Notices

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Introduction

Agilent OpenLAB 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 taking regular backups of your server and procedures for restoring your server in the event of a disaster such as a server hardware failure.

Note that tools mentioned in the document are for demonstration of the concepts. If your organization has standardized on other tools, you may use them as long as you can confirm that they perform the identical tasks.
Who Should Read This Guide?

This document is targeted for the system administrator of the OpenLAB Data Store system. Basic administrative knowledge of the underlying database management system is required. In addition, familiarity with Windows backup/restore is also required.
Maintenance Procedures

Update database statistics

To maintain optimal database performance, periodically update the OpenLAB Data Store database statistics. These statistics are used by the database engine to determine the most optimal 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.

Procedures for PostgreSQL database

For PostgreSQL database, these procedures must be performed on a regular basis. The frequency depends on the usage of the system. As a guideline, you should at least do this 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 you want to update the statistics. The default database
The administrator user name is 'postgres' and the default password is an empty string (no characters).

2 Right-click the database and select **Maintenance**.... The following form is displayed.

![Maintain Database OpenLabDS](image)

**Figure 1** 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 helping keep your database system running smoothly. These include VACUUM and REINDEX. See the PostgreSQL documentation for additional details about these commands.


**CAUTION** Only apply Agilent provided service packs or Hotfixes to your OpenLAB PostgreSQL server.
Procedures for SQL Server

Updating statistics using Maintenance Plan Wizard

For MS SQL Server database the procedure to update statistics can be easily automated using the SQL Server Management Studio.

1 Start SQL Server Management Studio and connect as the database administrator.

2 Expand the server.

3 Expand the Management folder.

4 Right-click Maintenance Plans and select Maintenance Plan Wizard. Use the wizard to create a plan customized to meet your maintenance requirements.
   a Select a Weekly Schedule to be executed at a time when there may be minimal activity (for example, Sunday, 12:00 noon).
   b Select Update Statistics as the maintenance task.
   c Choose the Data Store database (OpenLabDS) and the Shared Services database (OLSharedServices) as the database against which the task will be executed.

Moving your workstation

To move your workstation from a domain to a workgroup, or from one domain to another domain, the SQL Server must be configured to a local account (not a domain account). Contact Agilent Support for help with moving your workstation.

Monitor resource usage on Data Store server

The data files, indexes, and database are stored on the server hard disk. Depending on your server’s configuration, these may be on one or more disk drives.

Administrators of the system must regularly monitor disk space usage on all disks where data is stored. When the disks get close to 80% full, consider increasing disk space. CPU, memory, and network usage must be monitored to check for performance bottlenecks on the server.
Recommended best practices for monitoring resource usage

1. Monitor the disk usage of OpenLAB Data Store at least weekly.

2. Optionally, implement automated disk space monitoring tools that send e-mail alerts when disk usage exceeds the thresholds. 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.

Purging the Activity logs

Activity logs database can become large over time and affect performance of activity log related operations. Use the Activity Log Export options to archive the activity logs log entries to an XML file and purge them from the Activity Log database.

Exporting an archived activity log is only applicable to SQL CE and not for other database types. Archived activity logs can only be created during an update from a system using SQL CE (primarily associated with a workstation solution) with a database larger than 1 GB.

The Utility is automatically installed with your OpenLAB software, and can be located at Windows Start > All Programs > Agilent Technologies > OpenLAB > OpenLAB Server Utility.
Additional best practices

1. Apply 3rd party updates and patches on the OpenLAB Data Store Server.
   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.
   
   Apply software updates for Agilent OpenLAB Data Store and OpenLAB Shared Services on your Data Store server. When you receive notification of an update, please take note and read the information to determine if the update is applicable, and its urgency.
Disaster Recovery Planning

Prepare a recovery plan for the unlikely case of the OpenLAB Data Store becoming inoperable due to a hardware or software failure. This plan must include information and procedures for completely restoring the operating system, the Data Store software and data - if necessary, to a physically different server. Ensure that the disaster recovery plan has been tested and confirmed to be working.

Data Store backup and restore is supported only for the exact same type of database configuration. If you attempt to backup and restore between different types of archived databases (including the same databases with different configurations), the OpenLAB Control Panel will display an error.

The “Disaster Recovery Plan” must include the following:

- Server hardware information: CPU, Memory, and Hard disk configuration information.
- Server identity: Name, IP, domain, URI, and so forth.
  - Server administrator information: username and passwords for logging into the server. If applicable, usernames and passwords for the database.
- Server software information: OS version, Patch level
- OpenLAB Data Store 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
- 3rd party software information: applications and their revisions and install paths
- Data Store Backup Procedure and Data Store Restore Procedure
- Backup media location and organization details
Data Store Backup Procedure

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

It is also mandatory that the restore procedures (“Data Store Restore Procedure” on page 19) be 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.

OpenLAB Data Store stores files and indexes on your server’s file system. The location of this folder is determined when the product is installed. Other data, such as folder information, audit trails, and signatures are stored in a relational database.

A full backup captures a complete set of data in the Data Store, including uploaded files and its 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 is backing only the changed elements.

Determine your database, content and index folders

To backup and restore OpenLAB Data Store, you will need to know the name of your databases, the location of the stored content folder, and the location of the stored indexes folder.

There are two databases that need to be backed up. The Data Store database which is named “OpenLabDS”, and the Shared Services database. The Shared Services database name is chosen when the installation is done. Unless it was customized, typically, it will be named “OLSharedServices”.

Similarly, the content folder path is also a parameter that is specified during the server installation. You can use the tool Agilent OpenLAB Data Store Utility shown in Figure 2 on page 14 to determine these paths.

![Agilent OpenLAB Data Store Utility](image)

**Figure 2**  Agilent OpenLAB Data Store Utility

### Stop Data Store services

Open Windows Services (services.msc) and Stop the services.

- alfrescoTomcat
- Agilent OpenLAB Shared Services
• postgresql-x64-9.2 (only applicable when using PostgreSQL database for Data Store)

Backup databases

This section provides a simple and interactive approach to backup databases. Please refer to PostgreSQL or MS SQL Server documentation for other options, some of which may allow you to automate the process as well.

Procedure for PostgreSQL

The location where the database files are stored is specified during the server installation. By default, it is C:\PostgreSQL Data. If customized during installation, you can refer to your installation notes. This information is also recorded in Windows registry at

“HKEY_LOCAL_MACHINE\SOFTWARE\PostgreSQL\Installations\postgresql-x64-9.2\Data Directory”.

Figure 3  Stop Data Store Services
Back up the PostgreSQL database by backing up the database folder (C:\PostgreSQL Data) using Windows Server Backup or any other tool of your choice.

**Procedure for MS SQL Server**

Use SQL Server Management Studio to backup the Shared Services database (OLSharedServices) and the Data Store database (OpenLabDS). The tool allows users to perform **Full Backups** as well as **Differential Backups**.

![Using SQL Server Management Studio for backup](image-url)

**Figure 4** Using SQL Server Management Studio for backup
Backup content and index folders

Use the **Windows Server Backup** or any other tool of your choice to backup the Data Store content folder (C:\DSContent) and index (C:\DSIndex) folders.

![Backup Schedule Wizard](image)

**Figure 5** Using Windows Server Backup

Backup OpenLAB Data Store files

Under C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\temp, backup the following files:

- com.agilent.datastore.cache
- org.alfresco.cache.ticketsCache.data
- org.alfresco.cache.ticketsCache.index
**Start Data Store services**

Open Windows Services (services.msc) and Start the services.

- postgresql-x64-9.2 (only applicable when using PostgreSQL database for Data Store)
- Agilent OpenLAB Shared Services
- alfrescoTomcat

You will need to wait a couple of minutes for the services to fully engage.
Data Store Restore Procedure

Use these procedures to restore your system from an existing backup if the OpenLAB Data Store becomes inoperable due to a hardware or software failure.

Create a new system

Reformat your existing machine and reinstall the OS. Ensure the server is configured with the original names and paths. Refer to your installation notes or disaster recovery plan for the original names and paths.

Install Data Store using original configurations

Follow the installation procedures to install and configure a new Data Store on the machine. Refer to your installation notes or disaster recovery plan for the original configuration.

Stop Data Store services

Open Windows Services (services.msc) and Stop the services.
* alfrescoTomcat
* Agilent OpenLAB Shared Services
* postgresql-x64-9.2 (only applicable when using PostgreSQL database for Data Store)
Restore the databases

Procedure for PostgreSQL

Determine your database folder (for example, C:\PostgreSQL Data) and restore the PostgreSQL databases to it from your backup.

Procedure for MS SQL Server

Use SQL Server Management Studio to restore the Shared Services database (OLSharedServices) and the Data Store database (OpenLabDS).

For Data Store database:
1. Remove DSAdmin from OpenLabDS > Security > Users.
2. Assign Security > Logins > DSAdmin as db_owner for Data Store database.

If using DB user and SQL Server authentication for Shared Services database:
1. Remove the DB user from Shared Services database > Security > Users.
2. Go to Security > Logins > User Mappings.
3. Select Map for OLSharedServices database.
4. Ensure the user is set correctly.
5. Set the Default Schema to dbo.
6. Select the db_datareader AND db_datawriter database roles memberships.

Restore content and indexes

Determine the locations of your Data Store content folder (C:\DSContent) and index (C:\DSIndex) folder, and restore them from your backup.


**Restore OpenLAB Data Store files**

Under C:\Program Files (x86)\Agilent Technologies\OpenLAB Data Store\tomcat\temp, restore the following files:

- com.agilent.datastore.cache
- org.alfresco.cache.ticketsCache.data
- org.alfresco.cache.ticketsCache.index

**Start Data Store services**

Open Windows Services (services.msc) and Start the services.

- postgresql-x64-9.2 (only applicable when using PostgreSQL database for Data Store)
- Agilent OpenLAB Shared Services
- alfrescoTomcat

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

**Check the License in OpenLAB Control Panel**

1. From the OpenLAB Control Panel, select **Administration > Licenses**.
2. In the **Licensing** toolbar, click **View**. The information will display in an Internet window.
3. If needed, reapply the license. See the OpenLAB Control Panel Help for more information.
Data Store Activation

Under normal circumstances, OpenLAB Data Store does not need to be reactivated. However, if the server is moved to a new machine OpenLAB Data Store may require reactivation. This is done from the OpenLAB Control Panel > Administration. Click on the System Configuration in the Navigation view, and then click Edit System Settings in the tool bar to edit the system configuration. For authentication provider, the value needs to be either Internal or Windows domain. If you had already configured with one of these values previously, you can choose Keep current configuration. You must choose Data Store as the storage type and click Next. Then choose Change server, provide the Data Store Server URL, and click Activate to reactivate Data Store synchronization.

Figure 6    Data Store Activation
The system uses a built-in password for the activation process. If you would like to protect the activation process, the default built-in password may be changed using the Agilent OpenLAB Data Store Utility. Click on Change Activation Password and provide a new password. Once the activation password has been changed, activating Data Store will request a password.
Changing Data Store Storage Location

Every file that is uploaded to Data Store is kept on the server’s hard disk. After using Data Store for a long period of time, eventually the disk will start filling up. When this happens, you must provide additional disk space for the system to function. If your server has been configured with RAID you may be able to simply increase the available disk space by adding larger disks.

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 7** to determine the current paths used.

![Agilent OpenLAB Data Store Utility](image)

**Figure 7**  Agilent OpenLAB Data Store Utility

Use the following procedure to move the content folder to a different location. This procedure can only be performed by an administrator user.

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 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 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.