OpenLAB
Chromatography Data System (CDS)
ChemStation Edition

Agilent Instrument Controller (M8304AA) Setup Guide
This document details the necessary configuration steps to deploy the server hardware ML350T09 as an OpenLAB CDS ChemStation Instrument Controller (P/N for the AIC bundle: M8304AA).

### Table 1  Terms and abbreviations used in this document

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<th>Term</th>
<th>Description</th>
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<tr>
<td>ChemStation</td>
<td>OpenLAB CDS ChemStation Edition</td>
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<tr>
<td>AIC</td>
<td>Agilent Instrument Controller</td>
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</table>

1. **Introduction and Specifications**

   This chapter contains information on Agilent Instrument Controllers that support installation of OpenLAB CDS ChemStation Edition.

2. **Operating System Installation**

   This chapter describes the installation of Windows Server 2012 R2.

3. **Operating System Configuration**

   This chapter describes the configuration of Windows Server 2012 R2.
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Introduction and Specifications

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This chapter contains information on Agilent Instrument Controllers that support installation of OpenLAB CDS ChemStation Edition.
Introduction

The Agilent Instrument Controller (AIC) is shipped as a Hardware / Software bundle. The bundle includes an English installation of Windows Server 2012 R2. However, a ChemStation AIC can also run on Chinese or Japanese operating systems.

NOTE

The OpenLAB CDS ChemStation Instrument Controller software uses the Remote Desktop Services (RDS) role in Windows Server. The usage of this role requires, in addition to the server Client Access License (CAL), a Remote Desktop Services CAL (RDS CAL) to access any application or graphical user interface remotely hosted by Windows Server.

You must also have at least one Remote Desktop Services Licensing Server deployed and activated in your environment. A grace period of 120 days during which no license server is required. At the end of the grace period, remote connections will be refused.

Server Hardware Specifications

Table 2  Recommended Hardware for use as Instrument Controller (AIC)

<table>
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<tr>
<th>AIC model</th>
<th>CPU</th>
<th>RAM</th>
<th>Hard disc</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP ProLiant ML350T Gen9</td>
<td>2.5 GHz 2x Quad Core</td>
<td>24 GB</td>
<td>2x 500 GB</td>
</tr>
<tr>
<td>E5-2609v2 (P/N M8304AA)</td>
<td></td>
<td></td>
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</table>

With a ChemStation AIC, you can control up to ten instruments.
1 Introduction and Specifications
Server Hardware Specifications
This chapter describes the installation of Windows Server 2012 R2.
Windows Server Installation

After booting up the server, a wizard walks you through interview questions to prepare the server for operating system installation. Follow the on-screen instructions to complete the Operating System installation.

1. Boot up the server.
2. Select **English** for the language of the operating system.
   
   Click → to proceed with the next step.
3. In the **Thank You** screen, click → to proceed with the next step.
4. Read and agree with the **Microsoft End-User License Agreement**, and click → to proceed with the next step.
5. Read and agree with the **HP End-User License Agreement**, click → to proceed with the next step.
6. In the OS Partition Screen, select **Custom (438742MB)**.
   
   Click → to proceed with the next step.
7. Provide and confirm an administrator password.

**NOTE**

Password policy:

- Cannot be less than 8 characters
- Cannot be more than 63 characters
- Must contain at least 3 of the 4 classes of characters
- Can only contain valid characters:
  - a-z
  - A-Z
  - 0-9
  - `~!#$%^&*()_+{}|;':",<>./`
- Cannot contain username, first name or last name

Click → to proceed with the next step.
8 Read and agree with the *Microsoft Software License Terms* for Microsoft Windows Server.

9 In the operating system contents:
   a Review all settings.
   b Click ➔ when you are ready to proceed with the installation.

**NOTE**
The server will reboot four times during the installation of the operating system and the HP Service Pack for ProLiant.

10 In Windows, set the timezone, date, and time as required for your location.
11 Confirm your settings.
2 Operating System Installation
   Windows Server Installation
This chapter describes the configuration of Windows Server 2012 R2.
About Configuration

Logon to Microsoft Windows Server using the Administrator account and the password entered in the previous steps.

After you have completed the installation of Windows Server, and before you deploy the new server in your enterprise, some configuration is required to identify the computer to other computing resources on your network, to secure the computer, to enable administrators to perform tasks on the computer, and to customize the computer by adding server roles and features.
Initial Configuration Tasks for ChemStation AIC

You can finish configuring Windows Server by performing the following three tasks, identified in the Initial Configuration Tasks window that is opened when the operating system installation is complete.

- Provide computer information.
- Update this server.
- Customize this server.

**NOTE** If User Account Control (UAC) is switched on, some configuration steps will require active confirmation to continue.

### Provide Computer Information

1. Activate Windows.
2. Set time zone.
3. Configure Networking.
4. Provide computer name and domain (if required).

### Update This Server

1. Click on Enable automatic updating and feedback, and select Manually configure settings.
2. In Windows automatic updating section:
   a. Click the change Setting... button.
   b. Select Never check for updates (not recommended).
3. In Windows Error Reporting:
   a. Click the change Setting... button.
   b. Select I don't want to participate, and don't ask me again, or leave the default option Ask me about sending a report every time an error occurs.
4 In the Customer Experience Improvement Program section, keep the default selection Not participating.
5 Click the Close button when finished.
6 Click Download and install updates.

**NOTE**
Your computer must have an available internet connection to download updates, or to configure Windows automatic updating.

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**Customize This Server**

Adding roles, features and enabling Remote Desktop is not required at this stage. The OpenLAB CDS Master Installer will configure these items during the ChemStation Instrument Controller installation.

1 Configure Windows Firewall.
   a Click Configure Windows Firewall.
   b In the left pane, click Allow a program or feature through Windows Firewall.
   c Click Change settings. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

**NOTE**
If the Change settings button is unavailable, you might not have permission to change some settings that are managed by your system administrator.

   d Under Allowed programs and features, select the check box next to Remote Desktop, and then use the check boxes in the columns to select the network location types you want to allow communication on.
   e Click OK.
2 Click Close on the Initial Configuration Tasks window when finished.
Install Microsoft Hotfixes


1 Visit the Microsoft Download Center to download and install this patch, if not present already.
Configure the System

Configure the Second Hard Disk

1. Click to open Server Manager.
2. Click Tools > Computer Management, then go to Storage > Disk Management and add Disk 1 to the configuration.
3. Right-click on CD-ROM 0.
   a. Select Change Drive Letter and Paths.
   b. Click the Change button and assign F as drive letter.
   c. Click Yes in the warning windows.
4. Right-click on Disk 1.
   a. Select New Simple Volume, and click Next.
   b. Select Max size 476937, and click Next.
   c. Select D as drive letter, and click Next.
5. Format the disk with:
   - File System: NTFS
   - Allocation unit size: Default
   - Volume Label: Data (or any other label)
   - Select the Perform Quick format check box.

**NOTE**

For best disk performance make sure to install OpenLAB CDS ChemStation on this new D:\ partition. It separates the ChemStation raw data write processes from the Windows paging file and the operating system user's TEMP directory.
Disable Services

1. In Server Manager, go to Configuration > Services.
2. Stop the Application Experience service, set its startup type to disabled, and click OK.

NOTE
It is highly recommended to disable the Application Experience service. Otherwise it can sporadically happen that the instrument session is closed during a reconnect and ChemStation is shut down unexpectedly. This can result in a data loss when acquisition is ongoing.

By default, the start type manual is selected for the Application Experience service. To ensure that it does not get started accidentally, set the start type to disabled.

Adjust the Screen for Best Performance

To set the visual effects to Adjust for best performance, add the following key to the registry:

\[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\VisualEffects\]
"VisualFXSetting"=dword:00000002

The value 2 stands for Adjust for best performance.

Distribute the registry change to all users who connect to the AIC. You can, for example:

- Create a login script that silently runs the registry file. Use the syntax \regedit.exe /s [path of .reg file]
- Use the Group Policy or System Policy. For more information, see the Microsoft web site http://msdn2.microsoft.com/en-us/library/ms954395.aspx.
Configure the Page File Size

When you set up a 64-bit version of Microsoft Windows Server, the operating system will create a page file that is auto managed (Automatically manage paging file size for all drives) in your computer.

For best performance, do not set the initial size to less than the minimum recommended size under Total paging file size for all drives. The recommended size is equivalent to 2 to 3 times the amount of RAM on your system. Usually, you should leave the paging file at its recommended size, although you might increase its size if you routinely use programs that require a lot of memory.

1. Open the Control Panel by clicking Start > Control Panel > System.
2. Click Advanced system settings.
3. On the Advanced tab > Performance section, click the Settings button.
4. Select the Advanced tab.
5. In the Virtual memory section, click the Change button.
6. Adjust the page file size, and click OK to save your modifications.
7. Click OK to close the System Properties window.

For more information, please read the following article from Microsoft: How to determine the appropriate page file size for 64-bit versions of Windows (http://support.microsoft.com/kb/2021748).

**NOTE**
Changes made for the virtual memory require a restart of the computer before they can take effect.
Data Execution Prevention

1. Open the Control Panel by clicking Start > Control Panel > System and Security > System.
2. Click Advanced system settings.
3. On the Advanced tab > Performance section, click the Settings button.
4. Select the Data Execution Prevention tab.
5. Enable Turn on DEP for essential Windows programs and services only.
6. Click OK to close the performance options.
7. Click OK to close the System Properties window.

Configure the Power Options for the Computer

2. Click Change settings that are currently unavailable.
3. Click High performance.
4. Click Change Plan settings.
5. Click Change advanced power settings.
6. Open the nodes for Hard disk, Turn off hard disk after and check that Minutes are set to 0 (=Never).
7. Click OK.
8. Save the changes.
Configure the System

Disable Power Management on the Network Adapter(s)

2. Click Device Manager.
3. Expand the Network adapters node.
4. Double-click the listed adapter(s), select the Power Management tab, and deselect Allow the computer to turn off this device to save power.
5. Click OK and close the Device Manager tool.
6. Restart the computer.

Windows Search

1. In Server Manager click Tools > Services.
2. If Windows Search Service is installed Stop the Windows Search service, set its startup type to disabled, and click OK.
Configure Timeout and Reconnection Settings

1. Start the Local Group Policy Editor (Start > search for 'gpedit.msc').
3. Under Session Time Limits, enable the following settings and set all of them to Never:
   - Set time limit for disconnected sessions
   - Set the time limit for active Remote Desktop Services sessions
   - Set time limit for active but idle Remote Desktop Services sessions
5. Set Restrict Remote Desktop Services users to a single Remote Desktop Services session to Enabled.

These timeout and reconnection settings will take precedence over settings that have been configured for a specific user account.
In This Book

This document details the necessary configuration steps to deploy the server hardware ML350T09 as an OpenLAB CDS ChemStation Instrument Controller (AIC).