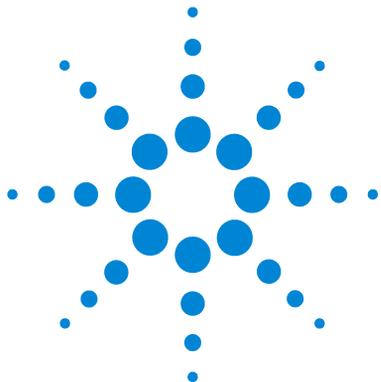


5 Specify system recovery options.

- If you are using Windows 7, select the system recovery options according to the Windows instructions.

**Figure 16** System recovery options

- If you are using Windows 8.1, click **Troubleshoot > Advanced Options > System Image Recovery > Choose a target operating system.**
- 6** In the **Select a system image backup** screen, **Use the latest available system image** is selected by default.
- If the auto-filled information is correct, click **Next**.
 - If no image match is found,
 - a Select **Select a system image** and click **Next**.
 - b Select the appropriate image and click **Next**.
 - c Select the date and time and click **Next**.
- 7** Select **Format and repartition disks** and click **Next**.
- 8** Click **Finish**.
- 9** When the re-image process is complete, restart the system to finish the restoration.



5 Data Recovery Procedure

Use this procedure to restore data to your system from your saved backup files.

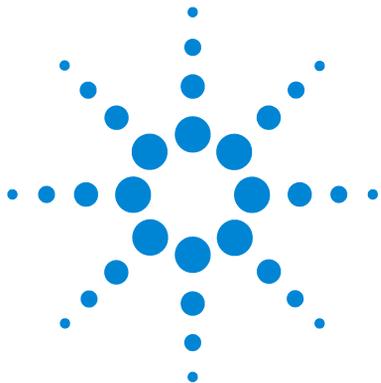
- 1 See “[Stop Windows Services](#)” on page 10, and stop the services in this order:
 - a alfrescoTomcat
 - b Agilent OpenLAB Shared Services
 - c PostgreSQL
- 2 Navigate to your backup destination folder containing your backed up:
 - DSContentDir
 - DSIndexDir
 - PostgreSQLDataDir
- 3 Copy the contents from your backup DSContentDir folder and paste it into the Data Store content folder of the currently installed OpenLAB Secure ChemStation Workstation. Only move folder contents. Copying, pasting, and renaming entire **folders** from your backup into the new installation may cause errors in your subsequent performance of your new installation.

For example, if the Data Store content directory of the currently installed OpenLAB Secure ChemStation Workstation is **C:\DS Content**, then paste the contents of your backup DSContentDir folder into the **C:\DS Content** folder.
- 4 Copy the contents from your backup DSIndexDir folder and paste them into the Data Store index folder of the currently installed OpenLAB Secure ChemStation Workstation.
- 5 Copy the contents from your backup PostgreSQLDataDir folder and paste them into the Data Store PostgreSQL data



folder of the currently installed OpenLAB Secure ChemStation Workstation.

- 6** See “[Start Windows Services](#)” on page 15, and start the services in this order:
 - a** PostgreSQL
 - b** Agilent OpenLAB Shared Services
 - c** alfrescoTomcat
- 7** After the services have restarted successfully, restart the computer.

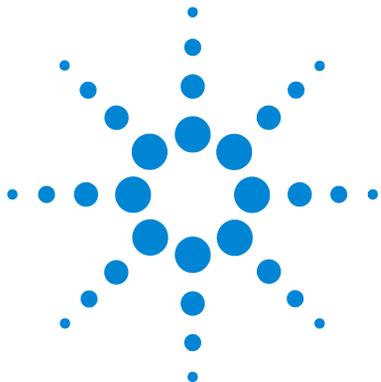


6 CDS Secure ChemStation Workstation Activation

During the installation, the OpenLAB Data Store database is automatically activated and configured using internal authentication with a default user, **admin**, and password, **openlab**. On first login, the system will require the user to change this password before proceeding.

You may now change the authentication mode, if required. See the Control Panel online help for more information.





7 Maintenance Procedures

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Monitor Resource Usage

The data files, indexes, and database are stored on the hard disk.

Administrators of the system must regularly monitor disk space usage on all disks where data is stored. When the disks approach 80% full, consider increasing disk space.

CPU, memory and network usage must be monitored to check if there are any performance bottlenecks on the server.

Recommended best practices for monitoring resource usage

- 1** Monitor the disk usage at least weekly.
- 2** Optionally, implement automated disk space monitoring tools that send e-mail alerts when disk usage exceeds the thresholds. Some examples of such tools are: Monit, Munin, Cacti, and Nagios.
- 3** Monitor system resource usage such as memory, CPU, and network throughput. Windows Performance Monitor can be used for this purpose.

Changing Data Store Storage Location

Every file that is uploaded to Data Store is kept on the hard disk. After using Data Store for a long period of time, the disk will start filling up. When this happens, you must provide additional disk space for the system to function.

In the event that you want to change the disk storage location for Data Store files and indexes, you first need to determine the location of the content folder, and the location of the indexes folder. These paths are determined during the installation process. You can use Agilent OpenLAB Data Store Utility shown in [Figure 17](#) to determine the current paths used.

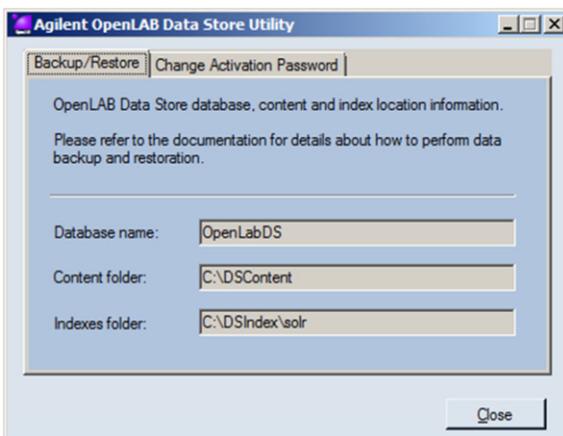


Figure 17 Agilent OpenLAB Data Store Utility

Use the following procedure to move the content folder to a different location:

- 1 Stop alfrescoTomcat service.
- 2 Move the entire content folder to the new location.
- 3 Update dir.root value in C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\shared\classes\alfresco-global.properties.

- 4 Update the keystorefile and truststorefile attributes of Connector elements for ports 443 and 8444 in the file C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\conf\server.xml.
- 5 Start alfrescoTomcat service.

Use the following procedure to move the index folder to a different location:

- 1 Stop alfrescoTomcat service.
- 2 Move the Data Store index folder **solr** to its new location.
- 3 Update data.dir.root value in the following two files in that folder:
 - a solr\archive-SpacesStore\conf\solrcore.properties
 - b solr\workspace-SpacesStore\conf\solrcore.properties
- 4 Replace the old directory path with the new path in the file C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\conf\Catalina\localhost\solr.xml.
- 5 Start alfrescoTomcat service.

Update Database Statistics

To maintain optimal database performance, periodically update the OpenLAB CDS Secure ChemStation Workstation database statistics. These statistics are used by the database engine to determine the best way to execute queries.

You need to update statistics for the two databases OpenLABDS and OLSharedServices. If custom database names were chosen during installation, use the correct names from your installation notes.

These procedures must be performed on a regular basis. The frequency depends on the usage of the system. As a guideline, do this, at least, every time a full backup is taken.

Updating statistics using the Maintenance Wizard

- 1 Start **PostgreSQL pgAdmin**, connect as the database administrator, and select the database for which you want to update the statistics. The default database administrator user name is **postgres** and the default password is an empty string (no characters).
- 2 Right-click the database and select the **Maintenance... context** menu option. The following window is displayed.

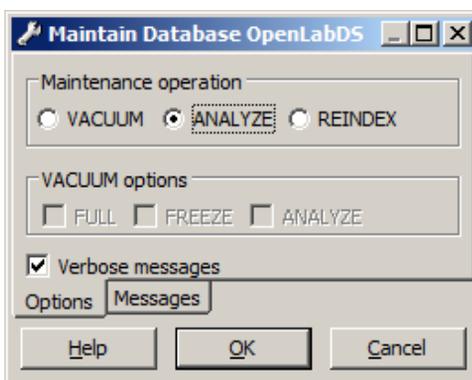


Figure 18 Maintain Database OpenLABDS

- 3 Choose **ANALYZE**, and click **OK** to analyze the database.

Additional maintenance for PostgreSQL database

PostgreSQL supports some additional maintenance commands that can be beneficial to keep your database system running smoothly. These include **VACUUM** and **REINDEX**. See the PostgreSQL documentation for additional details about these commands.

<http://www.postgresql.org/docs/9.0/static/maintenance.html>

Additional Best Practices

- 1 Apply 3rd party updates and patches.

On the Agilent Customer Care Portal, Agilent regularly posts information on 3rd party updates and patches that have been validated for use with the OpenLAB software suite. These include OS security patches and updates, database updates, and application updates.

The Customer Care Portal is available at:

<http://www.ccportal.chem.agilent.com/PortalHome>

- 2 Apply Agilent software updates.

When you receive notification of an update, please take note and read the information to determine if the update is applicable, and its urgency.

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