Agilent ICF Support Layer for Waters CDS

Installation & Configuration Guide – Rev. 4.0

Notices

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Software Revision

This guide is valid for the Agilent ICF Support Layer for Waters CDS 4.0.

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1 Introduction

The purpose of this document is to provide guidance on how to install, configure, upgrade, or uninstall WICF 4.X on any instrument controller (LAC/E or Personal Workstation) or Client according to the specifications. For more details on ICF or the specific driver packages, please review the respective Release Notes on the installation media.

Terms	Description
CDS	Chromatographic Data System
DSA	Data System Adapter
FR	Feature Release
HF	Hotfix
ICF	Instrument Control Framework
ICF SL	Waters ICF Support Layer
ICL	Instrument Control License
ICS	Instrument Component Software
Instrument controller	LAC/E or Personal Workstation
LAC/E	Laboratory Acquisition Control Environment
SFC	Supercritical Fluid Chromatography
SP	Service Pack
SR	Service Release
SSB	Software Status Bulletin
SVT	Software Verification Tool
U	Update
Waters	Waters Corporation
WICF	Agilent ICF Support Layer for Waters CDS

Table 1 Terms and abbreviations used in this document

Introduction

Trademarks

Microsoft, Windows, Windows Server, and Microsoft .NET are trademarks of Microsoft Corporation.

Waters, Empower, MassLynx, and LAC/E are trademarks of Waters Corporation. Citrix is a trademark of Citrix Systems, Inc., and/or one or more of its subsidiaries. PAL is a trademark of CTC Analytics AG.

2 Prerequisites

The following Prerequisites must be met before starting the installation of WICF:

- Waters CDS must be installed and fully functional before starting the installation of WICF.
- The compatibility and system requirements must be fulfilled as listed in the Release Notes.
- Former Waters ICF SL installations must be completely uninstalled including the removal of ICF Support, Agilent ICF, Agilent Instrument Drivers, and Agilent Software Verification Tool.
- No sample set must be scheduled or in progress.
- The installation must be executed with a Windows user account (domain or local) having local administrator rights.
- Only Agilent instruments adhering to the specifications in the Release Notes can be configured.
- To configure an instrument, an Empower user account with the appropriate privileges must be used.
- NOTE In case ICF SL 3.7.01 project extension (ICF 3.2 Update 3) is installed the GC/HS drivers must be uninstalled manually via Windows Programs and Features.

DCOM and local security policy settings

To ensure the functionality of ICF based instrument control in Empower, the following DCOM (Distributed Component Object Model) and local security policy must be set on each instrument controller. Please restart the device after completion of the settings.

The settings are typically set during Empower installation but should be checked when installing WICF or during troubleshooting.

 Component Services > Computers > Properties > COM Security > Access Permission

Prerequisites

Select the **Allow** check boxes for Local Access and Remote Access for Everyone and Domain Users¹ (listed in the "Group or user names" section).

- Component Services > Computers > Properties > COM Security > Launch and Activation Permissions
 Select the Allow check boxes for Local Launch, Remote Launch, Local Activation, and Remote Activation Permissions for Everyone and Domain Users¹.
- Local Security Policy > Security Settings > Local Policies > Security Options > DCOM: Machine Access Restrictions in Security Descriptor Definition Language (SDDL) syntax > Edit Security Select the Allow check boxes for Local Access and Remote Access for Everyone and Domain Users¹.
- Local Security Policy > Security Settings > Local Policies > Security Options > DCOM: Machine Launch Restrictions in Security Descriptor Definition Language (SDDL) syntax > Edit Security > Launch and Activation Permissions

Select the Allow check boxes for Local Launch, Remote Launch, Local Activation, and Remote Activation Permissions for Everyone and Domain Users¹.

 Local Security Policy > Local Policies > Security Options > Network Access: Let Everyone permissions apply to anonymous users Set to Enabled

Firewall settings

If third-party firewalls or anti-virus software are used on a network with WICF, the firewall ports listed in this section must not be in use by other applications to allow communication between the instruments and the LC/CE and GC/HS drivers. These restrictions apply to both Personal Workstations and Enterprise systems since component communications rely on these communication channels.

The WICF installer will automatically setup the necessary firewall inbound rules. If you encounter communication issues, the following table gives an overview about the utilized ports as a reference.

¹ If you are in a domain environment, you may need to add the Domain Users manually. WICF Installation & Configuration Guide – Revision 4.0

Prerequisites

Protocol	Port/Program	Description
ТСР	4879	Instrument communication (Headspace)
ТСР	10000-10020	Instrument communication (GC 78xx, 88xx, 9000)
TCP	58080/PreConfigClient.exe	Waters ICF Port
ТСР	Any/AgilentPlugInServer	Default path: C:\Empower\Instruments\AgilentLC\AgilentPlugInServer.exe
TCP	Any/PlugInRunner	Default path: C:\Empower\Instruments\AgilentLC\PlugInRunner.exe
ТСР	Any/preconfigservice	Default path: C:\Empower\Instruments\AgilentLC\preconfigservice.exe

 Table 2
 Instrument Inbound Rules for the instrument controller.

Table 3 Instrument Outbound Rules for the instrument controller in case the firewall setting is not "Outbound connections that do not match a rule are allowed".

Protocol	Port/Program	Description
TCP	23	Instrument communication (LC, CE)
TCP	53	DNS Server
TCP	67, 68	DHCP Server (DNS or BootP)
TCP	9001, 9002, 9100	Instrument communication (GC, LC, 35900)
TCP	9101, 9110	Instrument communication (GC, LC, 35900)

Installing WICF is a two-step process. In the first step, the Software Verification Tool (SVT) is installed. In the second step, WICF that includes ICF and Agilent instrument drivers is installed. The WICF installer will prevent the installation if specific prerequisites are not met, for example, SVT version, Waters CDS version, OS version, as described in Chapter 2.

To use WICF in an Empower Enterprise environment, the drivers must be installed on every LAC/E and client or Citrix Server interacting with the Agilent instrument, its methods, and results. WICF does not need to be installed on database servers or controllers without Agilent instrument connection or interaction. For incremental upgrade scenarios, the interoperability between different WICF and Waters ICF Support Layer versions is possible. See WICF Release Notes for details.

NOTE Before starting the installation of SVT and WICF, ensure that no sample sets are running or in the queue, reboot the PC and log in with an account having full local Windows administrator privileges.

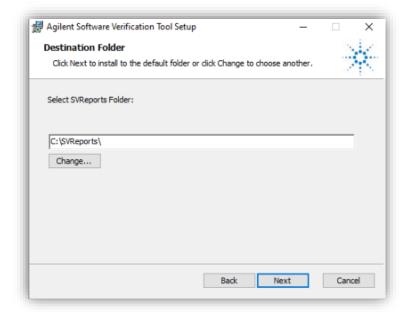
Interactive Installation of the Agilent Software Verification Tool (SVT)

SVT is required for the installation of WICF. To install the SVT, perform the following steps:

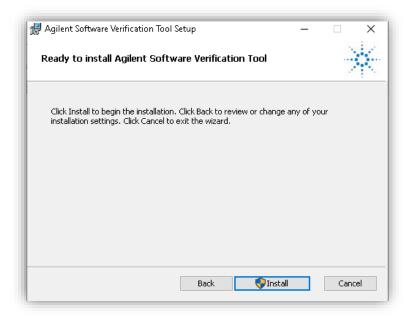
- 1 Locate the installation file in the subdirectory \Setup\Agilent Software Verification Tool.
- **2** Double-click the file SFVtool.msi to start the installation of the Software Verification Tool.
- **3** On the prompted End-User License Agreement, click **Next** and follow the onscreen instructions. The default settings should be appropriate in most cases.
- 4 If required, adjust the destination folders for the installation.

🛃 Agilent Software Verification Tool Setup —		×
Destination Folder	1	10
Click Next to install to the default folder or click Change to choose another.	1	
Install Agilent Software Verification Tool to:		
C:\Program Files (x86)\Agilent Technologies\IQTool\		
Change		
Back Next	Cano	el

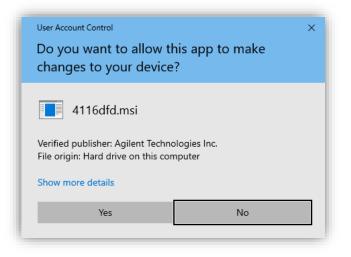
5 Specify the destination of the verification reports. The report of the installation verification can be found in this location.



6 Continue with **Next** and, on the next screen, click **Install** to start the installation.

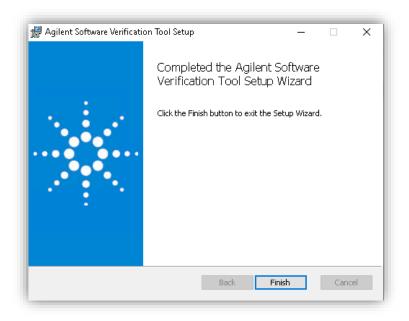


7 If the User Account Control Notification is turned on, click **Yes** to allow the installation of SVT.

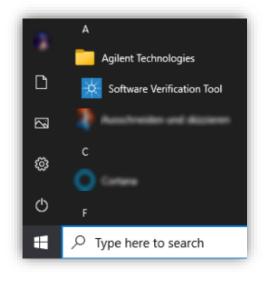


8 After completion, click **Finish** to close the installation wizard.

WICF Installation & Configuration Guide – Revision 4.0



9 The Software Verification tool is now available in the Windows Start menu: Start > Agilent Technologies > Software Verification Tool.



Interactive Installation of the Agilent ICF Support Layer for Waters CDS (WICF)

The Agilent Drivers are delivered as a single Windows Installer file named AgilentICFSupportLayerForWatersCDS.msi that includes the supported ICF and instrument drivers. To install WICF, perform the following steps:

- 1 Ensure that all Prerequisites are fulfilled (see Chapter 2)
- 2 Locate the installation file in the subdirectory \Setup\Agilent ICF Support Layer for Waters CDS.
- **3** Double-click the file AgilentICFSupportLayerForWatersCDS.msi to start the installation of WICF.
- 4 On the setup dialog, accept the license terms and continue with Install.



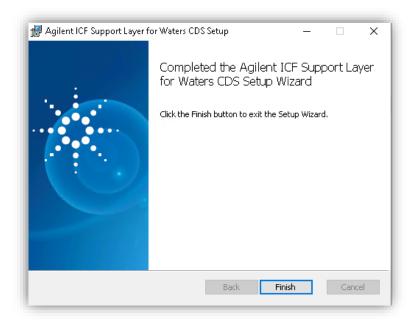
5 If the User Account Control Notification is turned on, click **Yes** to allow the installation of WICF.

User Account Control Do you want to allow th changes to your device	
Verified publisher: Agilent Techno File origin: Hard drive on this con	ologies Inc.
Yes	No

6 Choose if you want to join the Agilent Improvement Program for LC and click **Continue**.

gilent Improvement Program	
Help improve Agilent Software	
loin the Agilent Improvement Program and help improve the quality, relia our software and services.	bility, performance and usability of
f you elect to participate, please note that Agilent will collect data regard ourpose of improving our software to better serve our customers' needs. sersonal data. In other words, usage data cannot be connected to you o withdraw your consent moving forward, please note that you may do so r	Usage data does not include or your institution. If you would like to
Vould you like to participate in the Agilent Improvement Program?	
Yes, I am willing to participate	
No, I would not like to participate	
	Continue

7 Wait until the installation process completes and click Finish.



8 To finalize the installation, click **Yes** to restart the PC.



The location for the files of the default installation is C:\Empower\Instruments\AgilentLC.

~	Name	Date modified	Туре
	ELSDDrivers	8/24/2023 5:08 PM	File folder
	📙 en-US	8/24/2023 5:08 PM	File folder
	GC GC	8/24/2023 5:08 PM	File folder
		8/24/2023 5:08 PM	File folder
	📙 IQTWizard	8/24/2023 5:08 PM	File folder
	📙 ja	8/24/2023 5:08 PM	File folder
	- PreConfigurations	6/28/2023 4:11 PM	File folder
	📙 pt-BR	8/24/2023 5:08 PM	File folder
	📊 RefFiles	8/24/2023 5:08 PM	File folder
	📙 ru	8/24/2023 5:08 PM	File folder
	📙 Support	8/24/2023 5:08 PM	File folder
	🔄 zh-CHS	8/24/2023 5:08 PM	File folder
	📊 zh-Hans	8/24/2023 5:08 PM	File folder
	71ALS-SMPL	1/13/2023 9:35 AM	PNG File
	🛅 7697A	3/12/2015 6:30 PM	lcon
	🛅 7697A_small	3/12/2015 6:29 PM	lcon
	🔞 7697-GC	8/25/2020 5:35 PM	lcon
	1 ⁴ 8697-GC	8/25/2020 5:35 PM	lcon

SVT and WICF will be listed in Windows Programs and Features.

Uninstall or change a program				
To uninstall a program, select it from the	list and then click Uninst	all, Change, or l	Repair.	
Organize 🔻 Uninstall Change				
Name	Publisher	Installed On	Size	Version
🔆 Agilent ICF Support Layer for Waters CDS	Agilent Technologies	10/31/2023	440 MB	4.0.
🔆 Agilent Software Verification Tool	Agilent Technologies	10/31/2023	45.0 MB	
	Waters Corporation	10/31/2023	1.40 GB	7.0.3471.920

Silent Installation of SVT and WICF

It is possible to install the Agilent Software Verification Tool and WICF in silent mode by executing the following commands in the command console. Refer to the Microsoft documentation for Microsoft installer functionality. Make sure to log on

to the PC with an account having full local Windows administrator privileges. Start the command line with **Run as administrator**.

Silent SVT Installation via msiexec

```
msiexec.exe /i "<path_to_msi>\SFVtool.msi"
[/quiet][/passive][/q{n|b|r|f}]
```

An installation using this syntax will install the msi to the default installation path (C:\Program Files (x86)\Agilent Technologies\IQTool) without logging or restart instructions.

Examples

• Installation with no user interaction and no user interface:

```
msiexec.exe /i "C:\Temp\SFVtool.msi" /qn
```

 Installation with no user interaction, no user interface, defined installation directory, and enabled installation logs:

```
msiexec.exe /i "C:\Temp\SFVtool.msi" /qn INSTALLDIR="C:\Program
Files (x86)\Agilent Technologies\IQTool" /l*v "C:\Temp\SFV.log"
```

NOTE

The **Temp** folder in the examples must be created and the msi placed in there upfront.

Silent WICF Installation via msiexec

```
msiexec.exe /i
"<path_to_msi>\AgilentICFSupportLayerForWatersCDS.msi"
[/quiet][/passive][/q{n|b|r|f}] [/norestart][/forcerestart]
[/L{i|w|e|a|r|u|c|m|0|p|v|x+|!|*}] ["<path_to_log>\install.log"]
```

An installation using this syntax will install the msi to the default installation path with the defined restart and logging instructions. Unless otherwise stated, the WICF installer will restart by default at the end of the installation.

Examples

 Installation with no user interaction, no user interface and automatic restart: msiexec.exe /i "C:\Temp\AgilentICFSupportLayerForWatersCDS.msi" /gn

• Installation with no user interaction, no user interface, enabled installation logs, and no restart:

```
msiexec.exe /i "C:\Temp\AgilentICFSupportLayerForWatersCDS.msi"
/norestart /qn /l*v "C:\Temp\install.log"
```

NOTE

Do not change the default installation location for WICF.

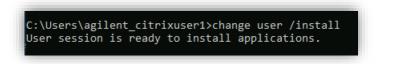
Push Installations

To install, upgrade, or remove WICF on multiple Empower clients, LAC/Es, or Citrix servers from a host computer, the Microsoft PsExec utility can be used. For further information and How-tos, refer to the Microsoft documentation.

Installing WICF on a Citrix server

WICF can be deployed and used in a Citrix environment. Refer to the Waters Empower documentation for the supported Citrix versions and operating systems. For installation, perform the following steps:

1 Open the command prompt as administrator and put the server in Install mode by typing "change user /install". The message "User session is ready to install applications." Should appear.



2 Either interactively install WICF or perform a silent installation as described in the sections above.

Put the server back to Execute mode by opening the command prompt as administrator and type "change user /execute". The message "User session is ready to execute applications." Should appear.

WICF Installation & Configuration Guide – Revision 4.0

C:\Users\agilent_citrixuser1≻change user /execute User session is ready to execute applications.

Upgrade Installation

A direct upgrade from ICF SL to WICF is not supported. All included components of ICF SL must be removed completely before installing WICF.

Uninstallation

Before starting the uninstallation of SVT and WICF, ensure that no sample sets are running or in the queue, reboot the PC and log in with an account having full local Windows administrator privileges.

To interactively uninstall SVT or/and WICF:

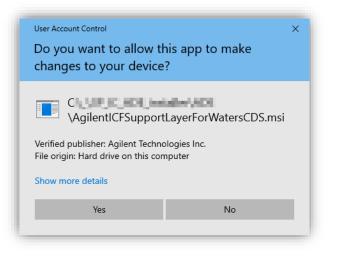
1 Go to Windows Programs and Features, highlight the program, and select **Uninstall**.

Uninstall or change a program				
To uninstall a program, select it from the l	list and then click Uninst	all, Change, or	Repair.	
Organize 🔻 Uninstall				
Name	Publisher	Installed On	Size	Version
Agilent ICF Support Layer for Waters CDS	Agilent Technologies	11/8/2023	440 MB	4.0.39
💥 Agilent Software Verification Tool	Agilent Technologies	11/8/2023	45.0 MB	6.2.10.1

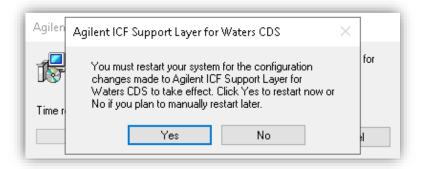
2 Select Yes when asked to uninstall.



3 If the User Account Control Notification is turned on, click **Yes** to allow the uninstallation of WICF.



Wait for the uninstallation to be completed and chose **Yes** when prompted for restart after the uninstallation of WICF.



Silent Uninstallation

To silently uninstall the software, use the proper Microsoft Installer function as described in the section above. For example

• SVT

msiexec.exe /x "<path_to_msi>\SFVTool.msi" /qn

• WICF

```
msiexec.exe /i "<path_to_msi>"\
AgilentICFSupportLayerForWatersCDS.msi /norestart /qn /l*v
"<path_to_log>\install.log"
```

A restart is necessary to successfully finish the uninstallation. Unless otherwise defined, the successful silent WICF uninstallation will automatically restart the PC.

4 Installation Verification

The installation and integrity of WICF and its components is verified by the Agilent Software Verification Tool (SVT).

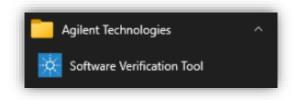
In addition, the WICF files are checked by the Waters Empower Verify Files Utility. This utility does not check for the ICF and instrument driver components.

Perform the installation verification on every instrument controller and every client or Citrix server, with WICF installed.

Agilent Software Verification Tool (SVT)

The SVT provides documentary evidence that WICF and its included components have been installed correctly. To execute the SVT, perform the following steps:

1 Go to Start > Agilent Technologies > Software Verification Tool.



2 Select the required report type and the components to qualify.

Installation Verification

Agilent Software Ve					×
Reports to create	Report option	Post-qua	lification action		
HTML Report	Show OK files in report	✓ Open	reports (HTML and	d PDF only)	
PDF Report		Exit			
XML Report					
Reports folder					
C:\SVReports\					
■ Agilent IC F	Support Layer for Waters	CDS		Open	
Agilent ICF		CDS		Open	

3 Select **Qualify**: The system will run the application and generate a Software Verification Report which should give a **PASS**. Reports are automatically saved to C:\SVReports, if not defined differently during SVT installation.

Date:	Friday, Novambar 10, 2023	Time:	11:49:32 AM [UTC +01:00:00]	Host Name:	DiPONDOC aglosi con
Windows User Name:	(relitions)	Base Revision Number:	4.0	Product Name:	Agilent ICF Support Layer for Waters CDS
Install Type:	N/A	Additional Packages:	Details		

Date:	10.3021	Time:	11:49:32 AM [UTC +01:00:00]	Name:	Collective Sector), application
Windows User Name:	(relitions)	Base Revision Number:	3.12.0	Product Name:	Agilent Rapid Control .NET
Install Type:	N/A	Additional Packages:	Details		

4 If the report indicates failure, verify the computer requirements, and try to troubleshoot, for example, re-install, or reach out to your support representative.

Silent execution of SVT

Run the Agilent SVT in silent mode by executing the following command with below syntax in the command console:

Examples

• Execution of SVT with no UI for Agilent ICF Support Layer for Waters CDS, showing progress bar, saving, and opening a pdf report:

```
"C:\Program Files (x86)\Agilent
Technologies\IQTool\Bin\SFVTool.exe" -qt -p:"Agilent ICF Support
Layer for Waters CDS" -pdf -open
```

• Execution of SVT with no UI for all products hiding command window and progress bar, showing details of qualified files, saving a html report:

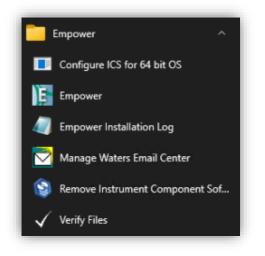
```
"C:\Program Files (x86)\Agilent
Technologies\IQTool\Bin\SFVTool.exe" -silent -ok -p:"all"
```

NOTE For all available options, use the SVT help function: "<path_to_SFVTool.exe>\SFVTool.exe" -h

Waters Empower Verify Files Utility

The Empower Verify Files utility verifies the integrity of the WICF layer together with the Empower Installation. To execute the Verify Files utility, perform the following steps:

1 Using your Windows operating system, go to Start > Empower > Verify Files.



2 The Verify Files tool is automatically executed and displayed. The Checksum_[DATE]_[TIME].txt file is saved in C:\Empower\Script.

Installation Verification

```
Installation Information.

Current Date and Time -

Computer Name -

Installation Type - Personal

S/W Version - Empower 3 Software Build 3471

Registered User - system

Company Name - Agilent

Support Plan ID -

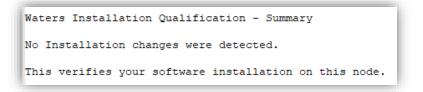
Operating System Name - Windows 10 Enterprise

Operating System Version - 6.3

Operating System Upgrades - None

4.0. - Agilent ICF Support Layer for Waters CDS
```

	iles to check:			
				Size: 148992, CRC: 13869
				- Size: 148480, CRC: 62357
	2 2			- Size: 81920, CRC: 63737
		OK		Size: 30720, CRC: 43490
				- Size: 8192, CRC: 40421
6:	ICFAdaptor.dll	OK	-	Size: 96768, CRC: 2047
				Size: 35840, CRC: 34776
				Size: 103, CRC: 65093
9:				Size: 80384, CRC: 62985
10:				Size: 30208, CRC: 21439
11:	NetMQ.dll	OK	-	Size: 262656, CRC: 29568
12:	PlugInRunner.exe	OK	-	Size: 38400, CRC: 20284
13:	PlugInRunner.exe.config	OK		- Size: 103, CRC: 65093
14:	PreConfigClient.exe	OK	-	Size: 242688, CRC: 35391
				Size: 9216, CRC: 10708
				OK - Size: 219, CRC: 64889
17:	StatusControlContainer.d	11	OK	- Size: 29696, CRC: 6210
18:	System.Buffers.dll	OK	-	Size: 27992, CRC: 23118
				Size: 37760, CRC: 23094
20:	System.Memory.dll	OK	-	Size: 148760, CRC: 12273
21:	System.Numerics.Vectors.	d11	OF	DK - Size: 115936, CRC: 37816
22:	System.Runtime.CompilerS	ervice	es.l	Unsafe.dll OK - Size: 16768, CRC: 5669
23:	System.Threading.Tasks.E	xtensi	lons	s.dll OK - Size: 25984, CRC: 17549
24:	System.ValueTuple.dll	OK	-	Size: 25232, CRC: 27825
24	files, 1643017 bytes to	tal		
0	file(s) found changed			
0	file(s) missing			



Compliance Recommendation

If the site is in a regulated environment, we recommend following your standard operating procedures (SOP). Known and resolved Issues are listed in the Release Notes. Together with the Software Verification Tool and the Software Status and Release Bulletins it may assist to determine if any qualification tasks are required. If required, Agilent offers the (re-) qualification of the hardware or the functional verification of the WICF driver installation/upgrade (not Empower) as a service. Please contact your Agilent sales representative.

The configuration of an Agilent Instrumentation in Waters Empower consists of the following steps:

- 1 PreConfiguration
- 2 DHCP Configuration
- 3 Chromatographic System Creation

Whereas steps 1 and 2 slightly differ for LC and GC, step 3 is the same for both. The steps are described in detail below.

NOTE

For interoperability scenarios, instrument configuration is only supported directly on the LAC/E.

Agilent LC configuration in Waters Empower

To configure an Agilent LC in Waters Empower, perform the following steps. To configure an Agilent Capillary Electrophoresis system, please consider the technical note Agilent 7100 Capillary Electrophoresis System in Empower.

Prerequisites

- 1 Ensure that Empower and WICF are properly installed on the instrument controller and clients that are going to use the system.
- 2 Turn on all modules of the LC system and ensure that only the modules you want to configure are in the CAN bus and one is connected to the instrument controller via LAN (detector recommended).
- **3** Restart the LAC/E or Personal Workstation that is going to be connected to the instrument. Do not open Run Samples before configuring the instrument.
- 4 Assign a static IP address to the instrument in the subnet of the instrument controller, for example, using the Agilent Instant Pilot or Telnet, see instrument user manual or Agilent community for help (How to Check, Configure and Use the IP Address of an Agilent HPLC Module Articles LC Portal Agilent Community). Verify the successful network communication (for example, via ping).

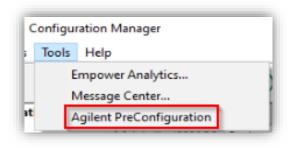
- 5 Ensure the firmware of the LC modules meet the minimum requirements for the used WICF version (see WICF Release Notes). Agilent recommends always using the latest firmware revision to provide the highest level of system capability.
- NOTE When an Agilent Instant Pilot (G4208A) is in use, make sure to turn on the 3rd party backward compatibility mode, so it is invisible to other controllers. Do not hot plug the Instant Pilot when the LC stack is switched on. Switch off all HPLC modules, before plugging/unplugging the Instant Pilot.

PreConfiguration Utility

1 Log in to Empower from the LAC/E or workstation connected to the instrument (recommended) or from any client and open the Configuration Manager.



2 Select Tools > Agilent PreConfiguration.



3 Enter the IP address or hostname of the LAC/E or workstation connected to the instrument ("localhost" if you are logged in to the instrument controller directly) and press **Connect**.

🚱 Configuration Dire	ctory: Disconnected	-		×
IP Address / Host Name	LACE1	Conne	ect	
New Del	ete Configure		Exit	
New Del	ete Configure		Exit	

4 When successfully connected, already configured instruments are shown and **New** option at the bottom becomes available. From here, new configurations can be created, existing instruments can be re-configured, or the existing pre-configurations can be deleted.

🎕 Configuration Directory: Connected t	_		×
IP Address / Host Name localhost	Conr	nect	
	1	-	
New Delete Configure		Exi	t

5 Selecting New opens the Agilent Configuration Editor. Highlight Agilent 1100/1200/1260/1290 LC (or Agilent 1120/1220 LC Systems) and select Auto Configure.

Configuration Editor	
⊕. Agilent 1100/1200/1290 LC ⊕. Agilent 1120/1220 LC Systems ⊕. Agilent 7100 CE ⊕. Agilent CC Systems ⊕. Agilent ELSD	
	>
	Auto Configure

6 In the Auto Config dialog, enter the **IP address** of the instrument access point and press **OK**. The hostname must not be used.

utomatic configuration parameters			;
Agilent LC Modules (TCP/IP connection)) IP address		
		ОК	Cancel

7 With successful connection, all online LC modules are automatically detected along with their current configurations and are added to the right panel.

Configuration Editor		
a Conniguration Editor a)-Aglert 1100/1200/1260/1290 LC b)-Aglert 120/220 LC Systems b)-Aglert C 200 Systems b)-Aglert C Systems b)-Aglert E LSD	> < Auto Configure	Column Comp. (G7116B ID14448104) DAD (G7117B WI20516219) Bin. Pump (G7120A/IG53775147) H4P Sampler (G7167B:SW95712633)
		Up Down Configure Clear

NOTE

Do not modify the module configuration at this point to avoid mismatches between the automatically detected hardware configuration and software configuration at startup. An exception is when the config parameters are not read by RFID tag or cannot be changed via "modify" in the LC Status dashboard (for example, G1330A/B Thermostat, loop, or seat capillary for 1100 LCs).

- 8 [Optional] Cluster Configuration
 - **a** In case a potential Cluster is detected during an auto-configuring, possible configurations are proposed, and the Cluster can be created by selecting the available modules pressing **Create Cluster** and specifying the required cluster settings (press F1 in the cluster dialog box for more information).
 - **b** If clustering is not required, click Close to proceed with the configuration of an unclustered system.

Agilent LC Modules (TCP/IP connecti	on)					
Cluster Options			Ava	ailable M	odules	
Valve Thermostat Cluste	^		√	\bigcirc	Valve (G1170A:DK79885466)	
Pump Valve Cluster			√	٢	Valve (G1170A:HE57048883)	
Fraction Collector II Clus	er		√	٢	Valve (G1170A:VU33390860)	
Prep. Pump Cluster		Create			Pump (G7104A:QU52985078)	
HDR DAD		Cluster	v	୍କାଳ	Compartment (G7116B:XU35681449)	
Autoscale Cluster					Detector (G7117A:QQ70428384)	
Autoscale Cluster					Detector (G7117B:EE46391346)	
Column Comp. Cluster (I	egacy)				Pump (G7120A:OK82663945)	
Fraction Collector Cluste	r (Legacy)					

9 Press **OK** and **Exit** the PreConfiguration and proceed with the Empower DHCP Configuration (next section).

Configuration Editor	-		×
Aglert 1100/1200/1260/1290 LC Aglert 1120/120 LC Systems → Aglert 7100 CE Aglert C Systems → Aglert ELSD	Column Comp. (G7116B:ID14448104) DAD (G7117B:WI20516219) Bin. Pump (G7120A:IG53775147) HIP Sampler (G7167B:SW95712639) Auto Configure		
	Up Down Configur Ok	e (Clear

Empower DHCP Configuration

After the successful PreConfiguration, the Agilent instrument must be configured in the Empower software by performing the following steps:

1 Log in to Empower from the LAC/E or workstation connected to the instrument (recommended) or from any client and open the Configuration Manager.



2 Select Nodes from the Empower configuration tree, right-click the desired node (LAC/E or workstation) and select Properties.

🔎 🖫 🔥 🂕 💇 🗡	1	3. 陶 🕻			Filter E	y Default	v
B Empower Configuration	R	Node Name	Node Location	Node Type	Owner	Node Comments	
O Projects	6	Devtest-idc		LAC/E32	System		
Systems	7	Empo-srv1		Server	System		
e 🖌 Libraries		Empo-ts2		Empower	System		
🖶 🥿 eCord	9	Empoaho00061		LAC/E32	System		
_ 🖸 Users	10	Emposho00078		LAC/E32	System	New	2
Q? User Groups	11	Emposho00120		LAC/E32	System	Delete	
Plate Types	12	Empoaho00232		LAC/E32	System	Export to Text	
1 System Audit Trail	13	Empocar00106		LAC/E32	System	Reboot	
G Offline System Audit Trail	14	Empocey00122		LAC/E32	System	Properties_	
	15	Empocey00128		LAC/E32	System	Сору	
	16	Empoci37-1		Empower	System	Hide Column	
	17	Empojw/00086		LAC/E32	System	Show All Column	
	18	Empojw/00087		Empower	System		
	19	Empojwi00088		Empower	System	Print Table	
	20	Empomat00042		LADE32	System	Table Properties	
	21	Empomat00056		Enpower	System	Column Propertie	100

3 Switch to the tab **Configure DHCP** and click the **Configure DHCP button**.

voue en	npower-g' Pr	openties		×
General	Instruments	Serial Ports	Configure DHCP Access	
	intervention b	ut in some cas	designed to work automatically without use es you will need to change or specify DHCP network or third-party instruments in your laboratory.	
			onfigure third-party Ethemet instruments on rent IP address range for your instrument network.	
			Configure DHCP	
			OK Cancel	Help

4 In the Waters DHCP Server Configuration window, click Add to manually add the static IP address of the Agilent LC (same instrument access point as used during the PreConfiguration).

IP Address	MAC Address	Type	Name	
10.00	24-42-23-12-23-42	AglentLC	1220	
0.00	31-21-12-31-42-21	AgGC	8890v	

5 Enter the IP Address, MAC Address (can be arbitrary), and Serial Number or a Unique Name. Select the Instrument Type AgilentLC from the drop-down list. Confirm with OK. IP and MAC address are checked for duplicates on the same instrument controller. Once created editing existing DHCP configurations is not possible. The system must be removed and added again.

Add IP Address	×
IP Address	192 . 168 . 0 . 5
MAC Address	77 - 77 - 77 - 77 - 77 - 77
Instrument Type	AgilentLC \checkmark
Serial Number/ Unique Name	MyLC
ОК	Cancel

6 Press OK to close the Waters DHCP Server Configuration. Browse to the Instruments tab and Scan Instruments to check the successful configuration. OK? column must indicate Yes, check the Details column for the read instrument configuration.

ral	In	struments	Serial Ports Conf	igure DHCP	Access
	R	Туре	Address	OK ?	
	1	AgilentLC	AgilentLC#1220	Yes	G7104C:EP37602656; G711
	2	AgGC	AgGC#8890v	Yes	PAL3:n/a; 8890:123456789;
	3	AgilentLC	AgilentLC#MyLC	No	
	<				>
					,
		S	can Instruments	R	emove Instrument
		-			

7 Right-Click > Table Properties and unhide the Manufacturer column. Click OK, browse to the manufacturer column and change the name to "Agilent Technologies, Inc.". Close and update the Node Properties by clicking OK.

Columns	Fonts Colors	
	Hidden Columns Prom Version Comments Details Optional Pump Head Manufacturer Purchase Order # Owners Equip # Clocation	Column Sizing Automatic Manual Fixed Column Address
	Hide All Show All	Citeria Show Citeria Information Show Values with Formulas
	OK Cance	Apply Help

lode		Prop	oerties		>
General	Ins	truments S	erial Ports Configu	ure DHCP Access	
	X	Туре	Address	Manufacturer	
	1	AgilentLC	AgilentLC#1220	Agilent Technologies, Inc.	
	2	AgilentLC	AgilentLC#MyLC	Waters Corp., 34 Maple Street, Milford	
	<			>	
		Sca	an Instruments	Remove Instrument	

8 You may proceed with the section Chromatographic System Creation.

Importing and using Alphanumeric Trays or Wellplates

Agilent samplers utilize two types of tray/plate schema:

- The classic schema uses continuous numbering, for example, Vial 1, 2, 3
- The alphanumeric schema uses alphanumeric positions, for example, P1-A1, P1-A2, P2-B1 which translates in Empower to 1:A1, 1:A2, 2:B1

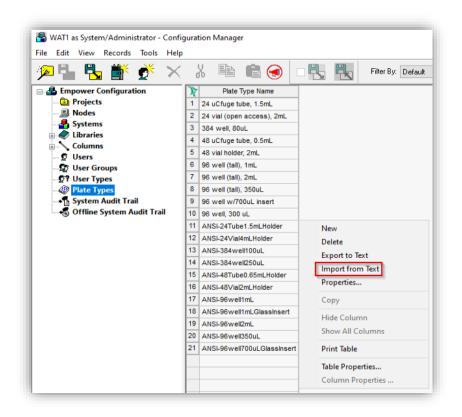
Whereas the classic schema works by default, Empower cannot handle the alphanumeric schema and needs imported definition files (.txt) to make use of those trays/plates. The definition files of the most common trays/plates are delivered together with the installation media (\Supplementary material\AgilentPlatesForImport. Table 4 gives an overview of the files. The files are available in English, Japanese, and Chinese (simplified) localized format.

NOTE

Classic vial drawers for Vialsamplers (50 x 2 mL vials; G7129-60210, G7129-60220) use continuous numbering and will work by default without importing alphanumeric definition files.

To import alphanumeric plate definition files, the following steps must be performed:

- 1 Browse to Configuration Manager > Plate Types
- 2 Check if the desired Plates are already present. If not, **right-click** inside the table and select **Import from Text**.



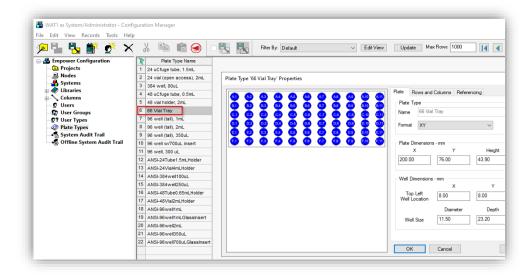
3 Select Browse, navigate to the plate definition files on the installation media, **highlight** the desired tray/plate and click **Open**.

nport Plate Type From Text File	Please Choo	ose Your Plate Type Import File		>
Waters can import a plate type definition from a text file. Browse to or type in the path and name of the plate type file,	Look in	En-US	 Image: Image: Image:	
then enter the desired name of the new plate type definition.	-	Name	Date modified	Ту
	X	15HRV5mlVialPlate	4/27/2023 12:00 PM	Te
Plate Type Definition Import File: Browse	Quick access	15HRV6mlVialPlate	4/27/2023 12:00 PM	Te
		15VialPlate	4/27/2023 12:00 PM	Te
		66VialTray	4/27/2023 12:00 PM	Te
New Plate Type Name:	Desktop	96DeepAgilent3	4/27/2023 12:00 PM	Te
New Flate Type Name.		96DeepAgilent4	4/27/2023 12:00 PM	Te
		96DeepRitter41	4/27/2023 12:00 PM	Te
	Libraries	384Agilent	4/27/2023 12:00 PM	Te
OK Cancel		384Corning	4/27/2023 12:00 PM	Te
		384Greiner	4/27/2023 12:00 PM	Te
	This PC	384Nunc	4/27/2023 12:00 PM	Te
		Agilent27Eppendorf500uL	4/27/2023 12:00 PM	Te
		Aailent27Eppendorf1500uL	4/27/2023 12:00 PM	Te
	Network			
		File name: 66VialTray	~	Open
		Files of type: Plate Type Import File (*.tr	t) ~	Cancel

4 Provide a New Plate Type Name and confirm with OK.

Import Plate Type From Text File	×							
Waters can import a plate type definition from a text file. Browse to or type in the path and name of the plate type file, then enter the desired name of the new plate type definition.								
Plate Type Definition Import File:	Browse							
C:\Users\jwittmer\Desktop\Agilent LC & GC ICS 3.7 (Waters Release)\<								
New Plate Type Name: 66 Vial Tray								
OK Cancel]							

5 After the successful import procedure, the Plate Type Name will appear in the Table and can be checked/modified by **double-click** or **right-click > Properties**.



6 The tray/plate definition will be available in the Acquisition and vial numbers will be displayed in the format 1:A1.

Image: Second	Define Plates For Sample Set Method		Plate Sequencing Mode	× Pate 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	2790 Layout Plate Type Name B6 Viai Tray ANSI-24Tube1 Smt.H008er ANSI-24Tube1 Smt.H008er ANSI-24Tube1 Smt.H008er ANSI-384 welf 00ul, ANSI-384 welf 00ul, ANSI-384 welf 00ul, ANSI-96 welf mt. ANSI-	Plate Layout Position		Plate: 1
	1 86 Viai Tray ANSI-24Tube 1.Smt.H008er ANSI-24Tube 1.Smt.H008er ANSI-24Tube 1.000er ANSI-384 well 00ul ANSI-384 well 00ul ANSI-49Vai250ul ANSI-49Vai250ul ANSI-96 well mt. ANSI-96 well mt.			
	A NIS-86 welf700 uLG lassingert 24 virul open access), 2mL 24 virul open access), 2mL 384 well, 80 uL 48 virul open access), 2mL 48 virul open access), 2mL 66 virul notes, 2mL 96 well (ata), 2mL 96 well (ata), 2mL 96 well (ata), 350 uL 96 well (ata), 350 uL	cel Heb	Inject Standards	

Select Sample Set Method Type - Untitled	Define Plates For Sample Set Method
Select sample set Method type - United Select the type of sample set method to create.	Alliance is Layout Create New Plate Type Clear Plates 2790 Layout Bits Type Name Plate Layout Position
<pre>< Back Next > Cancel</pre>	Help DK Cancel Help

Assign the same tray/wellplate to the instrument hardware via the instrument dashboard: Right-click on the sampler > Assign wellplates.
 For Vialsamplers, no assignment is needed as the tray is automatically recognized.

			_	Tray and Plate Cor ign Sample Contair								-	-)
Single	-	Control Method Injector Program	4		<no plate=""> *96Agilent* *54VialPlate*</no>	* * *	1		P8 P6 P4	*964	Plate> Agilent* /ialPlate*	•	1]
	â	Error Method Identify Device Home All	Ľ	P1	*96Agilent*	Ŧ	t		P2	*964	Agilent*	Cano	_	He	۶lp
Multi:		Reset Injector Switch Valve to Bypass Switch off Tray Illumination Auto-clean Prime Solvents Modify Assign Wellplates	y Pu	Idle EMF⊘	Column Com 25.03°C [25.0°C] Position 1 (Por	EMF		DAD	Â	Idle EMF⊘ ↓	Status Dashboard Collect Support Info				
0.00 / 0.00 trument Sta	-	Advance Options Diagnostic	s Log			Instrun	ient Id	lle [i 🕕 On	⊖ Off					

NOTE

Once successfully imported, the tray/plate is available across the Empower Enterprise system and can also be used on other clients and instrument controllers.

For detailed instructions and how to create customized trays/plates, see:

Agilent Infinity Lab LC Series Vialsampler Vial Drawer Configuration in Empower Environment Technical Note

Controlling the Agilent 1260 Infinity/1290 Infinity II Multisampler (G7167A/B) in Waters Empower 3 Environment Technical Note

File Name (.txt)	Part No.	Rows	Columns	Plate height (mm)	Volume (µL)
15HRV5mlVialPlate		3	5	42	5000
15HRV6mlVialPlate	5022-6539	3	5	47	6000
15VialPlate		3	5	42	5000

WICF Installation & Configuration Guide - Revision 4.0

Table 5 Alphandmenc tray/	plate definition mes derivere		01		
66VialTray	G7129-60010	6	11	43.9	2000
96DeepAgilent3	5042-6454	8	12	31.5	1000
96DeepAgilent4	No Agilent PN	8	12	41	1000
96DeepRitter41	No Agilent PN	8	12	41.2	800
384Agilent	5042-1388	16	24	14.4	80
384Corning	No Agilent PN	16	24	14.4	
384Greiner	No Agilent PN	16	24	14.4	
384Nunc	No Agilent PN	16	24	14.4	
Agilent27Eppendorf500uL	5022-6538	3	9	40.5	500
Agilent27Eppendorf1500uL	5022-6538	3	9	40.5	1500
Agilent27Eppendorf2000uL	5022-6538	3	9	40.5	2000
ANSI96Well500uL	5042-1385 5042-1386	8	12	14	500
ANSIAgilent54Vial	G2255-68700	6	9	36	2000
Vialbar*	Part of G4226A tray (G2258-60011) Used for G7167A/B/C Reference Vials	10	1	43.9	2000

Table 5 Alphanumeric tray/plate definition files delivered with WICF

*dedicated 5-Vialbar available on request

Sampler Thermostat/Cooler Temperature Modes

The Sample Cooler/Sample Thermostat used in Multisampler and Vialsampler offers two control modes that must be defined in the configuration:

Constant Temperature Mode: The temperature control mode is defined as a system (control) setting, meaning that the temperature setting is independent of the method parameters. The temperature stays constant for all methods within a given sequence. This control mode is the default option and recommended for most applications.

Variable Temperature Mode: The temperature control mode is defined as a method parameter, meaning that the temperature setting is part of the method parameters. The temperature can change from method to method within a given sequence. This control mode is not recommended for most analytical workflows but might be used for some special applications, such as degradation studies.

To set the mode, the following steps must be performed:

- 1 If the Sampler is already configured, start with Step 4 followed by a new autoconfig (Step 2) and a restart of the instrument controller. If not, continue with Step 2.
- 2 After the auto-configuration in the PreConfiguration Utility, open the **sampler configuration** dialog by **double-clicking** on the sampler. Select the desired temperature mode in the **Mode dropdown**. Do not change any other setting. For example, the Thermostat/Cooler installed checkmark must be recognized by the auto-config.

 These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Left needle installed Alternating needle usage not available Left needle Right needle 		
Type ID G7167B Serial number	During and Multisounder	
Serial number Firmware revision Connection settings Options Drawer These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Image: Installed Alternating needle usage not available Left needle Right needle Left needle Loop G4267-60301: Loop 20 µL left Dual-Needle V Seet G4267-60300: Sample Loop-Flex 20 µL right Seet G4267-607012: Seat assembly 0.12 mm 1290 Infinity LC V Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Multi-vash installed Multi-vash installed Mode: Variable temperature mode (method parameter) V Thermostat installed G4267-40071: Reference vial rack (5) V Bypass capillary Vone V V		
Firmware revision Connection settings Options Drawer These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Image: Control of the configuration only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Image: Configuration only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-600301: Loop 20 µL left Dual-Needle Image: Configuration only or configuring an offlinity LC Visit Redele Coop G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Multi-wash installed Mode: Variable temperature mode (method parameter) Thermostat installed Multi-wash installed Mode: Control setting) Thermostat installed Multi-wash installed Mode: Variable temperature mode (method parameter) Visitable temperature mode (method parameter) Thermostat installed Seat G4267-40071: Reference vial rack (5) Seat <td>Type ID G7167B 👻</td> <td></td>	Type ID G7167B 👻	
Connection settings Options Drawer Image: These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Image: Control of the configuration only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Image: Configuration only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-600301: Loop 20 µL left Dual-Needle Image: Configuration Volume: 20.00 µL Coop G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Multi-wash installed Mode: Variable temperature mode (control setting) Thermostat installed Multi-wash installed Mode: Variable temperature mode (control setting) Thermostat rest G4267-40071: Reference vial rack (5) Set G4267-40071: Reference vial rack (5)	Serial number	
Options Drawer • These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head • Constant listed Alternating needle usage not available Left needle Right needle Loop G4267-60301: Loop 20 µL left Dual-Needle • Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Multi-wash installed Mode: Variable temperature mode (method parameter) Thermostat installed Multi-wash installed Mode: Variable temperature mode (method parameter) Thermostat installed G4267-40071: Reference vial rack (5) Bypass capillary None	Firmware revision	
These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Left needle Iternating needle usage not available Left needle Right needle Loop G4267-60301: Loop 20 µL left Dual-Needle V Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC V Max. Injection Volume: 20.00 µL G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Muti-wash installed Mode: Variable temperature mode (method parameter) V Constant temperature mode (method parameter) V Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None	Connection settings	
 These options are for information only or configuring an offline system. Please see help for instructions how to change the configuration. Metering G4267-60042: 40 µL Analytical Head Left needle installed Alternating needle usage not available Left needle needle G4267-60301: Loop 20 µL left Dual-Needle V Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Mode: Variable temperature mode (method parameter) Constant temperature mode (method parameter) Constant temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary 		
Metering G4267-60042: 40 µL Analytical Head Left needle Alternating needle usage not available Left needle Right needle Loop G4267-60301: Loop 20 µL left Dual-Needle v Seet G4267-87012: Seet assembly 0.12 mm 1290 Infinity LC v Max. Injection Volume: 20.00 µL (Multi-draw disabled) * Thermostat installed Multi-wash installed Mode: Variable temperature mode (method parameter) v Thermoc Variable temperature mode (method parameter) v Reference vial rack G4267-40071: Reference vial rack (5) v		
Left needle Alternating needle usage not available Left needle Right needle Loop G4267-60301: Loop 20 μL left Dual-Needle ▼ Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC ▼ Max. Injection Volume: 20.00 μL (Multi-draw disabled) Thermostat installed Multi-wash installed Mode: Variable temperature mode (method parameter) ▼ Thermostat installed Multi-wash installed Multi-wash installed Mode: G4267-40071: Reference vial rack (5) ▼ ▼ Bypass capillary None ▼ ▼	configuring an offline system. Please see help for instructions how to change the configuration.	
Left needle installed Alternating needle usage not available Left needle Right needle Loop G4267-60301: Loop 20 μL left Dual-Needle ▼ Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC ▼ Max. Injection Volume: 20.00 μL (Multi-draw disabled) Thermostat installed Multi-wash installed Mode: Variable temperature mode (method parameter) ▼ Reference vial rack G4267-40071: Reference vial rack (5) ▼		
Left needle Right needle Loop G4267-60301: Loop 20 µL left Dual-Needle v Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC v Max. Injection Volume: 20.00 µL Max. Injection Volume: 20.00 µL (Multi-draw disabled) Max. Injection Volume: 20.00 µL ? Thermostat installed Multi-wash installed Mode: Variable temperature mode (control setting) v Thermoc Variable temperature mode (method parameter) v Reference vial rack G4267-40071: Reference vial rack (5)	al Head 🔹	
Loop G4267-60301: Loop 20 µL left Dual-Needle Loop G4267-60300: Sample Loop-Flex 20 µL right Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Mode: Variable temperature mode (method parameter) Thermo Variable temperature mode (control setting) Thermo Variable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None	Alternating needle usage not available	
Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Mode: Variable temperature mode (method parameter) Constant temperature mode (control setting) Thermod Variable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None None N	Right needle	
Seat G4267-87012: Seat assembly 0.12 mm 1290 Infinity LC Max. Injection Volume: 20.00 µL (Multi-draw disabled) Thermostat installed Mode: Variable temperature mode (method parameter) Constant temperature mode (control setting) ThermocVariable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None N	dle v Loop G4267-60300: Sample Loop-Flex 20 uL right	-
Max. Injection Volume: 20.00 µL. (Multi-draw disabled) Max. Injection Volume: 20.00 µL. (Multi-draw disabled) (Multi-draw disabled) Image: Maxe and the state of the sta		•
Mode: Variable temperature mode (method parameter) Constant temperature mode (control setting) Thermol Variable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None		
Mode: Variable temperature mode (method parameter) Constant temperature mode (control setting) Thermo(Variable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None	(Multi-draw disabled)	
Mode: Variable temperature mode (method parameter) Constant temperature mode (control setting) Thermo(Variable temperature mode (method parameter) Reference vial rack G4267-40071: Reference vial rack (5) Bypass capillary None None	_	
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G4267-40071: Reference vial rack (5) Bypass capillary None	d parameter)	
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Define Sample Containers	d parameter)	
Define Sample Containers	d parameter)	
Letine Sample Containers	d parameter)	
	d parameter)	
	d parameter)	

- **3** Create a Chromatographic System in Empower as described in the sections before
- 4 Open the Acquisition, navigate to the instrument dashboard, right-click on the sampler, select **Modify > Temperature** mode.

Multisampler ? _ [Auto-clean Prime Solvents
Drawer Configuration	Modify
Capillaries	Assign Wellplates
Reference Vial Rack	100.00 0.00 0.000 mL/mi
Temperature Mode	000 bar
J	0.00 bar

- 5 Select the same Mode as defined in the PreConfig in Step 1.
- Restart the instrument controller. 6

The procedure on how to change the temperature mode is also described by Waters in TechNote TECN134945293.

NOTE

Changing the temperature mode for an existing configuration requires a method resolution for existing methods based on the old configuration with another temperature mode setting.

The G1330A/B Thermostat used for older samplers (G1367X, G1329X) works NOTE similarly and can also be set to be controlled by method. Please refer to Waters TechNote TECN134909208.

Technical Notes

Several technical notes for LC/CE are available from Agilent and Waters describing special scenarios and applications. Here is a collection of selected technical notes:

Technical Notes published by Agilent

- Agilent InfinityLab LC Series Multicolumn Thermostats and Column Usage in Empower
- Performing Manual Injection (LC) in Empower Environment
- Agilent 1290 Infinity II Evaporating Light Scattering Detector (ELSD) in Empower
- Using the Fraction Collector in Empower 3 Environment
- Using ISET in Empower Environment
- Using High Dynamic Range (HDR) in Empower
- Agilent 7100 Capillary Electrophoresis System in Empower
- Controlling the Agilent 1260 Infinity/1290 Infinity II Multisampler (G7167A/B) in Waters Empower
- Agilent Infinity Lab LC Series Vialsampler Vial Drawer Configuration

Application Notes published by Agilent

- Agilent 1290 Infinity II LC with ISET Emulation of the Agilent 1100 Series LC Through Waters Empower Software
- Agilent Instrument Control Framework and 1290 Infinity Quaternary LC with Waters Empower
- Using the Agilent Instrument Control Framework to control the Agilent 1290 Infinity LC through Waters Empower software
- Using the Agilent Instrument Control Framework to control the Agilent 1220 Infinity LC system through Waters Empower software

Technical Notes published by Waters

- Controlling the Agilent 1260/1290 Infinity II Sampler cooler via the Empower instrument method TECN134945293
- Using the Agilent G1330A/B Autosampler Thermostat with Empower TECN134909208

WICF Installation & Configuration Guide - Revision 4.0

- Using the Agilent PreConfiguration Utility with Agilent Instrument Control Framework (ICF) Support Version 2.2 TECN134936402
- Slow Performance when launching Agilent ICF components in Empower TECN134962729
- Mapping ICS-Based GC Methods to Agilent ICF (715007259 Version 00)

Agilent GC/HS configuration in Waters Empower

To configure an Agilent GC/HS or GC/CTC PAL3 in Waters Empower, perform the following steps. For interoperability scenarios, instrument configuration is only supported directly on the LAC/E.

Prerequisites

- 1 Ensure that Empower and WICF are properly installed on the instrument controller and clients that are going to use the system.
- 2 Turn on the GC (and HS) and ensure that the hardware is properly installed.
- **3** Restart the LAC/E or Personal Workstation that is going to be connected to the instrument. Do not open the Acquisition before configuring the instrument.
- **4** Assign a static IP address to the instrument (for example, using the GC/HS front panel or Telnet, see instrument user manuals or Agilent community for help) in the subnet of the instrument controller. Verify the network communication has succeeded (for example, via ping).
- 5 Ensure the firmware of the GC/HS meets the minimum requirements for the given WICF version (see WICF Release Notes). Agilent recommends always using the latest firmware revision to provide the highest level of system capability.

NOTE

Serial/RS232 connection is not supported with WICF. Ethernet communication is required for all GC and HS modules controlled via WICF. For 6890A and 6890 Plus GCs this may require a hardware update with a LAN Accessory Kit from Agilent, part number G2335A.

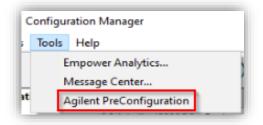
PreConfiguration Utility

GC configuration

1 Log in to Empower from the LAC/E or workstation connected to the instrument (recommended) or from any client and open the Configuration Manager.



2 Select Tools > Agilent PreConfiguration.



3 Enter the IP address or hostname of the LAC/E or workstation connected to the instrument ("localhost" if you are logged in to the instrument controller directly) and press **Connect**.

👒 Configuration Dire	ctory: Disconnect	ed —		×
IP Address / Host Name	LACE1	Conn	ect	
New Del	ete Configu	ıre	Exit	

4 When successfully connected, already configured instruments are shown and **New** becomes available. From here, new configurations can be created, existing instruments can be re-configured, or the existing pre-configurations can be deleted.

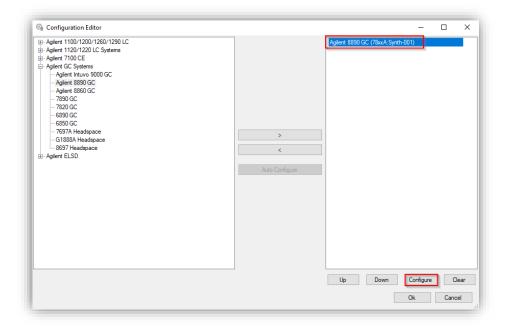
🎕 Configuration Directory: Connected t –	x c
IP Address / Host Name localhost Connect	
New Delete Configure	Exit

5 Selecting New opens the Agilent Configuration Editor. Expand Agilent GC Systems, select the correct GC type and click the arrow to the right to move

the selected GC model to the right window. Auto Configure is not supported for GC/HS and greyed out.

Agilent 1100/1200/1260/1290 LC Agilent 1120/1220 LC Systems Agilent 7100 CE Agilent GC Systems Agilent Resource Agilent Resource Agilent Resource Agilent ELSD	< Auto Configure	Agilent 8890 GC (78xxA:Synth-001
--	----------------------	----------------------------------

6 Double-click the GC on the right pane (or select it and press **Configure**) to open the GC configuration dialog of the selected GC type.



7 Enter the **IP address** of the GC and click **Get GC Configuration**. GC Name and Notes are optional fields.

Connection		
	Get GC Configuration	
	Connect Info Agilent GC System	
	GC Name	
	IP Address	
	Notes	

8 The current GC hardware configuration is uploaded through the active connection and displayed in the Configuration tab when successfully finished.

ornnetton Configuration GC Name Notes Keypad Lock Kaypad is never locked • Module Type: GC • Model Configuration • GConfiguration • GC Stata • Model Type: Transfer • Model Gestion • <th>nfigure Agilent 8890</th> <th>GC</th> <th></th> <th></th> <th></th>	nfigure Agilent 8890	GC			
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Turret Type Transfer Back Injector Model G4513A Firmware Revision FW0.0 Number of Sample Stops 50 Turret Type Transfer Tray Model G4514A Firmware Revision FW1ray Barcode Reader Present Front Inlet Type S5 Inlet Cryo Not present Back Inlet Type MM Inlet Cryo Present Font Detector Signal 1 Type FID Lit Offset 12.1 pA Back Detector V					
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Model G4514A Firmware Revision FWTray Barcode Reader Present Front Inlet Type S5 Inlet Cryo Not present Back Inlet Type MM Inlet Cryo Present Front Detector Signal 1 Type FID Lit Offset 12.1 pA Back Detector V	Turret Type		Transfer		
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Lit Offset 12.1 pA Back Detector ~			510		
Back Detector	Signal 1 Type				
	Lit Offset		12.1 pA		
	Back Detector				*
	<				>

- **9** Review the configuration, specify the **Keypad Lock** as needed, and confirm with **OK**.
- **10** Verify that the correct IP address is shown in the PreConfiguration Utility and either select **Exit** if a GC only is used or proceed with the Headspace configuration.

Headspace configuration

If a Headspace (HS) shall be configured in addition, continue with the following steps. If not, skip this section and proceed with the next section.

11 In the **Configuration Editor**, expand the **GC Systems**, select the desired Headspace sampler and click the **arrow to the right** to move it to the right pane.

- **12** Double-click the HS on the right pane (or select it and press Configure) to open the HS configuration dialog of the selected HS type.
- 13 Enter the IP address of the HS. Instrument Name and Notes are optional fields. HS 8697 and 8697 XL Tray are connected to the GC via LAN and the GC IP address must be used for configuration.

Connection Cast		
Connection Configu		
Agilent Headspa		
Connection Info	mation	
Instrument Name		
GC IP Address or Hostna	me 134 40 134 13	
Notes		
Holdd		
Version Information		
Software Driver Version:	4.0.76	

14 Switch to the Configuration tab and click **Upload Config from Instrument**.

Upload Config from I	nstrument Configuration uploaded successfully	
<u> </u>	nstrument coningulation uploaded adoceasiony	
nstrument and System		,
Instrument Settings 🕐		Í
Vial pressurization gas:	Nitrogen	
Loop Volume:	1 mL	
Transfer line :	Fused Silica Diameter: 0.53 mm	
Barcoding of Vials (?)		
Barcode symbology:	Enable All	
Vial barcodes include che	ecksum	
Gas Saver ⑦	coxsum	
	uses:	
Gas Saver ⑦		
Gas Saver ⑦ Set reduced flows between t	uses:	
Gas Saver ⑦ Set reduced flows between t Vial standby flow:	uses:	

a For a **7697A** HS, optionally adjust the Resource Conservation and Preferences settings. For **8697** (XL Tray), these settings can be reached in the Acquisition interface via Advanced Options > Module Options.

Upl	oad Config fro	m Instrument	Configuration	n uploaded successf	ully		
Instrument an	d System 🚺	Resource Cons	servation				
Gas Saver	?						
Set reduced	flows between	uses:					
Vial stand	by flow:	10 mL/min					
Instrument	Schedule (2					
Select a s	chedule that be	t matches how you	use this Headspace	e instrument:			
Headspa	ce is always on			Ψ.	Synchronize Cl	ocks	

b For the **G1888** HS, an IP address must be entered (hostname is not supported). After clicking Upload from Instrument, chose Yes when prompted to replace the settings.

Adjust the Loop Size, Vial EPC, and Carrier Connection. Do not change Vial Size, Pressure Units, Oven Stabilization Time, and

Handshake Mode. These settings must be changed on the G1888 front panel and uploaded again.

Connection Configuration	
Connection Information	Version Information
Agilent G1888	Software Driver Version: B.01.09.2 [8081]
Instrument Name	
Connection	
IP Address or Host name $\qquad \lor$	
Address	
124.46.294.206	
Notes	

Configure G1888A Headspace	Alert × ×
Connection Configuration	Do you want to replace these settings with values from the G1888?
Upload from Instrument	Yes No
Instrument Settings:	
Vial Size:	10 mL \sim
Vial EPC Connection:	None 🗸
Carrier Connection:	None ~
Loop Size:	1 mL \sim
Pressure Units:	psi ~
Oven Stabilization Time:	0.2 min
System Connections:	
Handshake Mode:	Proceed ~
Help	OK Cancel

15 Review the configuration and then press **OK.** Exit the Configuration Editor by selecting **OK**.

A 1 + 1100 (1000 (1000 + 0			
Aglert 1100/1200/1260/1290 LC Aglert 1100/1200/1260/1290 LC Aglert 1100/120 LC Systems Aglert 1100/120 LC Aglert 3190 CE Aglert 3190 CC Aglert 8090 CC Aglert 900 CC Sol CC	> < Auto Configure	Agilent 8890 GC (8890-123456789) 8597 Headspace (8597)	

16 Verify that the correct IP address is shown in the PreConfiguration Utility (GC only is displayed) and select **Exit**. Proceed with the Empower DHCP Configuration (next section).

CTC PAL3 configuration

If a CTC PAL3 shall be configured, perform the following steps. If not, skip this section and proceed with the next section.

- 1 Ensure that the compatible CTC PAL3 driver was installed after the installation of WICF and that the LAN connection is established.
- **2** Open the PreConfiguration Utility as described in the section above.
- 3 In the **Configuration Editor**, expand the **CTC Analytics GC** tab, select the **CTC PAL3 GC Sampler** and click the **arrow to the right** to move it to the right pane.

Configuration Editor			-		×
Aglient 1100/1200/1260/1290 LC CTC Analytics LC CTC Analytics GC L GTC PAUSics GS Aglient TOCC: Aglient GC Systems Aglient CS Systems Aglient ELSD	Auto Configure	CTC PAL3 GC Sampler (PAL3:n/a)			
		Up Down Co	nfigure	Cle	ar
		ОК		Cance	4

- **4 Double-click** the CTC PAL3 GC Sampler on the right pane (or select it and press **Configure**) to open the CTC configuration dialog.
- 5 Enter the IP address of the CTC PAL3 and click Retrieve Configuration.

Configure CTC PAL3 GC Sampler		×
Connection Information		
IP Address or Hostname:	134.40.31.75	
Instrument Name:	PAL3	
Firmware Version:	n/a	
Serial Number:	n/a	
Retrieve Configuration		
Tray Configuration		
Help	OK Canc	el .

6 Press **Tray Configuration** and verify the attached tools and tray configurations. Click **OK** and wait until the configuration is retrieved again. Click **OK**.

onfigure CTC PAL3 GC Sampler	
Connection Information	
IP Address or Hostname:	134.40.31.75
Instrument Name:	PAL3
Firmware Version:	3.1.21131.1327
Serial Number:	1-10-11-11-11-11-11-11-11-11-11-11-11-11
Retrieve Configuration	Configuration retrieved successfully.
Tray Configuration	

ray	Tool HS 1	Tool LS 1 T	ool LCP 1	
		Tray Holder	r 1 Tray Holder 2	
			VT15	
		1	20-CV Magnetic	
			VT54	
		2		
			2-CV NonMagnetic	
		3	VT15 •	
		3	20-CV Magnetic 💌	

Tool HS 1 Tool LS 1 To		
Tool Type	HS Tool	
Location	RobotArmLeft	
Needle Guide Type	Magn2mL	
Tool Length	156.5 mm	
General Syringe Paran	neters	
Days Left	N/A	
Samples Left	N/A	
Syringe Status	Ok ×	
Syringe Type	8010-1338	
Volume	2500 μL	
Plunger Type	PTFE	
Body Type	HsFixNdI	
Needle Gauge	23	
Needle Length	65 mm	
Point Style	SidePort	
Strokes Count	721	
Max. Strokes Count	0	
First Usage	23-Nov-2021	
Expiry Duration (Days)	0	
User Description 1		
User Description 2		
Empty Syringe on Reset	True	
		All

7 In the Configuration Editor select and configure the Agilent GC in use in addition to the CTC PAL3 as described in the GC configuration section. In case the GC was already configured, take care that the CTC PAL3 is listed first in the right pane by using the Up and Down buttons. Like this the PreConfiguration Utility will take the GC IP address for further usage. Press OK.

Aglert 1100/1200/1260/1280 LC CTC PAL3 CC Sampler (PAL3 CH00577722) Aglert 1220 LC Systems CTC Analytics GC C TC PAL3 GC Sampler Aglert 3280 GC Aglert 3880 GC Aglert 8890 GC Aglert 889

- 8 Verify that the correct IP address is shown in the PreConfiguration Utility (GC only is displayed) and select **Exit**. Proceed with the Empower DHCP Configuration (next section).
- 9 [Optional] Modifying the tray and tool configuration is also possible through the Soft Configuration via the Empower Run Samples window under Advanced Options > Module Options. It may be necessary to close and reopen the Run Samples window that the changes are reflected in the dashboard.

Method Injection Volume: 0.4 µL	Bock MM Inlet 122 °C [122 °C] 21.8 pii [21.8 pii]	Column #2 35 °C [35 °C] 11 mi/min	Bock Defector FPD 150.1 °C [150 °C]				
PAL3							(0
Park Station 1							Status Dash
Valve Drive 1 Cheminert-SPort							Dashboard
Run 0.00 / 26.00 min			Instrument Idle	i	① On	✓ ⊖ Off	

Module Optio	ons	
Select below optic	ons to Initialize/Terminate the instruments connectivi	itz
Initialize		uy.
Initialize	Terminate	
For the Activity Lo]	
For the Activity Lo) be displayed:
For the Activity Lo Select the past nu]	be displayed:

AL3 Agilent 8890			
Tray Tool HS 1 Tool LS 1 Tool LCP 1			
	Tray Holder 1 Tray Holder 2		
	1 VT15	•	
	20-CV Magr	netic 💌	
	VT54	•	
	2 2-CV NonMag		
	2-CV Nonwag	gnetic 💌	
	VT15		
	3		
	20-CV Magr	netic •	
		U U	

Empower DHCP Configuration

After the successful PreConfiguration, the Agilent instrument must be configured in the Empower software by performing the following steps:

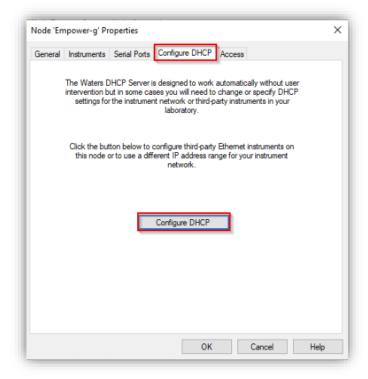
1 Log in to Empower from the LAC/E or workstation connected to the instrument (recommended) or from any client and open the Configuration Manager.



2 Select Nodes from the Empower configuration tree, right-click the desired node (LAC/E or workstation) and select Properties.

🔎 🖫 🔥 🂕 💇 🗡		3. 陶 🛙			Filter B	y Default	¥
B Empower Configuration		Node Name	Node Location	Node Type	Owner	Node Comments	
Projects	6	Devtest-idc		LAC/E32	System		
- 18 Nodes Systems	7	Empo-srv1		Server	System		
A Vibraries	8	Empo-ts2		Empower	System	1	
🖶 😋 eCord	9	Emposhe00061		LAC/E32	System		
D Users D User Groups D? User Types DP Plate Types	10	Emposho00078		LAC/E32	System	New Delete Export to Text	>
	11	Emposho00120		LAC/E32	System		
	12	Empoaho00232		LAC/E32	System		fed.
• System Audit Trail	13	Empocar00106		LAC/E32	System	Reboot	-
Soffline System Audit Trail	14	Empocey00122		LAC/E32	System	Properties	-
	15	Empocey00128		LAC/E32	System	Сору	
	16	Empoci37-1		Empower	System	Hide Colu	ene.
	17	Empojwi00086		LAC/E32	System	Show All C	
	18	Empojw/00087		Empower	System		
	19	Empojwi00088		Empower	System	Print Table	
	20	Empomat00042		LAC/E32	System	Table Prop	erties
	21	Empomat00056		Empower	System	Column P	roperties

3 Switch to the tab **Configure DHCP** and click the **Configure DHCP** button.



4 In the Waters DHCP Server Configuration window, click Add to manually add the static IP address of the Agilent GC (same instrument access point as used during the PreConfiguration).

IP Address	MAC Address	Type	Name	
1010-0-1	24-42-23-12-23-42	AgilentLC	1220	
0.0.0	31-21-12-31-42-21	AgGC	8890v	
<				

5 Enter the IP Address, MAC Address (can be arbitrary), and Serial Number or a Unique Name. Select the Instrument Type AgilentGC from the drop-down list. Confirm with OK. IP and MAC address are checked for duplicates on the same instrument controller. Once created, editing the existing DHCP configurations is not possible. The system must be removed and added again.

Add IP Address	×
IP Address	77 - 77 - 77 - 77 - 77
Instrument Type	AgGC ~
Serial Number/ Unique Name	MyGCHS
ОК	Cancel

 6 Press OK to close the Waters DHCP Server Configuration. Browse to the Instruments tab and Scan Instruments to check the successful configuration.
 OK? column must indicate Yes, check the Details column for the read instrument configuration.

neral	In	istrumer	nts Serial Ports	Configure D	HCP Access	
	_					_
	R	Туре	Address	OK?		_
	1	AgGC	AgGC#MyGCHS	Yes	8890:123456789; 8697:	
						_
						_
						_
						_
	<				3	>
			Scan Instrume	nts	Remove Instrument	
				_		
					OK Cancel	Help

7 Right-Click > Table Properties and unhide the Manufacturer column. Click OK, browse to the manufacturer column and change the name to "Agilent Technologies, Inc.". Close and update the Node Properties by clicking OK.

Table Pro	• 	×
Columns	Hidden Columns Prom Version Comments Details Qotional Pumo Head Manufacturer Purchase Order # Qouriers Equip # Location Hide All Show All	matic
	OK Cancel Apply	Help

General	Ins	truments S	Serial Ports Configu	Ire DHCP Access	
	X	Туре	Address	Manufacturer	
	1	AgilentLC	AgilentLC#1220	Agilent Technologies, Inc.	
	2	AgilentLC	AgilentLC#MyLC	Waters Corp., 34 Maple Street, Milford	
	<			>	

8 You may proceed with the section Chromatographic System Creation.

GC dual-simultaneous injection (Dual tower)

Dual-simultaneous injection or dual tower describe the usage of the GC front and back injectors in parallel to inject samples simultaneously applying the same method to both samples and recording the signals of both flow paths from front and back detectors. This functionality saves time by doubling the sample throughput.

The scripts to enable the dual tower support are applied by default during WICF installation. The scripts to disable/enable dual tower support are located on the installation media (\Supplementary material\DualTower) and can be used on own risk. The scripts must be executed by "Run as administrator" and do modify registry entries to add/remove the instrument type A7890 to/from the Waters DHCP Server Configuration which enables/disables the use of dual tower.

NOTE

The GC Dual Tower functionality is not supported when legacy drivers are installed. To make use of dual tower mode, legacy drivers must be uninstalled. Vice versa, to use legacy drivers, dual tower must be disabled by using the Disable_Dual_Tower script.

To configure and use dual tower injections, perform the following steps:

- 1 Ensure that the GC hardware has a front and back injection tower correctly installed.
- **2** Configure the GC using the PreConfiguration Utility as described in the section above.
- **3** During Empower DHCP Configuration, select **Instrument Type A7890** independent of the GC model in use (for example, using dual tower with a GC 8890 needs A7890 selected as instrument type).

IP Address	MAC Address	Туре	Name	
104.46.127.1	77-77-77-77-77	AgGC	MyGCHS	
Add IP	Address		×	
	IP Address			
			12 - 12 - 12	
	Instrument Type A78	90	\sim	

- **4** Create a Chromatographic System in Empower as described in the next section.
- 5 Open the Run Samples window and select Customize > Defaults.

b	∕∂			t Actions		Cus	tomize Chanr Defaul			1 🔒	٢
Vial	Inj Vol (uL)	# of Injs	Label	SampleName	Leve	~	Vertica Force	· ·	er ntial Vials	Sam Method 3 Report Export Method	or

6 Set the checkmark for **7890 is Dual Tower Instrument** (does also apply to other GC models) and confirm with **OK**.

Run Sample	
	ttings
Instrument	
	method V
Me	thod set
Shutdown	method V
F	Run time 10.00 💌
	Plates Define
GC Syri	inge Info Define
	Printer Select
System Sel	ttings
-	mber of reinjections on fault
SATIN	I2 is Dual Tower Instrument Dual Tower
785	30 is Dual Tower Instrument 🔽 Dual Tower
-	
789	30 is Dual Tower Instrument 🗹 Dual Tower

7 The Dual/Front/Back tower radio buttons are displayed in the Run Samples window. They allow to filter the Sample Set table to display front, back, or both injections.

∼ Con	tinue on Fa	ult	~	○ Front	: ОВ	ack	💿 Dual	Apply Ta
Run Time (Minutes)	Data Start (Minutes)	Next Inj. Delay (Minutes)	Sam	pleWeight	Dilution			

8 Create a new instrument method for dual injections. In the method editor, navigate to the Options tab and select the injector Dual as **Injector Preference**.

File Edit View Help □ ☞ ■	tem/Administrator - Instrument Method Editor
A7890	Instrument Method Pretreatment Method Auxiliary Channels General Instrument Configuration Options
	Throughput Options High Throughput Injector Preference
	Select the injector Dual ~

- **9** Create a Method Set and a Sample Set based on the instrument method and following the rules:
 - **a** The front and back injections lines must specify the same instrument method, number of injections and runtime, to perform dual tower injections.
 - **b** The vial numbers are alphanumeric ("F" indicates the front tower and "B" the back tower whereas the vial position is the numerical number):
 - i F:1-F:150 for front injector tower
 - ii B:1-B:150 for back injector tower
 - c The vial numbers of front and back injectors must be different.

10 The simultaneous injections will be marked and the signals assigned according to the method.

F	ile	Edit	View	Inject	t Actions	Tools Cu	stomize Help										
	b Load			0	۵ 🐌	I 6 4	» Ю́Й н-с-	X	la 🕢 🛛	Run Only	~	Continue	on Fault	~	⊖ Front ⊂) Back	Dua
1	LOUC								Sample Set Met	hod: Untitled							
x	Via	lnj Vol (uL)	# of Injs	Label	SampleName	Level	Sample Matrix	Function	Method Set / Report or Export Method	Label Reference	Processing	Run Time (Minutes)	Data Start (Minutes)	Next Inj. Delay (Minutes)	SampleWeight	Dilution	
1	F:1	0.2	1		1			Inject Samples	8890Duallnject		Normal	10.00	0.00	0.00	1.0000	1.0000	
2	B:2	0.2	1		2			Inject Samples	8890DualInject		Normal	10.00	0.00	0.00	1.0000	1.0000	
3	F:3	0.2	1		3			Inject Samples	8890DualInject		Normal	10.00	0.00	0.00	1.0000	1.0000	
4	B:4	0.2	1		4			Inject Samples	8890DualInject		Normal	10.00	0.00	0.00	1.0000	1.0000	
5	F:5	0.2	1		5			Inject Samples	8890Duallnject		Normal	10.00	0.00	0.00	1.0000	1.0000	
6	B:6	0.2	1		6			Inject Samples	8890Duallnject		Normal	10.00	0.00	0.00	1.0000	1.0000	
7	F:7	0.2	1		6			Inject Samples	8890Duallnject		Normal	10.00	0.00	0.00	1.0000	1.0000	
8	B:8	0.2	1		6			Inject Samples	8890Duallnject		Normal	10.00	0.00	0.00	1.0000	1.0000	
0																	

Chromatographic System Creation

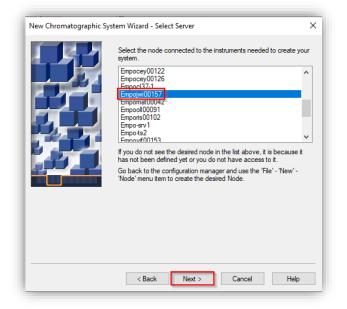
In the Empower Configuration Manager, right-click on Systems and select New > Chromatographic System. Alternatively, click File > New > Chromatographic System.

File Edit View	Records Tools Help)						
🥦 🖫 🖪	i 🎬 💣 🗙	Ж		Ē 🕣		1	Filter By:	Default
Empower C		🏌 Sy	stem Name	System Loca	ation Node	e Name	Node Location	OnLine
- 🔁 Projects	•	1 12	20		Emp	ower-g		No
System:	0	2 88	90v		Emp	ower-g		Yes
🗉 🏈 Librarie			1					
🕀 😋 eCord	Backup Project							
🖉 Users	Restore Project(s))						
- 😰 User Gr - 🕼 User Ty	Restore Pre 3.0 Li	brary						
- @ Plate Ty		rity						
	Import Libraries/							
- 😽 Offline	Export Libraries							
	Export Spectra							
	Bring Online							
	Take Offline							
	Delete		J					
	New		>	Project				
	Clone			Node				
	Manual Archive			Chroma	tographic	System		
	Properties			User			3	
				User Gro	oup			
				User Typ	e			
				Plate Ty	pe			
				Library				

2 In the New Chromatographic System Wizard, select **Create New System** and click **Next**.

New Chromatographic Sys	item Wizard - Type Entry	×
	Choose to define a new chromatographic system, or to connect to a system which already exists. System Type © Create New System © Connect to Existing System	
	< Back Next > Cancel H	elp

3 Select the appropriate LAC/E node and click **Next** (does not apply for workstation).



4 Drag and drop the desired instrument from the Available Instruments list to New System Instruments list and click **Next**.

Drag desired instruments from the Av New System Instruments list. Note: You may open existing System New System Instruments list.		
Available Instruments	New System Instruments	
 < Back Next >	Cancel Help	

New Chromatographic	System Wizard - System Selection Drag desired instruments from the A New System Instruments list. Available Instruments Unused Components Unused Components	vailable Instruments list to the	×
	< Back Next >	Cancel Help	

5 Select **Share System with Other Network Users** and set the appropriate access control privileges for the system.

	Share System with Other Network U Allowed Access Owner Only Owner and Group(s) Owner, Group and World Password Protect System Access Password Required Password Confirm Password	Allow Access to Group(s)	
--	--	--------------------------	--

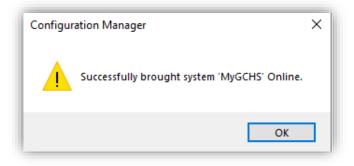
6 Enter a System Name and System Comment. Optionally, choose a System Location. Select the Online checkbox and click Finish.

New Chromatographic System Wizard	d - Name Selection X
Comment	System Name: MyLC

New Chromatographic System	Vizard - Name Selection ×
System Location	Node Name: Empojwi00157
System Comment	Agilent 8890, Lab 2, Bench 4
[< Back Finish Cancel Help

7 A pop-up window shows that the system is successfully brought online (one system license and one instrument connection license are consumed). After

successful configuration procedure, the GC/HS system appears in the system table and OnLine indicates Yes.



If not enough licenses are available during configuration, the system could stay offline until further licenses are activated. Alternatively, unused AgilentLC or AgilentGC systems can be taken offline to release a license for the desired system.

Configuration report

NOTE

There are several ways to view or report the instrument configuration details:

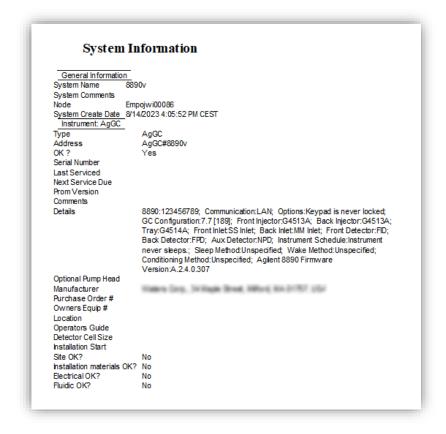
• After successful configuration, the configuration details are displayed in the Details column of the Instruments tab in the Node Properties and can either be copied or printed from there.

	npojwi00157					×
General	Instruments	Serial Ports Cor	figure DF	ICP Access		
	Type	Address	Detail	s		1
	1 A7890 A	7890#8890Dual ed	tor:FID; E	Back Detector: FP	D; Aux Detector	
	Cut					
	Сору	/				
	Paste					
	Hide	Column				
		All Columns				
	Print	Table				
	Table	Properties			>	
	Colu	mn Properties				
		Scan Instruments		Remove Instrum	nent	
				ок с	ancel H	elp

• The configuration details are listed in the System Audit Trail. Please consider KPR 783402.

le Edit View Records Tools Hel	
24 🗞 🎼 💉 🗙	b 🖹 🕼 🕢 🔣 🔣 Filter By: Default 🗸 Edit View Update Max Rowe 1000 🛛 🖌 🕨 刘
A Empower Configuration	Action
🔁 Projects	Successfully Logged Off
- B Nodes	Successfully Logged On
- Bystems	Change System State Successful
🖶 🛷 Libraries	Created System
🖶 😋 eCord 🖸 Users	Deleted System
User Groups	Modified Node
Ser Types	Change System State Successful
Plate Types	Created System
System Audit Trail	Modified Node Node: Empojwi00157 Added Instrument: Type: A7890 Address: A7890#8890Dual OK ?: Yes Serial Number: Last Serviced: Next Service Due: Prom Version: Commer
😽 Offline System Audit Trail	Modified Node
	Modified Node
	Deleted System
	Wolfield Node
	mounee hope

• The configuration details can be reported with the System Information snippet of the Report Publisher when a Sample Set was recorded.



Modification or deletion of an existing configuration

Modifying an existing configuration

When hardware updates/modifications are to be performed such as

- Adding a module to an already configured LC stack
- Adding a component (for example, injector, detector, or inlet) to a GC
- changing the seat capillary, column assignment, loop volume of an LC
- changing the Sampler Thermostat/Cooler temperature mode
- changing the vial size of the G1888 HS

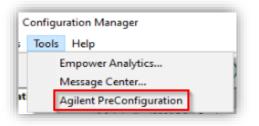
WICF Installation & Configuration Guide - Revision 4.0

it is necessary to re-configure the existing system in the PreConfiguration Utility. The following steps must be performed:

- 1 Perform the hardware modification or configuration change via the Lab Advisor/Instant Pilot/Instrument Dashboard for the LC and via the Front Panel for the GC.
- 2 Restart the instrument controller.
- **3** Log in to Empower from the LAC/E or workstation connected to the instrument (recommended) or from any client and open the Configuration Manager. Do not open Run Samples before updating the configuration.



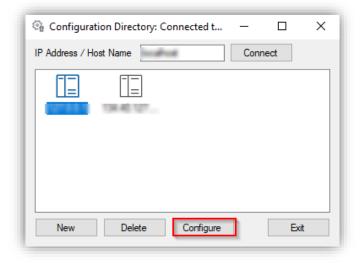
4 Select Tools > Agilent PreConfiguration.



5 Enter the IP address or hostname of the LAC/E or workstation connected to the instrument ("localhost" if you are logged in to the instrument controller directly) and press **Connect**.

🚱 Configuration Direc	tory: Disc	connected	-		×
IP Address / Host Name	LACE1		Conn	ect	
New Del	ata	Configure		Ex	*
Der	ele			EX.	ıL

6 When successfully connected, already configured instruments are shown. Select the instrument to be updated and click **Configure**.



7 Depending on the instrument type (LC or GC), do a new auto-configuration (press **Clear** before to remove the existing configuration) or select **Get GC**

WICF Installation & Configuration Guide – Revision 4.0

 $Configuration\ (GC)\ or\ Upload\ Config\ from\ Instrument\ (HS)\ as\ described\ in\ the\ sections\ before.$

8 Open the **Run Samples** window and check for the configuration changes. Consider resolving instrument methods created with the old configuration or create new ones.

Deleting a configuration

To do a clean deletion of an existing system in Empower and in the PreConfiguration Utility, perform the following steps:

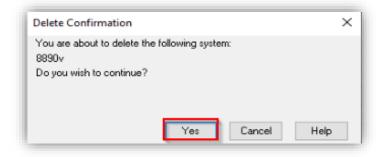
- 1 Restart the instrument controller where the system is connected to.
- 2 [Optional] Open the Configuration Manager, browse to systems, right-click on the system to be deleted and select Export to Text to document the system before deletion.

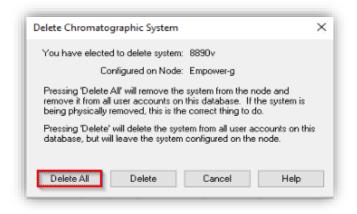
🦻 🖫 🔥 🂕 💆	K	X 🗈	E 🕣 🛛		, 🖡	Filter By:	Default	~	Edit V	/iew U	pdate
Empower Configuration Projects	- F	System Name	System Location	Nod	e Name	Node Location	OnLine	System Comme	nts		
		1220		Emp	ower-g		No				
Systems	2	2 8890v		Emo	ower-g		No				
🗉 🔷 Libraries	1	Bring Onl			ower-g		No	Agilent 1290 II, Lab 2,	Bench 3		
🕘 😋 eCord		Take Offli	ne								
👷 Users		New									
User Groups		Delete									
©? User Types		Export to	Text	N							
System Audit Trail	~	System Pr	roperties	6							
For Help, press F1		Node Pro	perties							3 Total	
Empower Systems.txt - Notepad		Сору									
File Edit Format View Help											
Empower Profile for System:	88	Hide Colu	umn								
General Properties:		Show All	Columns								
System Location:		Print Tabl	e								
Node Name: Empower-g			-								
Node Location:		Table Pro									
On-Line: Yes		Column F	properties								
Comment:											
Instruments Configured in S AgGd#8890v Access Properties: Share System with Other Ne Allowed Access: OwmerGroup Password Required: No Owner: System Allowed Access to Group(s)	twor Worl	rk Users: N	lo								

3 Right-click on the system and select Delete.

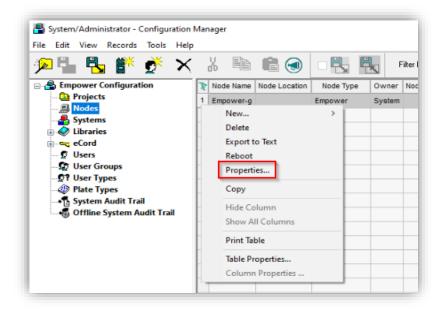
🔎 🖫 🔥 🂕 💉 🗙		X 🗈	E 🕢 🗆	R, F	Filter By:	Default	
- 🔒 Empower Configuration	R	System Name	System Location	Node Name	Node Location	OnLine	System 0
Projects Nodes	1	1220		Empower-g		No	
Systems	2	8890v		Empower-g		No	
🗉 🛷 Libraries		Bring Onli	ine	ower-g		No	Agilent 1290 II,
eCord		Take Offlin	ne				
Users		New					
User Groups		Delete					
Plate Types		Export to	Text				
System Audit Trail		System Pr	operties				
📲 Offline System Audit Trail		Node Prop	perties				
		Сору					
	ŀ	Hide Colu	imn				
	ł.	Show All (Columns				
		Print Table	e				
		Table Prop	perties				
			roperties				

4 Confirm the deletion with **Yes** and select **Delete All** to remove the system from the node and remove it from all user accounts on this database.





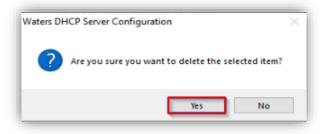
5 Open the **Properties** of the node/instrument controller where the system was connected.



6 Browse to the **Configure DHCP tab**, select **Configure DHCP**, highlight the system to be deleted and select **Remove**.

Node 'Empower-g' Properties		×			
General Instruments Serial Ports Configure DHCP Ad	🔒 Waters DHCP	Server Configuration			>
	File Server H	elp			
The Waters DHCP Server is designed to work aut intervention but in some cases you will need to ch		the set	-		
settings for the instrument network or third-party	/ Hourcas	MAC Address	Туре	Name	
laboratory.	107444	24-42-23-12-23-42	AgilentLC	1220	
		31-21-12-31-42-21	AgGC	8890v	
network. Configure DHCP					,
		Add E	dit Remo	ve (ж
QK	Cancel	Help			

7 Confirm the dialog with **Yes** and Close the Waters DHCP Server Configuration with **OK**.



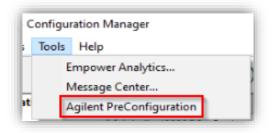
8 In the Node Properties, browse to the **Instruments tab**, highlight the Instrument to be deleted and select **Remove Instrument**.

		Serial Ports Conf	igure DHC	F Access	
R	Туре	Address	OK ?	Serial Number	Last Service
1	AgilentLC	AgilentLC#1220	Yes		
2	AgGC	AgGC#8890v	Yes		
3	AgilentLC	AgilentLC#MyLC	No		
	_				
_					
_					
<					>
	9	can Instruments	(Remove Instrume	nt

9 Confirm with Yes. Close the Properties with OK.

eneral	In	struments	Serial Ports Confi	figure DHCF	Access	
	R	Туре	Address	OK ?	Serial Number	Last Service
	1	AgilentLC	AgilentLC#1220	Yes		
	2	AgGC	AgGC#8890v	Yes		
	3	AgilentLC	AgilentLC#MyLC	No		
		?	You have selecte Are you sure?	d instrume	ent(s) to be rem	oved
	<	?	You have selecte Are you sure?	ed instrume		oved >
	<	? 		Ye		>

10 In the Configuration Manager, select **Tools > Agilent PreConfiguration**.



11 Enter the IP address or hostname of the LAC/E or workstation connected to the instrument ("localhost" if you are logged in to the instrument controller directly) and press **Connect**.

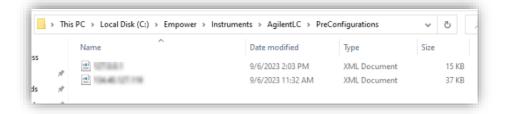
Configuration D	irectory: Disc	connected	_		×
IP Address / Host Nar	me LACE1		Conne	ect	
New	Delete	Configure		Exit	

12 When successfully connected, all configured instruments are shown for this instrument controller. Select the instrument to be deleted and click **Delete**.

🚱 Configuration Directory: Connected t	_		×
IP Address / Host Name	Con	nect	
New Delete Configure		Exi	t

The following Optional points can be done in case of troubleshooting when deleting an instrument is not working properly.

13 [Optional] On the instrument controller, open the Windows File Explorer and navigate to C:\Empower\Instruments\AgilentLC\PreConfigurations. Check if the [IP].xml of the deleted instrument is gone. If still present, the xml can be deleted manually.



14 [Optional] On the instrument controller, open the Windows File Explorer and navigate to C:\Empower\InstrumentServer. Delete the INSTSRV.DAT file and restart the instrument controller. The file will be recreated.

	^			
	Name	Date modified	Туре	Size
*	8890Dual	9/6/2023 11:35 AM	File folder	
	buslace.hex	2/5/2010 1:27 AM	HEX File	1,002 KE
A	dir.cks	4/12/2022 1:48 AM	CKS File	1 KE
R	INSTSRV.DAT	9/6/2023 3:37 PM	DAT File	177 KE
*	Recover	9/6/2023 1:53 PM	Text Document	12 KE
*	📧 remove	5/10/2001 10:44 AM	Application	34 KE

Licensing Agilent Instruments in Waters Empower

To control an Agilent LC, CE, GC, GC-HS instrument with Waters' Empower CDS, the following Waters Empower licenses are required:

- Empower Licenses (Core, User License, System Control License per instrument), sold by Waters.
- A paper-based Instrument Control License (ICL), sold by Agilent since July 1, 2022

To purchase the ICL and/or the driver integration (WICF) Agilent provides the following products:

Product Description	Part Number	Content
Agilent Drivers for Waters Empower – GC	M8407AA	One Waters GC ICL to add one GC system to Waters Empower CDS Authorization code for SubscribeNet with access to WICF
Agilent Drivers for Waters Empower – LC/CE	M8507AA (available in packs of 1, 5, or 20)	One Waters LC ICL to add one LC/CE system to Waters Empower CDS Authorization code for SubscribeNet with access to WICF
Agilent Drivers Upgrade for Waters CDS (LC/CE and GC)	M8509AA	Authorization code for SubscribeNet with access to WICF

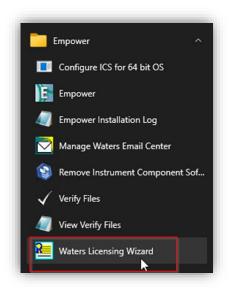
Table 6 Agilent Drivers for Empower product overview

NOTE

In case of an upgrade, for example, from ICF SL to WICF, existing Agilent ICL licenses can be re-used. ICL's are vendor specific.

Activating the ICL for Waters Empower

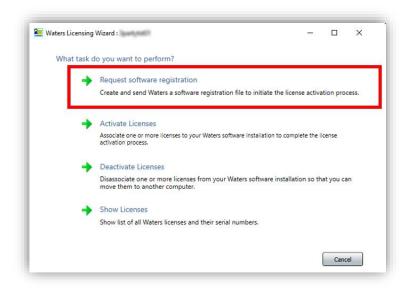
- 1 Unbox the received package and search for the ICL with the license serial number inside in the Waters branded envelope.
- 2 On any system (Client, LAC/E, Workstation, Server) with Empower installed, and connected to the Enterprise system, open the **Waters Licensing Wizard**.



3 Log On with a user having the appropriate privileges.

📒 Waters Lie	censing Wizard	×
Log on to	the computer on which Waters software is installed.	
Username:	labmanager	
Password:	•••••	
Database:	wait's	•
	Log On Cancel	

4 Click on Request software registration.



5 Create a registration file and select a File location and click Next.

🎦 Waters Licensing Wizard :	p empower b -	
Wizard Tasks	Request software registration: Create registration file	
 Register Licenses 	Where do you want to store the file that will contain your license re- information?	gistration
Activate Licenses	Software Registration file: SoftwareRegistration.lic	
Deactivate Licenses	File location: C:\Empower License\	
Show Licenses		
	<< Back	Next >>
	<< Back	Next >>



- 6 Visit https://www.waters.com/activate/licenseintro.htm and login to the Waters account.
- 7 Select Empower 3, the appropriate topology (Workstation, Workgroup or Enterprise) and Activate License(s) and click **Next**.

Wate SCIENCE OF WHAT	
Welcome to the	Waters License Activation Center
You will need you	r software license serial numbers and your Software Registration file to activate your licenses or your License Deactivation file I
deactivate your li	censes. Need Assistance? Contact your local office.
Download Empow	ver 3, Empower QS and Empower QSN Instrument Catalog Here
Please select	
O Breeze 2	
Empower 2 Empower 3	
O UNIFI	
C Empower Too	ols
O NuGenesis	
🔿 Paradigm Sci	entific Search
O Symphony	
O LiveID	
	(Restricted Geographies)
	N (Restricted Geographies)
O waters_conn	ect
Please select	
. lease select	
O Workstation	
O Workgroup	
Enterprise	
Please select	
Activate Licer	
O Deactivate Li	cense(s)

8 Enter the **serial number** of the applicable license(s). Order Number or Base Software License are optional. Click **Next**.

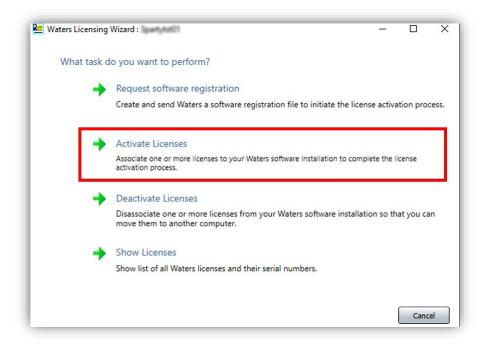
		ftware serial numbers. Or, enter individually each software se ginal software media). Your activation must include a base lice	
Order Number:	Next		
Base Software License: Named User License(s):		provided by Waters	
Instrument Control Licenses			
Waters System Control: LAC/E Acquisition Server:			
Agilent GC Control: Agilent LC Control:		provided by Agilent	
Shimadzu LC Control:			
Shimadzu GC Control:			
Hitachi LC Control:			

9 Load your **Software Registration File** (.lic) created in step 5 into the web interface and click **Activate**.

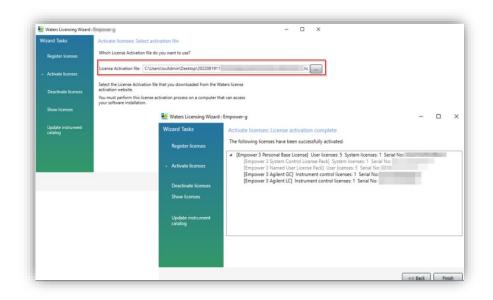
Load and Activate Your Software Registration File	
To finish activating your licenses, use the Browse button below to upload the Software Registration file that you generated from the Licensing Wizard. Need Assistance? <u>Contact your local office</u> .	Vaters
Software Registration File Choose File No file chosen	
Back Activate	

10 A License Activation file is generated based on the .lic file and the serial number. Save it to a location accessible by the Empower system.

11 On your system connected to Empower, go back to the Licensing Wizard and select **Activate Licenses**.



12 Browse to the just created License Activation file and click Next.



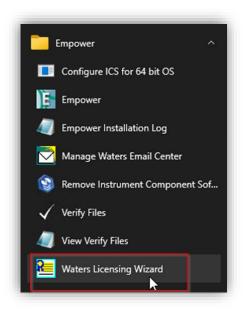
13 Control the activated licenses and click **Finish**.

NOTE

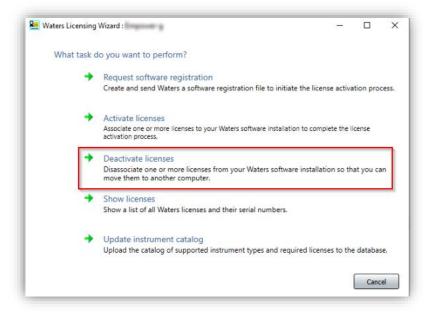
If this is a new Empower installation with version 3.7 or higher, the instrument catalogue must be imported/updated. Otherwise, the instrument cannot be brought online.

De-Activating the ICL for Waters Empower

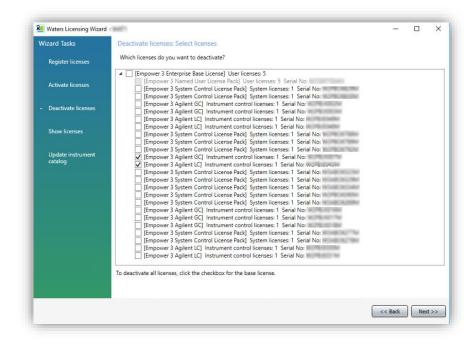
- 1 Unbox the received package and search for the ICL with the license serial number inside the Waters branded envelope.
- 2 On any system (Client, LAC/E, Workstation, Server) with Empower installed, and connected to the Enterprise system, open the **Waters Licensing Wizard**.



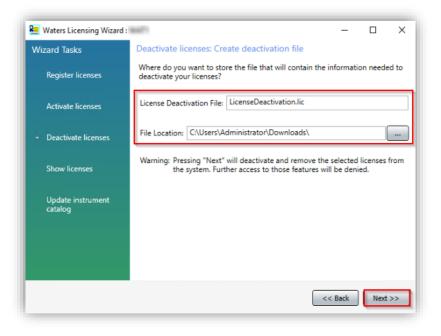
- **3** Log On with a user having the appropriate privileges.
- 4 Select Deactivate licenses.

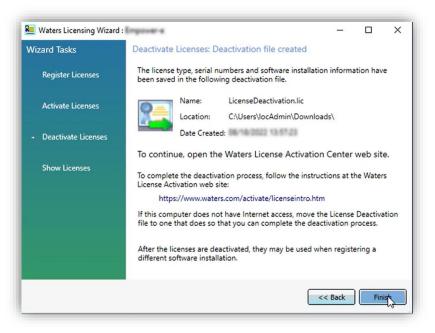


5 Select the licenses to be deactivated and press Next.

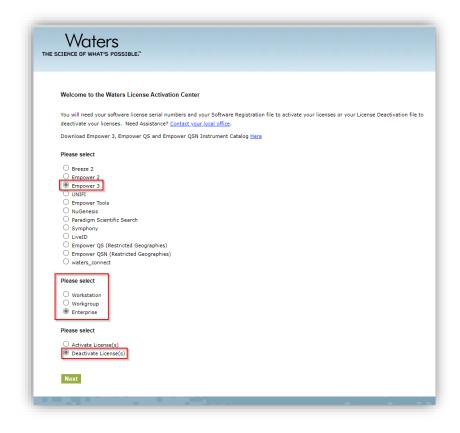


6 Select a location to save the License Deactivation file and press Next.





- 7 Visit https://www.waters.com/activate/licenseintro.htm and login to your Waters account.
- 8 Select Empower 3, the appropriate topology (Workstation, Workgroup or Enterprise) and Deactivate License(s) and click **Next**.



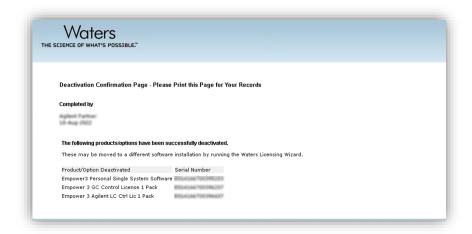
9 Enter your contact information and click Next.

Please Enter Your Contact Informati Waters does not share your information,	on view our <u>Privacy</u> policy. Required fields are marked	d with an asterisks (*).
Name:	Agilent Partner	If you're not
Email Address:	waters@agilert.com	
*Company:	inglant	
* Telephone Number:	2024/22/000	
Extension:		
	Back Next	,

10 Load your License Deactivation file (.lic) created in step 6 into the web interface and click Deactivate.

icense Deactivation file you generated from the Waters Licensing Wizard. You will need your License Deactivation file to deactivate y eed Assistance? <u>Contact your local office</u> .
License Deactivation File: Choose File No file chosen

11 The License is now deactivated and can be re-used. Print the Deactivation Confirmation page for the records.



In This Book

The Installation Guide describes the following:

- Introduction
- Prerequisites
- Installation
- Installation Verification
- Instrument Configuration
- Licensing

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