



Agilent OpenLAB Chromatography Data System (CDS)

EZChrom and ChemStation Editions

Network Requirements



Agilent Technologies

Notices

© Agilent Technologies, Inc. 2012, 2013

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

M8301-90054

Edition

2/2013

Agilent Technologies, Inc.

Software Revision

This guide is valid for Agilent OpenLAB Chromatography Data System (CDS) version A.01.05 or higher,

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as "Commercial computer software" as defined in DFAR 252.227-7014 (June 1995), or as a "commercial item" as defined in FAR 2.101(a) or as "Restricted computer software" as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies' standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

CAUTION

A **CAUTION** 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 damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

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.

Contents

Introduction 1

LAN communications 2

LAN power management 2

Firewall Settings 3

Domain requirements 4

Network isolation 5

Databases 6

Application virtualization: Instrument Controllers 6

Important notes 6

Introduction

This document describes the network requirements that must be met in order to support the environmental computing needs of the OpenLAB Chromatography Data System (CDS) family of products.

OpenLAB CDS systems rely on network infrastructure in order to support the communication between various system nodes. This communication is based on standard TCP/IP protocols. In order to provide optimum performance and uptime, the network must meet design criteria for available bandwidth, IP address assignment, name resolution and appropriate isolation of the lab subnet from the corporate network.

LAN communications

When using LAN communications to connect workstations or instrument controllers to an instrument, use one of these methods:

- Directly connect the instrument using a crossover CAT-5 cable
- Connect via an isolated switch (see *Network Isolation*) using standard CAT-5 network cabling

LAN communication hardware should be 100/1000 mbps speed capable. LAN cards should NOT be teamed for system communications.

See the Options Installation Guide located on the EZChrom Edition Drivers disk for further information regarding vendor specific instrument connections to an EZChrom edition system.

LAN power management

Avoid data capture or transfer interruptions in your data acquisition system by making LAN communication cards available for instrument and system component communications.

Windows may be set to turn instruments/components off to save power while sleeping or hibernating. To change this setting:

- 1** Go to **Windows > Control Panel > Network Connections > Local Area Network > Properties.**
- 2** Select the **power management** tab.
- 3** Un-check **Allow the computer to turn off this device to save power.**

Firewall Settings

If you are using a third party firewall or antivirus software on the network where OpenLAB CDS is installed, open these firewall ports to allow communication between the system components of OpenLAB CDS. These apply to workstation system as well as distributed systems as instrument communications rely on these communication channels:

Port 21: Agilent OpenLAB Data Store FTP.

Port 67 and 68: used for the receipt and response, respectively, of BootP server communications.

Port 80: used by OpenLAB Data Store or OpenLAB ECM.

Port 443: Agilent OpenLAB Data Store HTTPS.

Port 3424: used for the transfer of diagnostics information between system components, such as AICs and clients, and OpenLAB shared services.

Port 3389: used for Remote Desktop Protocol by the ChemStation AIC.

Port 6570: (default) used for the active retrieval and release of product licenses.

Port 6577: used for the communications of all shared services related information. This includes instrument and run status, active trace data, and global configurations.

Port 8081: used by Agilent OpenLAB Data Store support.

Port 8084: used by Agilent OpenLAB Licensing support.

Ports 8085-8089: used as an alternative to port 8084 if that port is in use by another page or process.

Port 8090: used to host the viewing page of current license grants and consumptions found in the OpenLAB Control Panel administration interface.

Port 9000: used for configuration of Agilent 7890 GCs.

Ports 9001-9002: used by AICs to communicate with instruments and shared servers.

Port 9753: (default) used for all task-based messaging communication between acquisition controllers and chromatography clients. It is configurable during AIC registration. It is required that all ports designated during AIC registration be opened for access.

Port 10000-10009: used for status and acquisition communication with Agilent 7890 GCs.

Ports 27000-27009: used for communication of license availability.

Dynamic Ports: used for temporary communications between clients and instrument controllers. The ports used depend on the operating system in use and are configurable. Refer to the operating system documentation for more information.

The OpenLAB CDS **installer will automatically open these ports on an enabled Windows firewall** during installation.

Domain requirements

Domains support the flow of information and user access rights across machines in the network. This means that all machines and instruments within the networked OpenLAB CDS system must reside within the same domain or have the appropriate cross domain trusts to allow name based communications between all components in the system. In the case of a workstation installation, domains are only relevant if you are using a Windows domain-based authentication model. In this case the workstation or client must always be able to communicate with domain components in order to function as expected.

When installing OpenLAB CDS on Microsoft Windows 7 or Microsoft Windows Server 2008 R2 systems ensure that you are logged into the machine as a domain user that is a local administrator. This will allow the OpenLAB CDS installer to apply network exceptions to the Windows firewall under the domain profile to result in a functional system.

The components necessary to support OpenLAB CDS on a domain are:

Domain controller—broadcasts the domain name and negotiates access to machines.

Domain name server (DNS)—maintains records of what hostnames belong to which IP on the network.
This component is *always* required for effective components communications in networked systems.

Active directory—maintains the list of users and their access rights on the domain.

Note: OpenLAB CDS components may not be installed on the same machine as the domain controller.

The domain components above host a variety of services and settings that must be configured appropriately to allow communication across machines. The following services and settings will need to be configured to fit your domain. Your internal IT group is responsible for proper configuration of any custom domain solutions. These include settings for:

- Lookup zones and hostnames
- Group and security policies
- Subnet masks and Virtual LANs

Network isolation

A networked OpenLAB CDS system should be isolated from network systems that experience frequent failures due to faulty switching, viruses, or worms. If network isolation is not possible, workstations should be reconfigured and disconnected from the problem network until these issues can be resolved. On an isolated network name resolution services must be hosted by a separate machine to enable proper communications between system components by name.

An isolated network is completely physically isolated, so that no LAN switch connections on the network are shared with the corporate network infrastructure. [Figure 1](#) shows a simple client/server topology. In this example, the connection highlighted in red prevents isolation of the system.

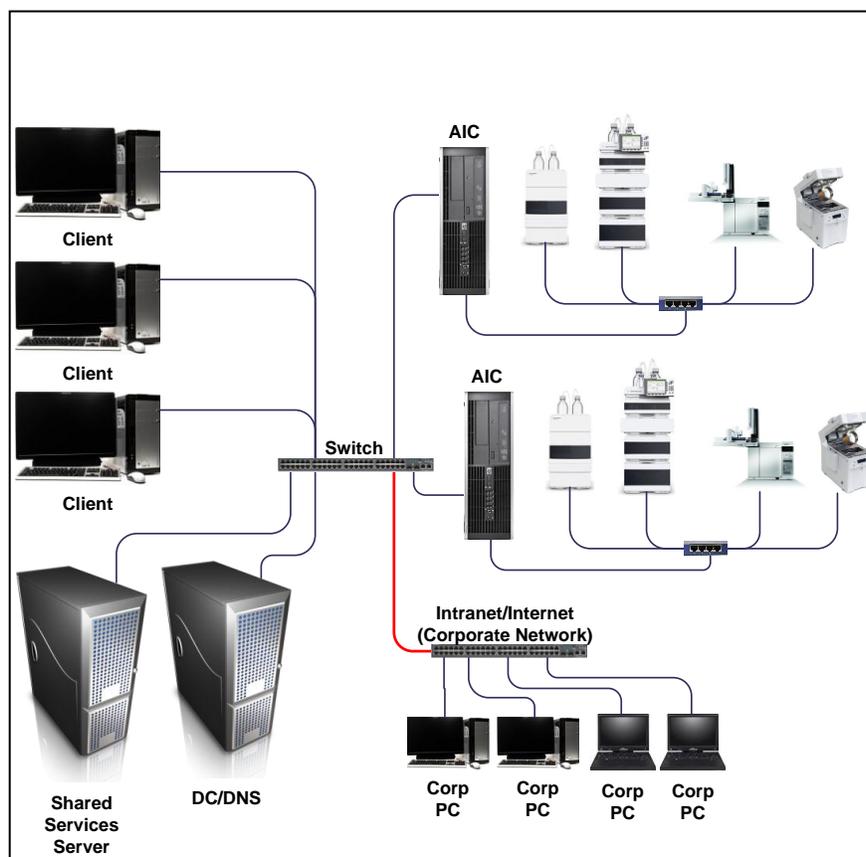


Figure 1 Sample client/server topology: Network Isolation

Databases

For systems configured to use a database external to the OpenLAB Shared Services Server, the network separation between the database and the Shared Services Server must be minimized for best performance. The database and shared services server should be physically connected to the same switch for optimal performance.

Application virtualization: Instrument Controllers

When using virtual machines as OpenLAB CDS instrument controllers confirm that the virtual network connection used allows access to other system components with no routing between instruments and the instrument controller. Virtualization of instrument controllers introduces a risk to data buffering functions for the system. In the event of a network failure, the connection to the instrument will be severed and acquisitions in progress will fail. To avoid this scenario use physical instrument controllers.

Important notes

- TCP/IP networking is required for all products. WANs (wide area networks) are not supported.
- LAN folder sharing is required for client/server systems on Storage Location (Enterprise path). Distributed File Sharing (DFS) is not supported for the Enterprise Path or the Enterprise machine.