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Introduction

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

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

Prepare a Disaster Recovery Plan

Prepare a recovery plan for the unlikely case of the OpenLAB Data Store becoming inoperable due to a hardware or software failure. This includes a plan for completely imaging the operating system, software, and data on a different physical machine. Make sure to test your disaster recovery plan.

See the OpenLAB Data Store Disaster Recovery Plan for an example of a complete plan.

Perform Regular Backup of Data Store

OpenLAB Data Store keeps files, indexes, and other system information directly on the file system. Metadata, such as file and folder information, audit trails, and signatures are stored in its database.

Agilent recommends that you perform periodic full backups and differential backups between the scheduled full backups. A full backup captures all data stored in the Data Store, while a differential backup contains only the 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. These backups can be used to restore your system in the event of a hardware or software failure.
Refer to the OpenLAB Data Store Backup and Restore Guide for more information on performing backups.

**Recommended best practices for backup**

1. Perform full backups of the OpenLAB Data Store data and database once a month.
2. Perform a differential backup at least every day. If there is a failure (for example, a disk crash), that will be the last point from which you can restore the system.
3. Optionally, create an automated scheduled backup process and monitor its status regularly.
4. Store the backups on a disk that is separate from the OpenLAB Data Store or the database system machine.
5. As an extra precaution, it is recommended that a second copy of the backup is stored on another device such as DVD or a Tape backup.
6. Monitor the storage usage patterns of the backup media. Note when you are starting to fill up the space. Add more storage as needed.
7. Test your Restore procedure to ensure it works.
8. Periodically retest the restore procedures.

**Monitor Resource Usage on the Data Store**

The data files, indexes, and database are stored to disk. 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.

**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. Some examples of such tools are: Monit, Munin, Cacti, and Nagios.
3. Monitor system resource usage such as memory and cpu usage, and network throughput. Windows Performance Monitor can be used for this purpose.
Update the Database Statistics

To enable SQL queries to perform efficiently, periodically update the OpenLAB Data Store database statistics. These statistics are used by the SQL Server query engine to determine the most optimal way to execute queries.

To update the statistics using SQL commands:

1. Start SQL Server Management Studio and connect as the database administrator.
2. Execute the following SQL:
   
   ```sql
   USE OpenLabDS;
   GO
   EXEC sp_updatestats;
   ```

To update statistics using the Maintenance Plan Wizard:

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 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 at least activity (for example Sunday, 12:00 noon)
   b. Select `Update Statistics` as the maintenance task.
   c. Choose `OpenLabDS` as the database against which the task will be executed.
Recommended Best Practices for Maintenance

1. Apply 3rd party updates and patches on the OpenLAB Data Store Server.

   Agilent posts information on the Customer Care Portal that shows which 3rd party updates or patches have been validated for use with the OpenLAB software suite. This includes 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 released Agilent software updates for OpenLAB Data Store and OpenLAB Shared Services on the server. When you receive notification of an update, please take note and read the information to determine if the update is applicable, and the urgency of its application.