Agilent

Secure Workstation for OpenLab CDS ChemStation Edition

Maintenance Guide

Notices

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1 Introduction

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The Agilent Secure Workstation for OpenLab CDS ChemStation Edition provides the functionality of an OpenLab CDS ChemStation Edition with Content Management on one computer.

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 Secure Workstation for OpenLab CDS ChemStation Edition 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 Secure Workstation for OpenLab CDS ChemStation Edition 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 Server database type
   - OpenLab Server content directory
   - OpenLab Server 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 (**"System Restore Procedure"** on page 23)

Backup and Restore Procedure Overview

The backup procedure for a Secure Workstation for OpenLab CDS ChemStation Edition 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 is 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 Secure Workstation for OpenLab CDS ChemStation Edition, 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

1. To open Services in Windows 10, right-click the **Windows Start** button and select **Search**. Type **services** in the search field, and select the **Services** desktop app.

   To open Services in Windows 7, click the **Windows Start** button, type **services.msc** in the search field, and select **services.msc**.

2. Stop the following services in the order listed below by right-clicking on the name and selecting **Stop**.

   You must stop the services in the following order:

   a Content Management Search service

   b alfrescoTomcat

   c Agilent OpenLab Shared Services

   d olcm-postgresql-x64-10

Create an Image of the Current System

Create a new system image after any change in your Secure Workstation for OpenLab CDS ChemStation Edition 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 10, type **control panel** in the taskbar search box, select the Windows **Control Panel** desktop app, and select **Backup and Restore (Windows 7)**.
- In Windows 7, click the **Windows Start** button, enter **backup** in the search field, and click **Backup and restore**. (Figure 1).

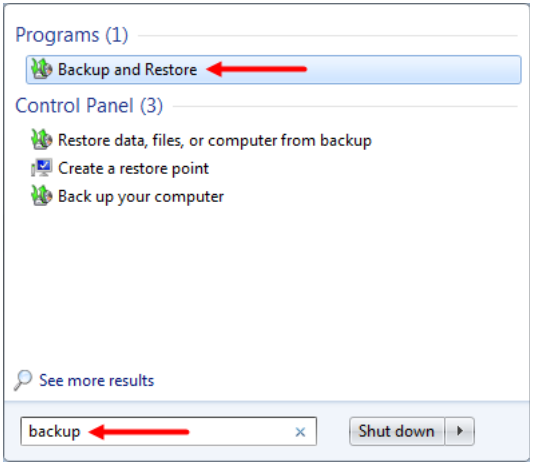

Figure 1. Windows 7 Backup and Restore

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 the **C:** drive, you must select that particular drive when asked **Which drives do you want to include in the backup?** (Figure 2).

6 Click **Next** (Figure 2).

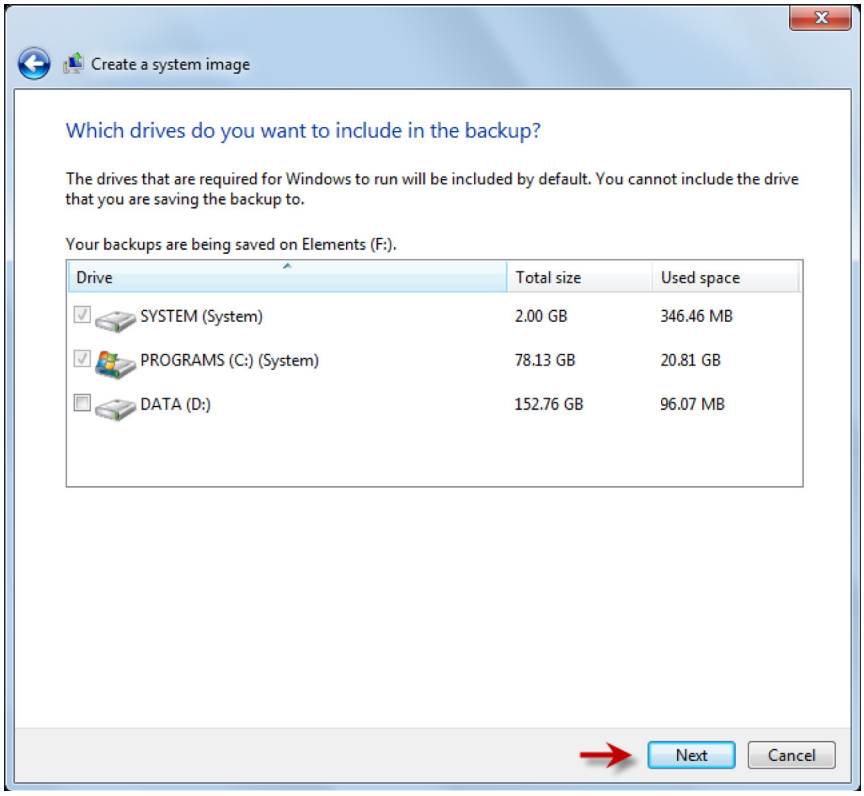

Figure 2. Drives included in the backup

7 Click **Start backup**.

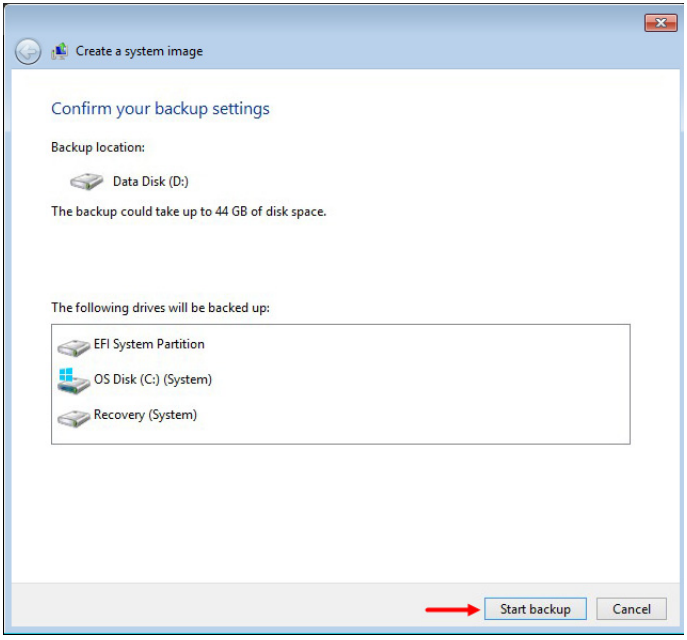

Figure 3. Start backup

8 If you are using Windows 10 or Windows 7, create a system repair disc according to the Windows instructions (**Figure 4**).

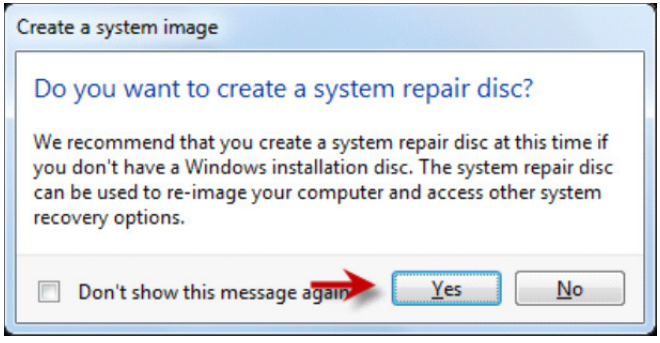

Figure 4. Create a system repair disc

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.

To ensure the integrity of the system image, do not use the USB drive for any other purpose.

Start Windows Services

1 To open Services in Windows 10, type **services.msc** in the taskbar searchbar, and select **services.msc**.

   To open Services in Windows 7 click the **Windows Start** button, type **services.msc** in the search field, and select **services.msc**.

2 Open the following services in the order listed below by right-clicking on the name and selecting **Start**.

   You must start the services in the following order:

   a olcm-postgresql-x64-10

   b Agilent OpenLab Shared Services

   c alfrescoTomcat

   d Content Management Search service

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3 Data Backup Procedure

Set Up an Automated System Backup 18

The Secure Workstation for OpenLab CDS ChemStation Edition software includes a batch script to backup your data.

The backup script performs both incremental and full data backup. The first time the backup script is used 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, result in a differential backup.

The script is available in the following folder

<Install Location>\OpenLab Data Store\Backup Scripts

with the name:

Secure_OpenLabCDS_backup.bat and **Secure_OpenLabCDS_Data_Backup_TaskScheduler.bat**.

Set Up an Automated System Backup

Use the Windows Task Scheduler to set up an automated data backup for Secure Workstation for OpenLab CDS ChemStation Edition. Only an administrator of the local PC can perform this procedure.

Information required in this procedure can be found on the Server Configuration page.

- In Windows 10, click **Windows Start > All apps > Agilent Technologies > Server Configuration**.
- In Windows 7, click **Windows Start > All Programs > Agilent Technologies > OpenLab Content Management > Server Configuration**.

1 Log on to the local PC with Administrator privileges.

2 Create a directory on disk to which you want the backups to be copied. Record the complete path to this directory.
This is your <BACKUPDESTINATIONDIR>.

3 Record the complete path to the OpenLab Server content directory using the information in the Server Configuration.
This is your <DSCONTENTDIR>.

4 Record the complete path to the OpenLab Server Indexes directory using the information in the Server Configuration.
This is your <DSINDEXDIR>.

5 Record the complete path to the OpenLab Server archive directory using the information in the Server Configuration.
This is your <DSARCHIVEDIR>.

6 Record the complete path to the PostgreSQL database files directory. By default, this directory is located at **C:\PostgreSQL Data**.
This is your <POSTGRESQLDATADIR>.

7 Record the complete path to the Installation Root directory. For example, **C:\Program Files (x86)\Agilent Technologies**
This is your <AGILENTHOMEDIR>.

8 Copy the Backup Scripts folder (by default, this folder is located at **C:\Program Files (x86)\Agilent Technologies\OpenLab Data Store\Backup Scripts)** with scripts to a location on Disk (for example, **C:\BackupScripts**).

9 Open your Windows Control Panel, click **Administrative Tools**, and double-click **Task Scheduler** to open the Windows Tasks Scheduler.

10 Click **Create Basic Task** in the **Actions** panel. The **Create Basic Task Wizard** opens.

11 Enter a **Name** and **Description**, and then click **Next**.

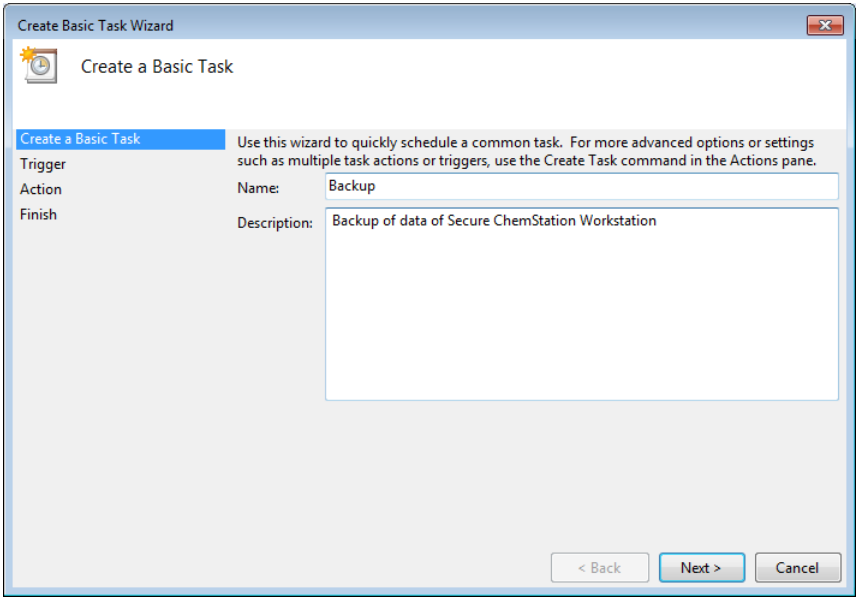

Figure 5. Create Basic Task Wizard

12 Select the time period that you want to run the backup, and then click **Next**.

13 Additional options may be available depending on the time interval selected. Complete the options, and then click Next.

14 Select **Start a program**, and then click **Next**.

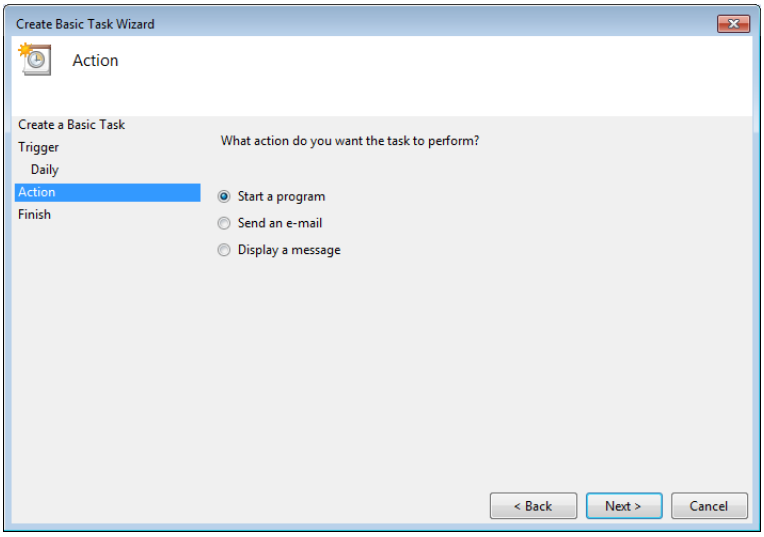

Figure 6. Create Basic Task Wizard - Action

15 Browse to and select the **Secure_OpenLabCDS_Data_Backup_TaskScheduler.bat** file from the **Backup Scripts** folder.

16 Ensure that the script contains only the name of the script and not the full path. For example, **Secure_OpenLabCDS_Data_Backup_TaskScheduler.bat**.

17 Enter the path of the script in the Start In field. For example, if the script resides in **C:\Backup\Backup Scripts**, enter **C:\Backup\Backup Scripts**. Do not enclose this path in quotes, and do not include a \ character at the end of the path.

In the **Add Arguments** box, enter the following values (with quotes):
"<BACKUPDESTINATIONDIR>"
"<DSCONTENTDIR>"
"<DSINDEXDIR>"
"<POSTGRESQLDATADIR>"
"<AGILENTHOME>"
"<DSARCHIVEDIR>"

For example:
"E:\BackupLocation" "C:\DsData\DsContent" "C:\DsData\DSIndex" "C:\PostgreSQL Data" "C:\Program Files (x86)\Agilent Technologies" "C:\DsData\DSArchive"

18 Click **Next**.

19 Select **Open the Properties dialog for this task when I click Finish**.

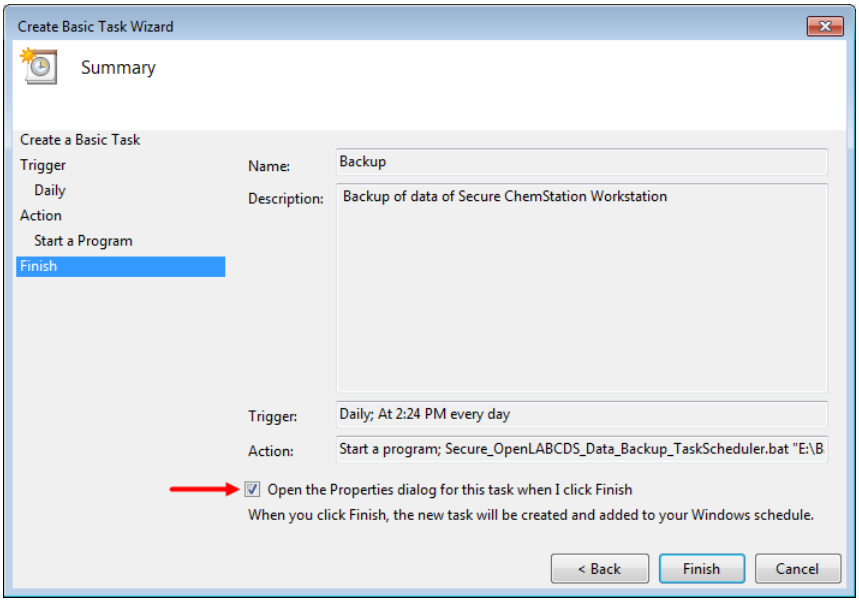

Figure 7. Create Basic Task Wizard - Finish

20 Click **Finish**. The Properties window for your newly created task appears.

21 On the **General** tab, select **Run with highest privileges**.

22 Click **OK**.

A message will appear before the backup is scheduled to start. Click **OK** to dismiss the message and continue with the backup. A command prompt appears displaying the progress of the backup, and a log file is created in your <BACKUPDESTINATIONDIR>.

You can also run your task manually from the Task Scheduler window outside of the scheduled times. Select your task from the **Task Scheduler Library** and click **Run**.

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4 System Restore Procedure

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

For the Windows 10 system restore procedure, see **"System Restore Procedure for Windows 10"** on page 24.

For the Windows 7 system restore procedure, see **"System Restore Procedure for Windows 7"** on page 30.

System Restore Procedure for Windows 10

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.
3. The PC will boot from the DVD.
4. Select the appropriate **Keyboard Layout**.
5. Click **Advanced options**.

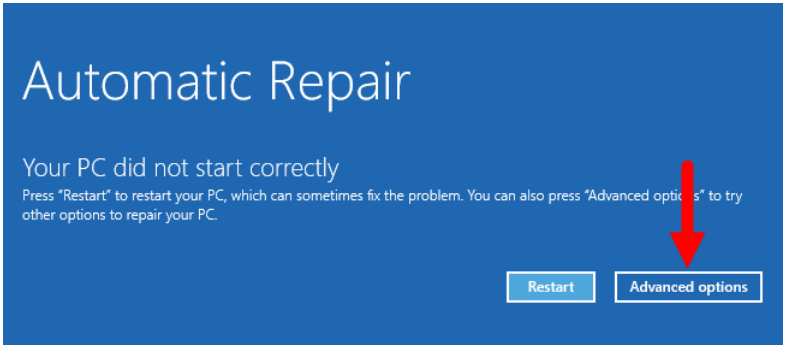

Figure 8. Automatic Repair

6 Click **Troubleshoot**.

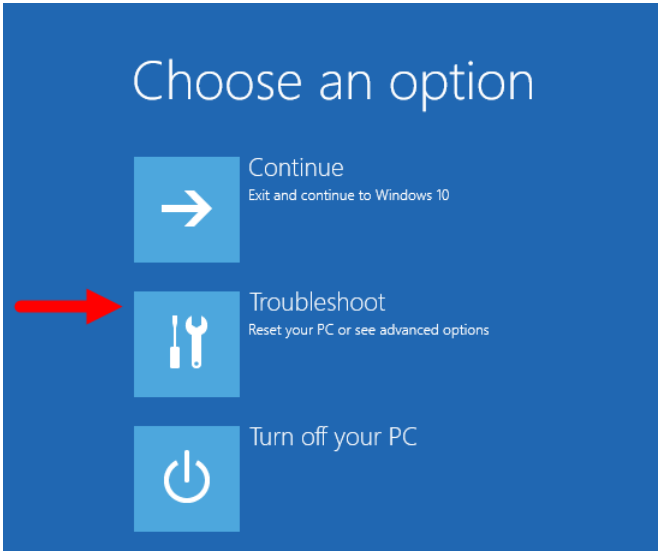

Figure 9. Repair options

7 Click **System Image Recovery**.

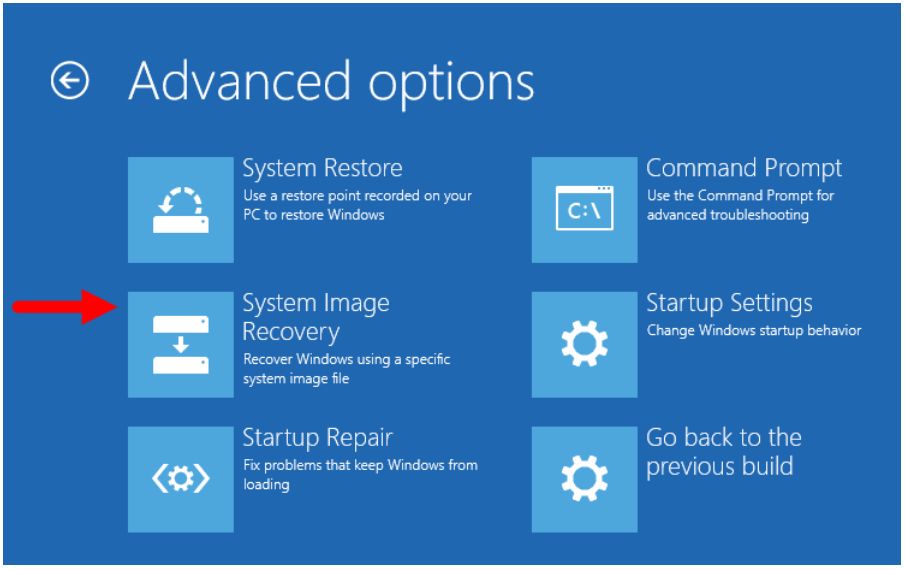

Figure 10. Advanced options

8 Click **Next**.

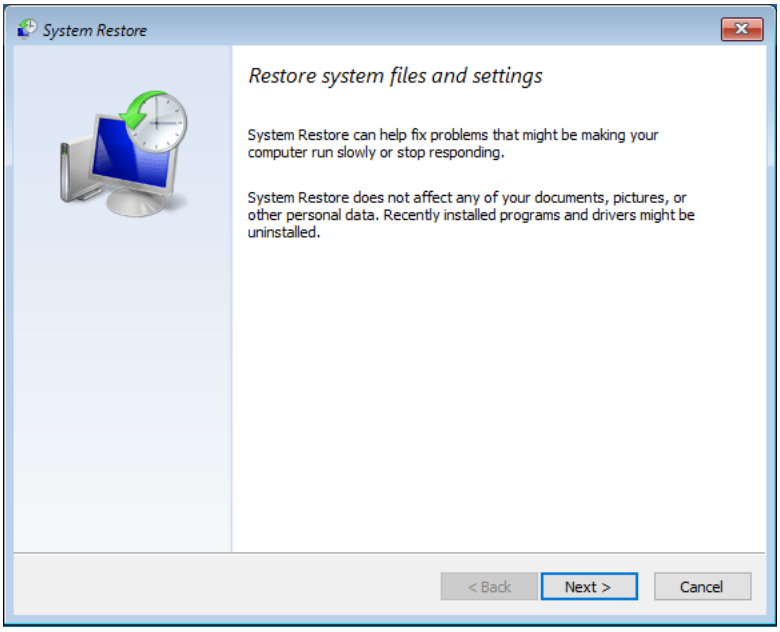

Figure 11. Restore system files and settings

9 Select the latest available system image, and click **Next**.

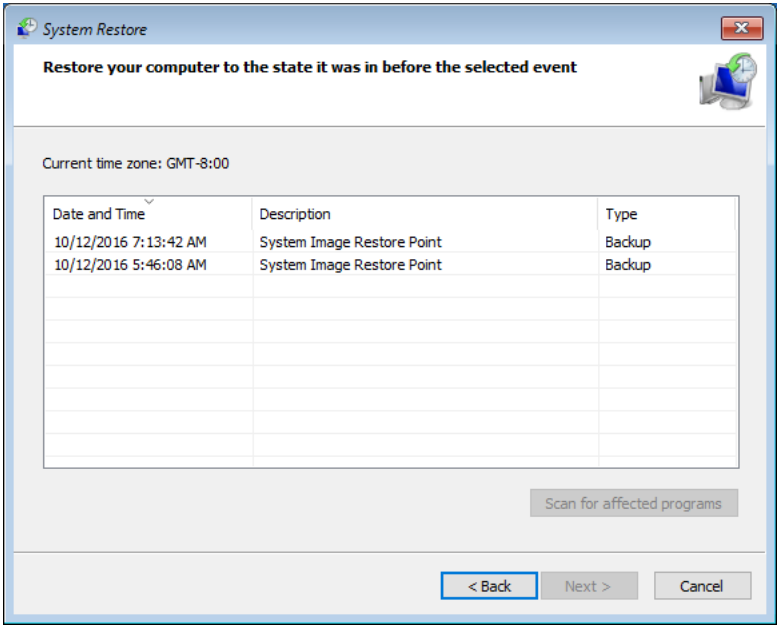

Figure 12. Available system images

10 Click **Finish**.

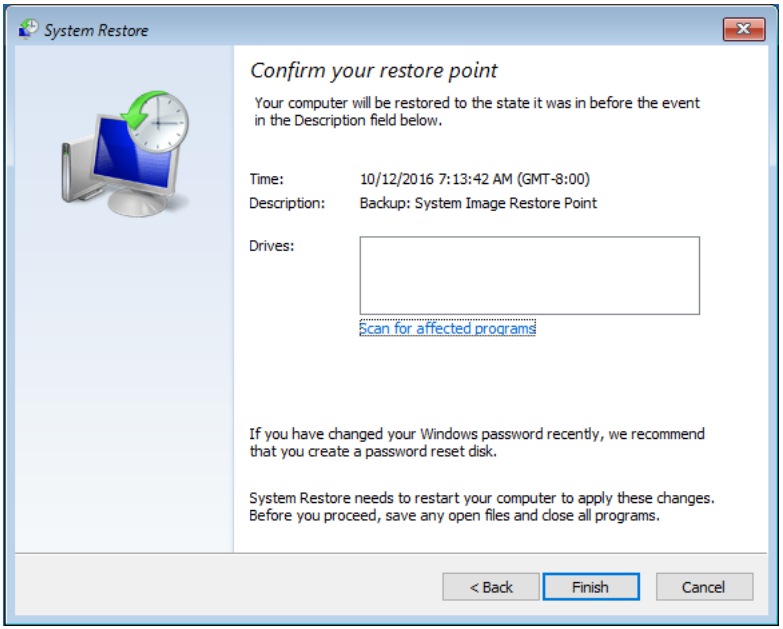

Figure 13. Confirm your restore point

11 Click **Yes** to confirm.

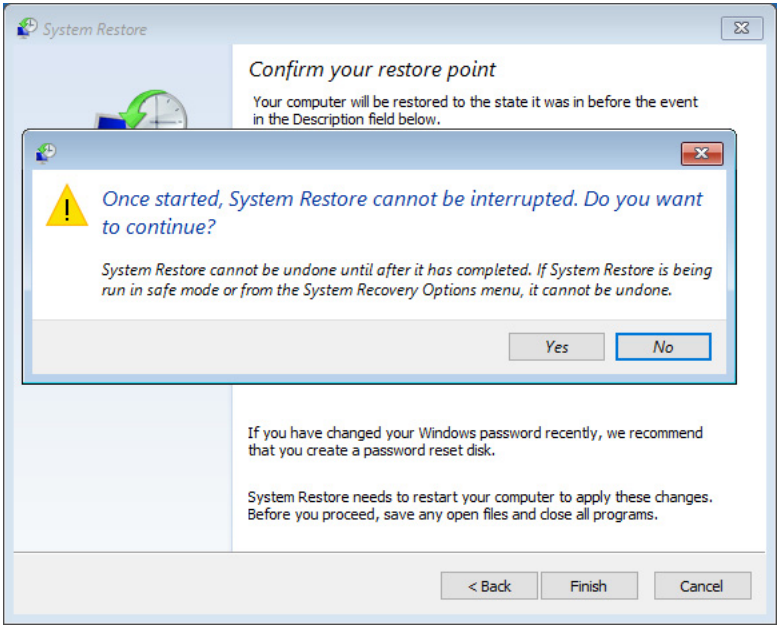

Figure 14. Confirm system restore

The system automatically restarts to complete the restoration process.

System Restore Procedure for Windows 7

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 Select the appropriate country and click Next.

4 Select **Repair your computer**.

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

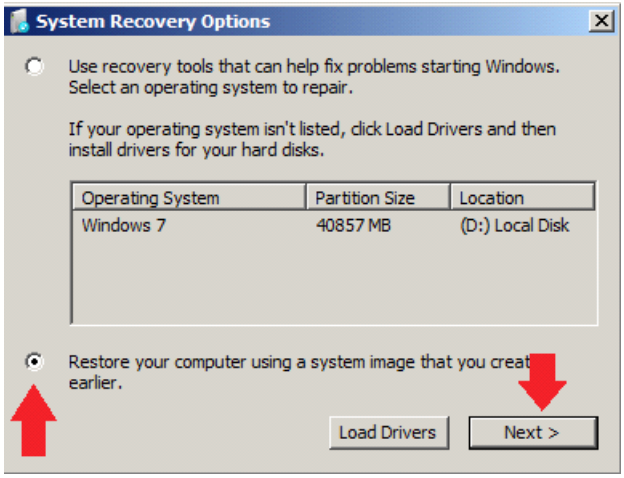

Figure 15. System recovery options

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**.

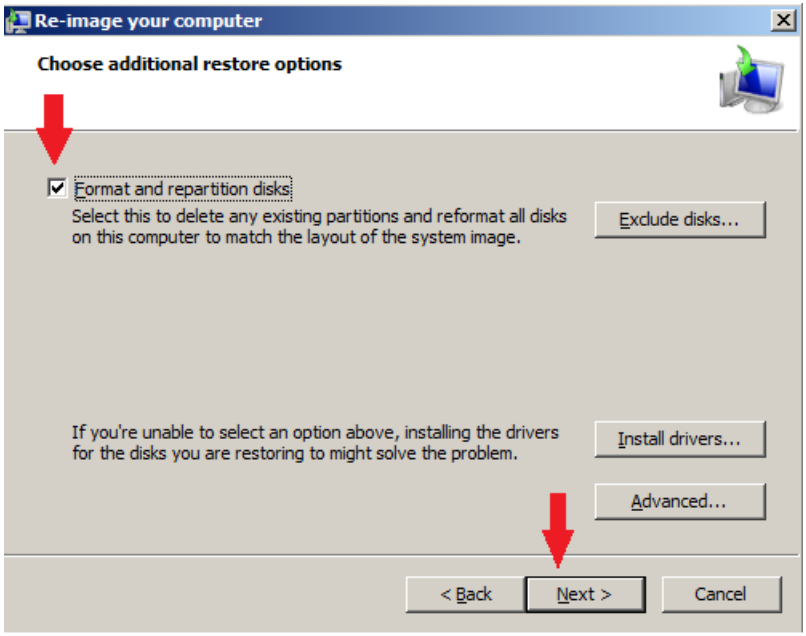

Figure 16. Re-image your computer

8 Click **Finish**.

9 Click **Yes**.

10 When the re-image process is complete, restart the system to finish the restoration.

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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. Content Management Search service
   b. alfrescoTomcat
   c. Agilent OpenLab Shared Services
   d. olcm-postgresql-x64-10
2. Navigate to your backup destination folder containing your backed up:
   - DSContentDir
   - DSIndexDir
   - PostgreSQLDataDir
   - DSArchiveDir
3. Copy the contents from your backup DSContentDir folder, and paste it into the content folder of the currently installed Secure Workstation for OpenLab CDS ChemStation Edition. Only move folder contents. Copying, pasting, and renaming entire **folders** from your backup into the new installation may cause errors in the subsequent performance of your new installation.

   For example, if the content directory of the currently installed Secure Workstation for OpenLab CDS ChemStation Edition is **C:\DS Content,** paste the contents of your backup DSContentDir folder into **C:\DS Content**.
4. Copy the contents from your backup DSIndexDir folder, and paste them into the index folder of the currently installed Secure Workstation for OpenLab CDS ChemStation Edition.
5. Copy the content from your backup DSArchiveDir folder, and paste them into the archive folder (for example, C:\DSArchive) of the currently installed Secure Workstation for OpenLab CDS ChemStation Edition.
6. Copy the contents from your backup PostgreSQLDataDir folder, and paste them into the PostgreSQL data folder of the currently installed Secure Workstation for OpenLab CDS ChemStation Edition.
7. Restore the installation folder to **C:\ProgramData\Agilent\Installation**.
8. Navigate to **<Agilent Home>\OpenLab Data Store\Configuration**, and run **DataStoreConfigurationFinalizer**. This reapplies all security settings and restarts the system.
9. Verify that the Secure Workstation for OpenLab CDS ChemStation Edition data was recovered successfully.

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6 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.

Monitor system resource usage such as memory, CPU, and network throughput. Windows Performance Monitor can be used for this purpose.

Update Database Statistics

To maintain optimal database performance, periodically update the Secure Workstation for OpenLab CDS ChemStation Edition 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 password is the password that was provided during installation.

2 Right-click the DataStore database and select the **Maintenance… context** menu option. The following window is displayed.

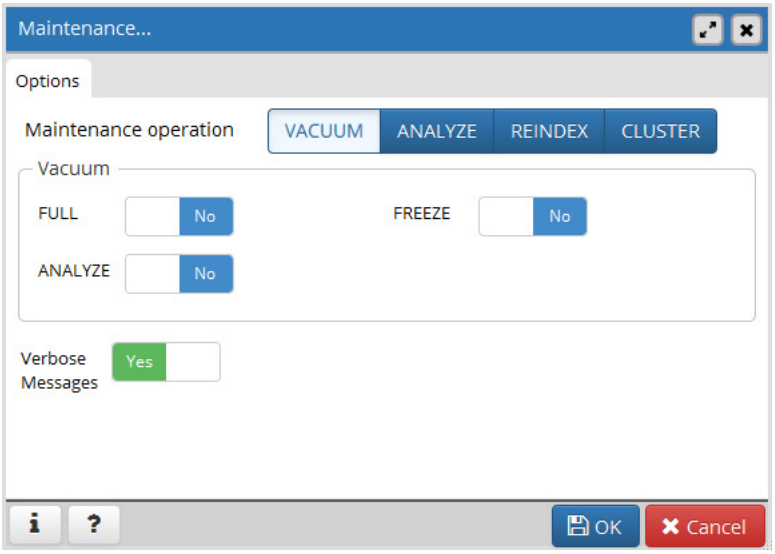

Figure 17. Maintain Database OpenLabDS

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

4 Repeat the above steps for the OLSharedServices 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/10/maintenance.html

Additional Best Practices

Apply Agilent software updates

Agilent regularly posts software updates and instrument drivers that have been validated for use with the OpenLab software suite on Agilent SubscribeNet.

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