



# ICF Support Layer 3.5.1 Release Notes

Release Notes

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## 1 General information

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We seriously consider every customer comment we receive. You can reach us at [tech\\_comm@waters.com](mailto:tech_comm@waters.com).

### 1.4 Contacting Waters

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Contacting medium	Information
Internet	The Waters website includes contact information for Waters locations worldwide.  Visit <a href="http://www.waters.com">www.waters.com</a> .

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Telephone and fax	From the USA or Canada, phone 800-252-4752, or fax 508-872-1990.  For other locations worldwide, phone and fax numbers appear on the Waters website at <a href="http://waters.com">waters.com</a> > Support > Local Offices.
Conventional mail	Waters Corporation  Global Support Services  34 Maple Street  Milford, MA 01757  USA

## 1.5 Updated information

Refer to the Waters website ([www.waters.com](http://www.waters.com)) and click **Support > Support Documents and Downloads** for updates to this document.

## 2 ICF Support Layer version 3.5.1

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These release notes explain how to install Waters ICF Support Layer version 3.5.1 for the Agilent Instrument Control Framework (ICF) version 3.1 for control of all supported Agilent Liquid Chromatography (LC) and Gas Chromatography (GC) modules.

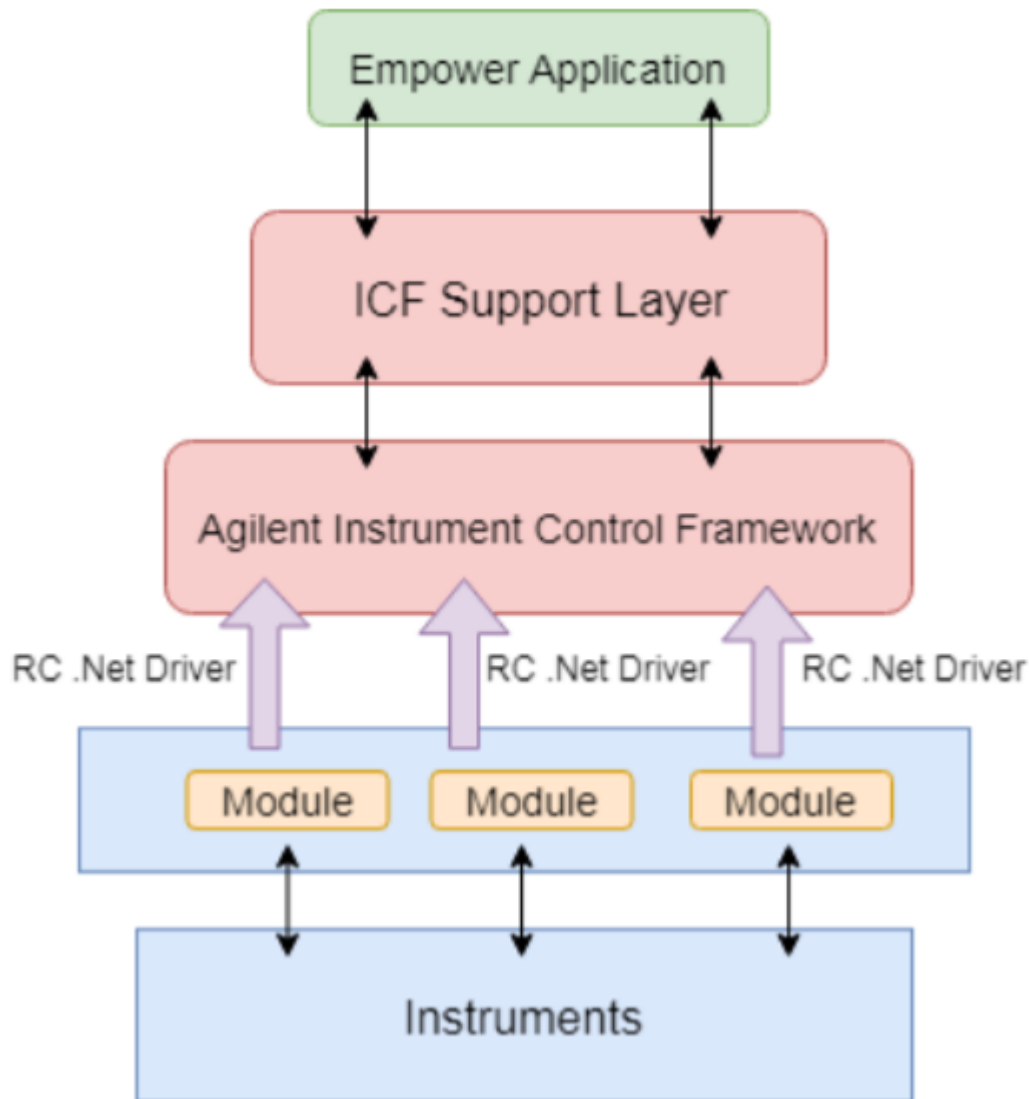
### 2.1 ICF Support Layer architecture

The ICF Support Layer integrates instrument control into an application, such as Empower.

The following graphic shows how Empower interacts with the Waters ICF Support Layer and how the ICF Support Layer in turn interacts with the Agilent Instrument Control Framework (Agilent ICF). The ICF Support Layer acts as an interface between Empower and the Agilent ICF to integrate instrument control into Empower on an instrument level.

"Instrument level" means that the ICF aggregates multiple RC.NET drivers to a combined instrument view.

Due to the aggregation of multiple drivers, the application adapter layer is more lightweight because aspects of the functionality and synchronization tasks are already covered within the ICF layer. The application and the instrument layer remain the same, but the RC.NET drivers, independent of the host CDS or workstation, can be modeled with finer granularity as required to control the modules.



**Note:** The items in the diagram denote the components of the architectural elements that allow instruments to interface with Empower. Colors denote the separate layers of control. Items may be housed on separate platforms, such as computers or instruments.

To understand the full impact of the interaction between the ICF Support Layer software and Agilent ICF:

- Review the *Agilent ICF* document on the [www.agilent.com](http://www.agilent.com) website.
- Read the *Agilent ICF Release Notes* to understand its functionality, including known issues and supported configurations.

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## 3 Compliance recommendations

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Any time you install, change, or uninstall software or system modules in a regulated environment, Waters recommends that you follow your organization's approved standard operating procedures. A risk-based review may assist you in a regulated environment to evaluate changes detailed in the release notes. Using company SOPs, determine if any documentation updates and requalification of the system modules, the chromatographic system, or the chromatographic data system (CDS) are required.

## 4 Requalification with Waters Total Assurance Plans

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The Waters Total Assurance Plan (TAP) with System Qualification Option covers upgrades and requalification of the instrument driver, software, firmware, or hardware in these cases:

- During yearly requalification, as provided in the plan.
- If installing this release is required for operation of a new module or system, where qualification of the new module or system is covered by the plan.

Requalification of the CDS software and computers after a driver upgrade may or may not be included in your TAP.

Review your TAP to determine which services are covered and which are not covered. For situations not covered by the plan, Waters can perform the qualification, but additional charges will apply.

## 5 What's new in this release

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This product is a targeted release intended to address a few high impact defects while limiting code changes. This release includes an updated version of the Agilent ICF v3.1. The LC and GC drivers included in this release are versions LC Drivers 3.3 SR1 (3.3.42.0), and GC/HS Drivers 3.5 (3.5.110) respectively which are the same drivers delivered with ICF Support Layer v3.5. For defects addressed in this release, see [Issues resolved in ICF Support Layer 3.5.1](#)

## 6 System and software requirements

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Waters supports this ICF Support Layer 3.5.1 update with the following version of Empower software: Empower 3 software, English, Japanese, and Chinese (Simplified), Empower 3 Feature Release 2 (minimum) till Empower 3.6.1.

**Note:** ICF Support Layer 3.5.1 is the last version to support Empower 3 FR2 and FR3 and Windows 7 on all supported Empower versions.

ICF Support Layer 3.5.1 is also tested along with DP2020 R1 ACQUITY driver pack.

**Requirement:** Client and LAC/E must be running on Windows 7 or Windows 10.

The computer configurations, operating systems, and hotfixes supported by this release are identical to those for Empower 3 Feature Release 2 (minimum) till Empower 3.6.1.

## 7 GC control considerations

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Review the following GC control considerations before updating to ICF Support Layer 3.5.1:

- You must use Ethernet to connect to the GC instruments. RS232 serial communication is not supported.

- 
- The vial size is part of the configuration of Agilent G1888A HS and is a method parameter for Agilent 7697A HS. When you change the vial size on Agilent G1888A HS, the GC/HS system must be reconfigured using the Pre-Configuration utility.
  - Before using the Pre-Configuration Utility, it is highly recommended that you check and, if needed, adjust the configuration of the GC and HS hardware on the instrument (Gas types, Wash vials, Cool Down mode, Syringe size, Loop volume, Vial size (G1888A), and so on) using the keypad or the touchscreen interface.
  - Use a fixed IP address for the GC and HS modules. DHCP is not recommended.
  - Do not create a GC instrument method offline. To view GC parameters in the instrument method editor, you must scan and configure the instrument at least one time.
  - Provide the same values for oven total run time in the method editor and sample set run time in the Sample Set (Run Samples window).
  - Provide the same values for instrument method injection volume (Method Editor) and sample set injection volume (Run Samples window). If different values are provided, Empower takes precedence.
  - All the parameters of "GC Readiness" should be disabled in the shutdown method.
  - To run a single injection on CTC PAL (Liquid and Headspace), create a sample set that contains only one injection.
  - Under ALS Errors, the "Skip" option is not supported. For more information, see CRI-1303 in the ICF Support Layer 3.5 Release Notes ([715007323](#)).
  - Duplicate Signal source is not supported in Instrument Method.
  - Post runtime parameter is not supported for all GC and LC models. For more information, see INFICFSL-2014.

## 7.1 High and low throughput information

When running samples, the following headspace rules apply when you select the High Throughput option:

- The vials must be arranged sequentially (for example, 1, 2, 3).
- All instrument methods must be the same within a sample set.
- The number of injections for each line should be 1.
- The Empower Alter Running Sample Set functionality is not supported when running GC high throughput.

When you select Low Throughput in the instrument method, you can perform the following operations:

- You can arrange the vials in a non-sequential manner.
- Instrument methods can be different within a sample set.
- The number of injections for each line can be more than 1.
- The Empower Alter Running Sample Set functionality is supported when running GC low throughput.

When running samples, the following headspace rules apply:

- Method sets cannot contain instrument methods with both the Low and High Throughput options selected in the same sample set.
- Do not pause a sample set.
- Single injections are not supported in Headspace; to run a single injection, create a sample set that contains only one injection.
- To perform non-inject functions such as Condition Column or Equilibrate, create a separate sample set that contains the necessary non-inject functions and does not acquire data. For more information, see CRI-1821 in the ICF Support Layer 3.5 Release Notes ([715007323](#)).



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## 7.2 Agilent 6890, 7890, and 8890/8860 GC injections

For Agilent 6890, 7890, and 8890/8860 GCs, injections from the front and back injector towers are configured in this manner:

- Vial numbers 1-150 are injected using the front injector tower.
- Vial numbers 501-650 are injected using the back injector tower.
- Vial numbers 701-703 are injected using the single vial turret of the back injector tower.

**Note:** No front and back terminology for vial numbers is used to differentiate between the injectors, except in Dual Tower mode, as in legacy Agilent 6890 and 7890 GCs. For example, F:1, B:2, and so on are not supported by the ICF-GC drivers.

### 7.2.1 Dual Tower mode

In Dual Tower mode, the vial numbers are specified as alphanumeric values. The vial numbers are used in the following manner:

- Vial numbers F:1-F:150 specify the front injector tower.
- Vial numbers B:1-B:150 specify the back injector tower.

The vial number range varies with turret capacity.

For example:

For a 3-vial turret, the numbers should be F:1 to F:3 for the Front injector and B:1 to B:3 for the Back injector. If the tray is not present, then it works with the turret capacity. If the GC is configured with a headspace sampler and two Autosampler towers, dual tower functionality is not supported with the injector preference.

**Note:** The 16-vial turret does not support trays.

For more information on Dual Tower mode, see [Dual Tower support](#).

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## 8 Supported modules and firmware

The tables in this section list the software and firmware drivers included in this release.

### 8.1 Driver compatibility

ICF Support Layer 3.5.1 provides support for the Agilent ICF modules in ICF version 3.1 (3.1.17) with SVT-Software verification tool B.01.01 (5.1.010.0), LC Drivers 3.3 SR1 (3.3.42.0), and GC/HS Drivers 3.5 (3.5.110).

Drivers are separate from and compatible with previous instrument control using legacy ICS instrument drivers such as A1100 LC (v1.06), 7890 GC (v2.6), 6850 GC (v1.40), G1888A, and HS7697 headspace samplers (HCO v3.0), and with legacy Empower control for the 6890 GC. Installed legacy instrument control continues to operate with the systems for which it is specified. To allow access to legacy instrument methods, keep the legacy drivers installed on your Empower system.

**Note:** This statement applies only if you are not using the Dual Tower feature. To avoid issues, you must uninstall the 7890 legacy drivers when using the Dual Tower feature, because the dual tower functionality within the legacy drivers is not compatible with the dual tower functionality in the ICF drivers.

## 8.2 Recommended Agilent LC/GC firmware

- Agilent releases GC/LC firmware updates independently of software releases.
- Agilent recommends using the latest module firmware revision to provide the highest level of system capability.
- For the supported firmware version, see the Agilent release notes.

## 8.3 ICF Support Layer 3.5.1 interoperability – LC and GC

### 8.3.1 LC interoperability

When using Agilent liquid chromatography (LC) modules, older versions starting with Agilent ICF Support Layer v3.1 on LAC/E devices are interoperable (compatible) with clients and Citrix servers installed with newer Agilent ICF Support Layer versions. To leverage interoperability, which provides the possibility of "rolling upgrades" on your LAC/E devices, install Agilent ICF Support Layer v3.5.1 on the clients and Citrix Servers and leave the previously installed Agilent ICF Support Layer on your LAC/E devices until you are ready to upgrade the Agilent ICF Support Layer on the LAC/E devices.

When operating in this manner with mixed Agilent ICF Support Layer versions, LC systems connected to LAC/E devices with the older Agilent ICF Support Layer installed cannot take advantage of the defect fixes provided in the newer Agilent ICF Support Layer.

For a known issue with LC interoperability, see CRI-3139 in the ICF Support Layer 3.5 Release Notes ([715007323](#)).

### 8.3.2 GC interoperability

When using Agilent Gas Chromatography (GC) with or without Headspace (HS) modules, interoperability is not supported and the same version of ICF Support Layer (v3.5.1) must be installed on Citrix servers, Clients, and LAC/Es.

## 8.4 Importing the plate type definitions

You can import or select plate type definitions using the Configuration Manager.

To import plate type definitions:

1. Select **Configuration Manager > Plate Types**.
2. Right-click inside a row in the Plate Type Name field, and then select **Import** from Text. Alternative: Right-click in the field, select New to specify a new plate type name, and then click **OK**.
3. Type the path and name of the plate type file, or browse to the location of the file.
4. Type a name for the new plate type definition, and then click **OK**.

## 9 Upgrading the ICF Support Layer software

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**Note:** This release does not support upgrade on Windows 7. Refer [INFICFSL-2000](#).

To upgrade the ICF Support Layer software to version 3.5.1, follow these steps:

1. Log in to the computer as a user with local Administrator privileges.
2. Ensure that Empower 3 software and the ICF Support Layer v3.5 are installed on the computer.  
**Note:** Users on any ICF Support Layer version should first upgrade to ICF Support Layer v3.5 in order to upgrade to ICF Support Layer v3.5.1.
3. Restart the computer.
4. Browse to the location of the upgrade build, and then double-click the Setup.exe file.

5. Follow all prompts to complete the upgrade.
6. To complete the installation, restart the computer.
7. Power-on the Agilent instruments.

## 10 Installing the ICF Support Layer 3.5.1 software

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**Note:** For new installations, only ICF Support Layer 3.5.1 needs to be installed. If user currently has another ICF Support Layer version installed, then they can only install ICF Support Layer 3.5.1 as an upgrade from ICF Support Layer 3.5.

To use the ICF Support Layer software on the Empower Enterprise (client/server) system, you must install it on every LAC/E module, client, and Citrix application server that interacts with the Agilent instrument, its methods, and results.

Do not install the ICF Support Layer 3.5.1 software on the database server unless the server hosts Empower client software and interacts with the Agilent instrument, its methods, and data.

**Important:** You must have .NET framework version 4.8 (minimum) installed to successfully install the ICF Support Layer 3.5.1 software.

### Prerequisites:

- Remove the following software using the Microsoft Windows Programs and Features functionality:
  - Agilent ICF Support Layer Version 2.2.1 in support of the CTC Analytics PAL 3 robotic sampler
  - Agilent ICF Support Layer Version 1.0 drivers, including:
    - Agilent LC (version 1.0.0.0)
    - Agilent ICF (version 1.02.24)
    - Agilent ICF - LC Drivers (version 1.02.017)

### 10.1 Installing the ICF Support Layer using a downloaded executable file

**Note:** These install instructions do not apply to an Empower Citrix application server.

To install the ICF Support Layer 3.5.1 software using an executable file that you downloaded, follow these steps:

1. Power-off the Agilent instruments and restart the computer.
2. Log in to the computer using an account with local administrator privileges.
3. Download the 667006741RevA.iso file (Disc Image File).
4. Mount the ISO on a drive.
5. Double-click the Setup.exe file.
6. Follow all prompts to complete the installation.
7. Restart the computer.
8. Power-on the Agilent instruments.

### 10.2 Installing the ICF Support Layer on the Empower Citrix server

To install the software on the Empower Citrix server, follow these steps:

1. Download the 667006741RevA.iso file (Disc Image File).
2. Mount the ISO on a drive.
3. Put the server in Install mode by opening a command prompt and typing Change user/install.  
This message appears: User session is ready to install applications.

4. Select the setup.exe file, and then click **Open**. If you do not see Setup.exe, select **All Files** from the Files of type list.
5. Follow all prompts to complete the installation.
6. Return the server to Execute mode by opening a command prompt and typing Change user/execute.

## 10.3 Performing silent installations

You can install or remove the ICF Support Layer software through a silent installation that requires no user interaction. During a silent installation, upgrade, and removal, you deploy the ICF Support Layer on a single Empower client, LAC/E module, or Citrix server. You store the information required for the operation in a response file and an instrument-driver list file. You then call both files from a command prompt or from the commands in a batch file.

### 10.3.1 Create or update response file

The response file must be in XML format, using the correct XML syntax. You can update the response file, but the file extension must remain .RSP. The file you need to modify is located in the \\ICF Support v351\Push Install\ICS\_Response\_EN.RSP folder. If you create a new response file, save it and name it ICS\_Response\_EN.RSP, and then replace the original file in the same location.

ICS\_Response\_EN.RSP

```
<?xml version="1.0" encoding="utf-8" ?>
<Configuration>
<!-- InstallAll/UpgradeAll/RemoveAll-->
<ACTION>InstallAll</ACTION>
<!-- May be blank. Default is the Empower/System Language-->
<!-- English Japanese Chinese-->
<LANGUAGE></LANGUAGE>
<!-- ICS List - Path to the text file-->
<ICS_LIST>\\share\ICF Support v35\Push Install\ICS_List_EN.txt</ICS_LIST>
<!-- Network destination for log file to be copied-->
<LOG_FILE_NETWORK_LOCATION>\\share\Logs</LOG_FILE_NETWORK_LOCATION>-->

<!--true/false-->
<RESTART>>false</RESTART>
<!-- Working Directory - Path to root-->
<WORKING_DIRECTORY>\\share\ICF Support v35</WORKING_DIRECTORY>
</Configuration>
```

**Note:** Share is the name of the share folder created with the installation package ICF Support Layer 3.5.1.

### 10.3.2 Silent install procedure

Before performing a silent install, upgrade, or removal, verify that no Empower instances are running.

To perform a silent installation, upgrade, or removal, follow these steps:

1. For silent installations on a LAC/E module, skip step 2 and proceed to step 3.
2. If you are installing, upgrading, or removing the ICF Support Layer v3.5.1 software on a Citrix server, put the Citrix server in Install mode by opening a command prompt and typing Change user/install.
3. In the response file, do one of the following:
  - To install drivers, set the ACTION property to InstallALL.

- To upgrade drivers, set the ACTION property in the response file to UpgradeAll.
- To remove drivers, set the ACTION property in the response file to RemoveAll

**See also:** [Create or update response file](#).

4. Place the Build inside the created Share folder.
5. In the ICS\_Response\_EN.Message Center file, update the "Share" folder path.
6. Run setup.exe from a command prompt or from a batch file.

**Requirement:**

The command must include the name of the response file and the path to setup.exe; for example, "\\Share\ICF Support v351\Setup.exe" /responseFile "\\Share\ICF support v351\Push Install\ICS\_Response\_EN.RSP."

**Note:** The ICF Support Layer 3.5.1 instrument drivers are installed, upgraded, or removed from the LAC/E module or Citrix server. Ensure that the node restarts. If you are installing, upgrading, or removing the ICF Support Layer 3.5.1 software on a Citrix server, return to Execute mode by opening a command prompt and typing Change user/execute.

## 10.4 Performing push installations

You can install or remove the ICF Support Layer 3.5.1 software using a push installation that requires no user interaction. During a push installation, upgrade, removal, you deploy the ICF Support Layer software to multiple Empower clients, LAC/E modules, or Citrix servers from a host computer.

You control push installations, upgrades, and removals using PsExec, a Microsoft command-line tool. When you run PsExec, the response file is called as a command line argument after the Setup.exe file. See [Create or update response file](#) in the previous section titled *Performing silent installations*.

Download the Microsoft PsExec utility:

1. Go to <http://technet.microsoft.com/>.
2. Type PsExec in the search box and click Search.
3. Click the PsExec link and follow the instructions for downloading and installing the latest version of PsExec.

The PsExec utility requires the following:

- Creating or updating the response file.
- Placing the ICF Support Layer v3.5.1 software in the shared path.
- Obtaining local administrator privileges, on each Citrix server or LAC/E module.
- Running the PsExec command in DOS, specifying the destination system where the ICF Support Layer v3.5.1 software is to be installed, along with the network path of the setup file placed in the server.

### 10.4.1 Create node list file

To create a node list file, follow these steps:

1. Create a .txt file on the computer on which you will perform the installation, upgrade, or removal.
2. In the .txt file, type each name or IP address on a separate line for each Empower client, LAC/E module, or Citrix server on which you are installing or removing instrument drivers.

### 10.4.2 Push install procedure

For push installations on Windows 10, enable the administrative shares by adding a new Registry entry. If the administrative shares are not enabled, a push installation can result in an *Access denied* error message.

Review these requirements before performing a push procedure:

- 
- When you perform a push installation on multiple computers, you must use the same type of computer for each installation (for example, all Citrix servers or all LAC/E modules). You cannot push installations onto a mix of computer types.
  - Empower instances must not run during a push install, upgrade, or removal.
  - Verify that your antivirus/firewall program allows PsExec to run and perform the push installation.

Perform a push installation, upgrade, or removal by following these steps:

1. For a push installation, upgrade, or removal of the ICF Support Layer v3.5.1 software on an LAC/E module, put the Citrix server in Install mode by opening a command prompt and typing Change user/ install.
2. In the response file, do one of the following:
  - To install drivers, set the ACTION property to InstallALL.
  - To upgrade drivers, set the ACTION property to UpgradeALL.
  - To remove drivers, set the ACTION property in the response file to RemoveAll.

**See also:**

  - [Create or modify the response file.](#)
  - [Create node list file.](#)
3. Place the Build inside a shared folder.
4. In the ICS\_Response\_EN.RSP file, verify the IP/hostname of the shared path.
5. For push installations on a LAC/E module, run Setup.exe from a command prompt or from a batch file. The command must include the name of the response file and the path to Setup.exe. For example, PSEXEC @Nodes.txt -u domain\username -p password \\Host PC IP\Shared folder\ICF Support v351\Setup.exe / responseFile "\\Host PC IP\Shared folder\ICF Support v351\Push Install\ICS\_Response\_EN.RSP"  
The ICF Support Layer 3.5.1 instrument drivers are installed, upgraded, or removed from the LAC/E modules. Ensure that the computer restarts.

## 10.5 Enabling administrative shares on Windows 10

To enable administrative shares on Windows 10, follow these steps:

1. Open the Registry Editor by typing regedit in the search box on the taskbar.
2. Navigate to HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\system.
3. Right-click **System** and select **New > DWORD (32-bit)**.
4. Type the name LocalAccountTokenFilterPolicy, and then click **Enter**.
5. Right-click LocalAccountTokenFilterPolicy, and then click **Modify**.
6. Type 1 in the **Value** box, and then click **OK**.
7. Exit the Registry Editor.
8. Restart the computer.

## 10.6 Verifying the installation

The checksum.txt file documents the installation and verifies the integrity of disk files by comparing their current CRCs and sizes with the original values recorded during installation of the base software and any installed option or service pack.

To verify the push installation, follow these steps:

1. Click **Start > All Programs > Empower > Empower Installation Log**.

2. Search for lines similar to these:

```
*****
DM [10:34:37:991 AM]: Product: ICF Support -- Installation completed successfully.
DM [10:34:45:072 AM]: Completed the installation of Qualification Tool
DM [10:35:22:357 AM]: Completed the installation of Agilent Instrument Control Framework
DM [10:37:00:247 AM]: Completed the installation of Agilent LC Driver
DM [10:37:52:341 AM]: Completed the installation of Agilent GC Driver
*****
```

3. Click **Start > All Programs > Empower > Verify Files** to run the Verify Files utility and generate a checksum.txt file. Once executed, reports are generated in a browser window. The reports are also saved in the user's Temp folder and in the Empower\Script folder.
4. From the Windows Control Panel of the LAC/E module, Citrix server, or Client, access Programs and Features and confirm that the following versions are installed:

 Agilent Software Verification Tool B.01.01	Agilent Technologies	17-11-2021	11.6 MB	5.1.010.0
 Agilent Instrument Control Framework 3.1	Agilent Technologies	17-11-2021	52.9 MB	3.1.17
 Agilent Instrument Control Framework - GC/HS Drivers 3.5	Agilent Technologies	17-11-2021	174 MB	3.5.110
 Agilent Instrument Control Framework - LC Drivers 3.3 SR1	Agilent Technologies	17-11-2021	140 MB	3.3.42.0
 ICF Support	Waters Corporation	17-11-2021	9.00 KB	3.5.1.54

## 10.6.1 Workarounds in ICF Support Layer v3.5.1

**IMPORTANT:** CRI-3501/CRI-3732: Verify files utility does not check all files delivered by ICF Support Layer 3.5 and 3.5.1.

The Empower Verify Files utility, which is typically used as part of an installation qualification in a regulated environment does not check all ICF Support Layer 3.5.1 software when the ICF Support Layer 3.5.1 is deployed.

To remediate this issue, please see the provided file details. Use this information to identify the files that were not identified via the Empower Verify Files Utility and to manually confirm that these files have been installed with the correct file size and creation date. Use this information together with the Empower Verify Files utility and resulting checksum.txt file, to collectively show that all necessary ICF Support Layer v3.5.1 software binaries are checked and verified as accurate. Document this in support of your required procedures.

### Directory: Empower\instruments\Agilentlc\

Missing files	File size	Date created
AgilentPlugIn.dll	117760	16-Nov-2021
AgilentPlugInServer.exe	118784	16-Nov-2021
AgilentPluginCommon.dll	46080	16-Nov-2021

Missing files	File size	Date created
ConfigurationEditor.dll	8192	16-Nov-2021
ICFAdaptor.dll	88576	16-Nov-2021
MethodEditor.dll	76800	16-Nov-2021
StatusControlContainer.dll	20992	16-Nov-2021

Directory: Empower\instruments\html\Agilentlc\

Missing files	File size	Date created
AgilentControlPanel.htm	595	16-Nov-2021
AgilentMethodEditor.htm	1330	16-Nov-2021

Directory: Empower\Instruments\HTML\AgGC\

Missing files	File size	Date created
AgilentControlPanel.htm	595	16-Nov-2021
AgilentMethodEditor.htm	1330	16-Nov-2021

Directory: Empower\instruments\bin\

Missing files	File size	Date created
RWUXThemeS.dll	69632	21-May-2003
ScriptHelper.dll	32768	19-Jan-2001



Missing files	File size	Date created
atl70.dll	84992	05-Jan-2002
mfc70.dll	974848	05-Jan-2002
mfc70u.dll	964608	05-Jan-2002
msvcp70.dll	487424	05-Jan-2002
og901as.dll	1572864	29-Oct-2003
sfl202as.dll	405504	29-Oct-2003

## 10.7 Verify installation of Agilent ICF components

Files installed for the Agilent ICF Support Layer are not included in the checksum.txt file generated by the Verify Files utility. To verify the installation of the Agilent ICF components, follow these steps:

1. Select **Start > All Programs > Agilent technologies > Software verification tool**.
2. Select the appropriate check boxes or click **Select All**.
3. Click **Qualify**.
4. If the **Open Reports** check box is selected, reports are immediately available for view.
5. Click **Open** to view the reports.
6. The reports will have the details of the successful installation of Agilent ICF components.

**Note:** If the report shows any failure, remove all Agilent ICF components and ICF Support Layer and install again as per the section "Installing the ICF Support Layer 3.5.1 software". If any errors persist, contact Waters technical support.

## 10.8 Uninstalling ICF Support Layer 3.5.1

To ensure that file verification is successful after the removal of the software, you must restart the computer before uninstalling the Agilent ICF Support Layer.

To uninstall ICF Support Layer 3.5.1, follow these steps:

1. Restart the computer.
2. Download the 667006741RevA.iso file (Disc Image File).
3. Mount the ISO on a drive.
4. Double-click the Setup.exe file.
5. Click **Next**.
6. Use the Remove option and follow all prompts to complete the uninstallation.
7. Restart the computer.

**Note:**

- When Custom uninstall is chosen, please select "ICF Support" and "Agilent Software Verification B.01.01" for ICF Support Layer un-installation, after **step 5**.

- Do not use **Start > All Programs > Empower > Remove Waters Instrument Component Software** to uninstall the ICF Support Layer 3.5.1.

## 10.9 System validation

After you install or uninstall the software on a qualified system, determine if the system requires re-qualification according to your laboratory's standard operating procedures.

**Requirement:** If this is the initial installation in a GxP-regulated environment, perform a full qualification of the Empower software.

**Recommendation:** Run the Verify Files utility or the SystemsQT for Empower IQ, and then review the resulting file for an entry that states "No installation changes were detected", refer [CRI-3501/CRI-3732](#).

**Tip:** The date displayed when running Verify Files (or Empower IQ) reflects only the most recent installation. See the Empower.log file for the complete history.

## 11 Issues resolved in ICF Support Layer 3.5.1

This section lists the problems resolved in this release. Known Problem Reports (KPR) result from user problems that have been classified by Agilent as documentation problems or software defects.

Defect ID	Summary	Description
INFICFSL-1974	Instrument failure occurred while switching from non-inject to inject function.	Instrument failure is observed while switching from non-inject to inject function while using Agilent 6890N.  <b>Note:</b> The behavior is intermittent. It may occur once or twice, out of 10 times.
CRI-1312/CRI-3716 (resolved by Agilent)	Method download failed because module is offline.	When using an Agilent LC system with ICF Support Layer versions 3.3, 3.4, or 3.5, acquisition may fail with a "Method download failed because module is offline" error in the Message Center. This error occurs primarily with systems containing a G1329 autosampler module. The issue may occur with other Agilent LC modules, but with less frequency than with Agilent LC systems containing a G1329 autosampler.  When the error occurs, the sample line being executed is terminated and acquisition stops. Data is acquired up until the time of the error and this data is unaffected and valid for use. Acquisition can be restarted in order to acquire additional samples.  (Agilent Defect ID – ICF-618)

Defect ID	Summary	Description
CRI-3984 (resolved by ICF Support Layer)	Empower data acquisition terminates before the defined run time. This issue happens only with Empower v3.6.1, ICF Support Layer 3.5, and Agilent LC and GC Systems.	<p>When using an Agilent LC or Agilent GC system with ICF Support Layer version 3.5 together with Empower 3.6.1, it is possible that data acquisition will terminate early before the defined run time, resulting in a chromatogram that is approximately 0.3 minutes shorter than the defined run time.</p> <p>For Agilent GC systems, this is observed when the Post Run Time parameter is enabled in the instrument method. For Agilent LC systems, this issue may be observed irrespective of the instrument method parameter settings.</p> <p>When using versions of Empower prior to 3.6.1 together with ICF Support Layer 3.5, it is possible for the Run Samples' real time plot to display shortened chromatograms, however this is a cosmetic issue only. In this case, the data is acquired for the full run time and the full chromatogram displayed in Review, is available for processing and reporting, etc.</p>

## 12 Known Issues in ICF Support Layer 3.5.1

This section lists the known issues and solutions in this release. The numbers identify issues that Waters personnel monitor within a system change request tracking tool.

Defect ID	Summary	Description
CRI-3501/CRI-3732	Checksums for Agilent ICF binaries are missing	Empower verify files utility will not verify ICF Support Layer binaries. Refer to <a href="#">Workarounds in ICF Support Layer v3.5.1</a> to manually verify the missing files.
INFICFSL-1973	Non-inject functions and Monitor run with post run time lead to instrument failure	<p>When Post Run time is set in an instrument method for Non-inject (equilibrate, condition column, etc) and Monitor run functions, it leads to instrument failure.</p> <p><b>Limitation:</b> Do not use Post Run settings in methods used for Monitor and Non-inject functions.</p>

Defect ID	Summary	Description
INFICFSL-1976	Post run temperature field does not show up in Empower reports	When post run time and temperature are defined in an instrument method, both must appear in the Empower reports. However, post run temperature does not appear in the Empower reports.
INFICFSL-2000	Upgrade from ICF Support Layer 3.5 to ICF Support Layer 3.5.1 fails with 1603 error	<p>On Windows 7 OS, upgrade from ICF SL v3.5 to ICF SL 3.5.1 fails with an error 1603.</p> <p><b>Workaround:</b> On Windows 7 environment, you must uninstall ICF Support Layer 3.5, restart the PC, and install ICF Support Layer 3.5.1.</p>
INFICFSL-2002	Software Verification Report shows incorrect LC driver version	The Software Verification tool is used to verify Agilent binaries. When this tool is used to verify ICF Support Layer 3.5 or ICF Support Layer 3.5.1, the LC driver version is not reflected as expected. It lists as "3.2 SR1 3.3.42.0" instead of "3.3 SR1 3.3.42.0". However, the correct driver is installed and the control panel of test PC (LAC/E, Client) reflects the latest drivers. (Agilent KPR ID - 584377)
INFICFSL-2014	For Agilent GC and LC, intermittent "instrument failures" can occur when running a sample set method that contains post runtimes in the instrument method.	<p>In all ICF support layer versions, including ICF SL v3.5.1, intermittent "instrument failures" can occur when running a sample set method that contains an Agilent GC or LC instrument method with post runtimes.</p> <p><b>Workaround:</b> For Agilent GC and LC, create a non-inject function sample line with runtime having a method set containing an instrument method equivalent to post runtime parameters. This workaround applies only to a GC system running with Headspace on low throughput mode and not high throughput mode.</p>
CRI-2759	Agilent LC "Analysis aborted via another module"	<p>In all ICF Support Layer versions, including v3.5, "Analysis aborted via another module" is observed with G1329A / G1329B module samplers during data acquisition. (Agilent Defect ID - ICF-711)</p> <p><b>Note:</b> This is an intermittent problem.</p> <p><b>Workaround:</b> No viable workaround.</p> <p><b>Note:</b> CRI-2759 and CRI-3124 were resolved with the fix given in CRI-1312/CRI-3716. These issues were not reproduced in our environment; we were unable to verify the same.</p>

Defect ID	Summary	Description
CRI-3124	Agilent LC method download failed	<p>While running the sample set, in the middle of the run, instrument failure is observed with a "download failed" error. (Agilent Defect ID - ICF-711)</p> <p><b>Note:</b> This is an intermittent problem. <b>Workaround:</b> No viable workaround.</p> <p><b>Note:</b> CRI-2759 and CRI-3124 were resolved with the fix given in CRI-1312/CRI-3716. These issues were not reproduced in our environment; we were unable to verify the same.</p>

**Note:** This document lists only known issues of ICF Support Layer 3.5.1. For Known Issues of ICF Support Layer 3.5, see the ICF Support Layer 3.5 Release Notes (715007323).

## 13 Agilent Pre-Configuration Utility

Use the Agilent Pre-Configuration Utility to remotely configure a new system. Always launch the utility from the Empower Configuration Manager > Tools menu. The Pre-Configuration Utility connects to a LAC/E module using the module's IP address or host name. You can select and configure the instruments you want to use and create a new system that contains the selected instruments.

**Note:** To configure Agilent LC systems, search for the Tech Note "Using the Agilent Pre-Configuration Utility with Agilent Instrument Control Framework (ICF) Support" on the Waters support site ([support.waters.com](http://support.waters.com)).

### 13.1 Configuring any type of Agilent GC using the Pre-Configuration Utility

Follow this procedure to configure an Agilent GC using the Empower Pre-Configuration Utility.

1. Using the front panel of the GC instrument, set up the Agilent GC with a static IP address.
2. Log in to Empower from any client or through the Citrix server.
3. From Configuration Manager, click **Tools > Agilent Pre-Configuration**.
4. In the Configuration Directory dialog box, type the host name or IP address of the LAC/E node, and then click **Connect**.  
**Note:** When you are connected to the node, the New button is enabled.
5. In the Configuration Directory dialog box, click **New**.  
**Note:** Before you proceed to the next step, ensure that you are able to ping the IP address of the Agilent GC system from the LAC/E Command Prompt window.
6. In the Configuration Editor window, select Agilent 68xx/78xx/9000/88xx/7697/G1888 GC/HS., and then do the following:
  - Expand 68xx/78xx/9000/88xx/7697/G1888 GC/HS.
  - Select the instrument you want to configure.
  - Click > to move the instrument to the right-hand pane of the Configuration Editor window, and then select it.

- 
- In the right-hand pane of the Configuration Editor window, select the instrument, and then click **Configure**.
7. In the Connection tab of the Configure dialog box, specify the IP Address, and then click **Get GC Configuration**.
  8. In the Configuration tab of the Configure dialog box, specify or modify selections as needed, confirm that the modules appear correctly, and then click **OK** to close the Configuration window.  
**Note:** If you are adding a headspace sampler, proceed to step 4 in *Configuring a GC system to include a headspace sampler*. Otherwise, click **OK** to close the Configuration Editor.  
**Result:** The Configuration Directory lists the configured Agilent GC systems with their appropriate IP addresses as the assigned names. If you are finished configuring GC systems, click **Exit** to close the Pre-Configuration Editor Utility. If not, repeat the procedure.

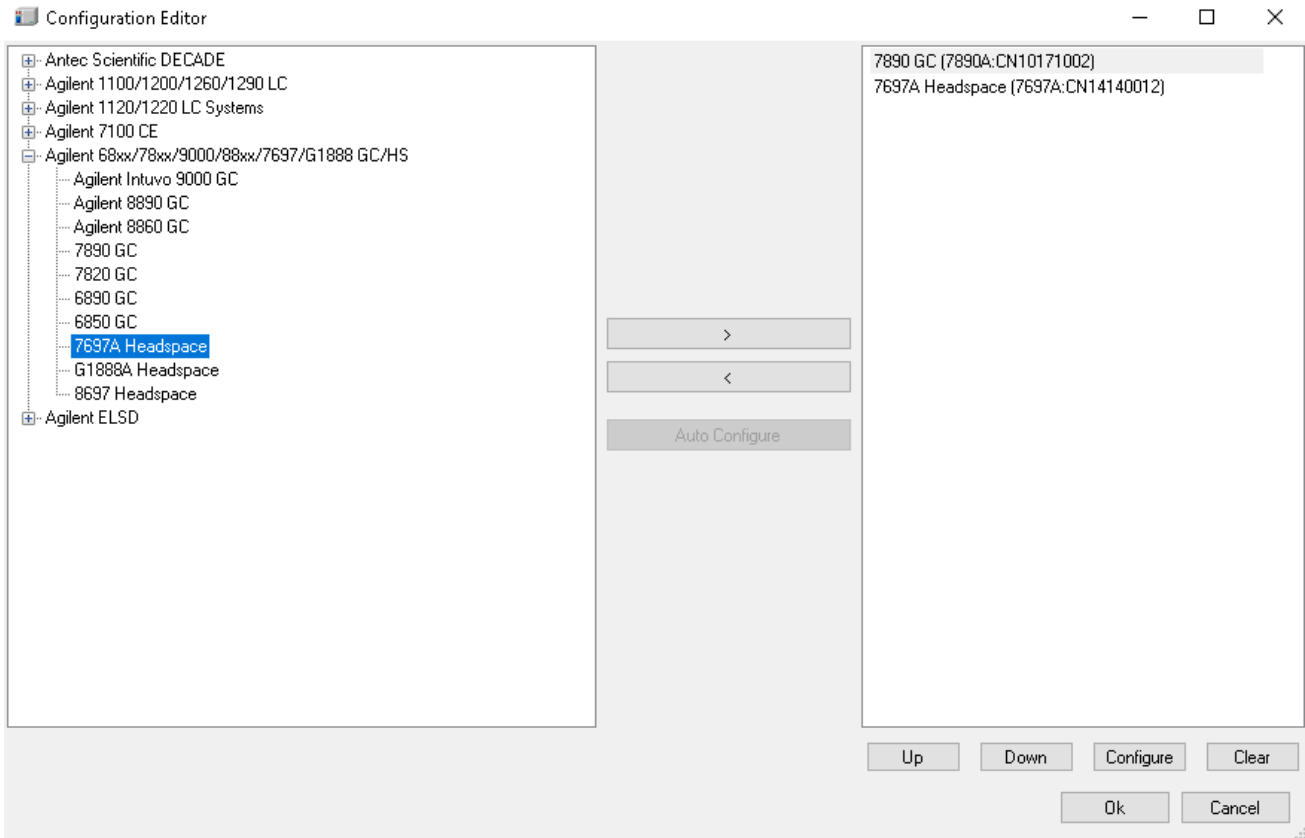
## 13.2 Configuring a GC system to include a headspace sampler

You must use the Agilent Pre-Configuration Utility to configure a headspace sampler with a GC system in Empower software. The headspace sampler is no longer listed as a separate instrument in Empower software.

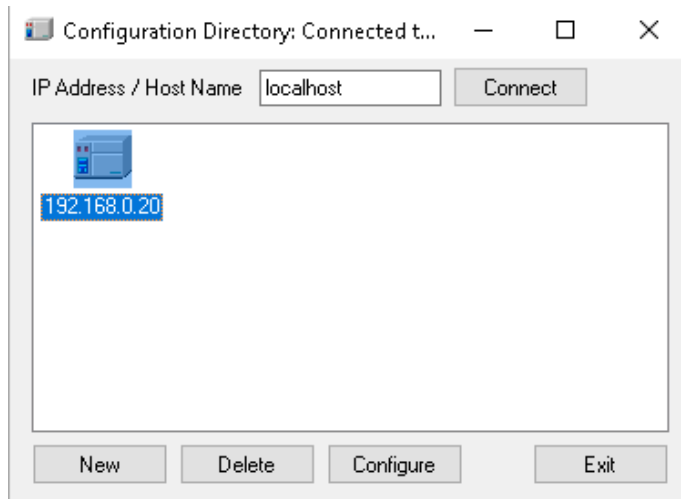
**Note:** The following procedure applies to a G1888A or an HS7697A/HS8697A or an headspace sampler.

To configure an Agilent GC system to include a headspace sampler using the Pre-Configuration Utility:

1. Configure the Agilent GC system following this procedure: *Configuring any type of Agilent GC using the Pre-Configuration Utility*.
2. From the Configuration Manager, click **Tools > Agilent Pre-Configuration**.
3. In the Configuration Directory dialog box, type the host name or IP address of the LAC/E node, and then click **Connect**.
4. Using the front panel of the headspace sampler, set up the headspace sampler with a static IP address.  
**Note:** Before you proceed to the next step, ensure that you are able to ping the IP address of the headspace sampler from the LAC/E Command Prompt window.
5. In the Configuration Editor window, add the headspace sampler by following these steps:
  - Select Agilent 68xx/78xx/9000/88xx/7697/G1888 GC/HS.
  - Expand Agilent 68xx/78xx/9000/88xx/7697/G1888 GC/HS.
  - Select the headspace sampler you want to configure.
  - Click > to move the headspace sampler to the right-hand pane of the Configuration Editor window, beneath the GC in the list.
  - Select the headspace sampler in the right-hand pane, and then click **Configure**.
6. On the Connection tab of the Configure dialog box, specify the headspace IP Address.
7. On the Configuration tab of the Configure dialog box, select **Upload Config from Instrument**. Confirm that the information is correct in the Instrument, System, and Resource Conservation tabs. If not, modify as needed, and then click **OK**.  
**Result:** The Configure dialog box closes.
8. In the Configuration Editor dialog box, click **OK**.



9. After you configure the headspace sampler, only the GC and its IP address appear in the Configuration Directory dialog box. In the Configuration Directory dialog box, click **Exit**.



10. Continue with the next topic, *Configuring the GC system (with or without a headspace sampler) in Empower*.

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## 13.3 Configuring the GC system (with or without a headspace sampler) in Empower

When you finish creating the entry in the Pre-Configuration Utility in Configuration Manger, you must configure the Agilent GC system in Empower software.

To configure the GC system (with or without a headspace sampler) in Empower software:

1. In the Configuration Manager window, select Nodes from the Empower 3 configuration tree, select the desired node from the table, and then right-click and select Properties.
2. In the Node Properties dialog box, select the Configure DHCP tab, and then click Configure DHCP.
3. In the Waters DHCP Server Configuration window, click **Add**.
4. In the **Add IP Address** dialog box, do the following, and then click **OK**:
  - In the IP address field, specify the static IP address that you assigned to the Agilent GC. This must match the IP address assigned to the PreConfiguration Utility, which is described in the previous section.
  - In the MAC address field, specify the MAC address of the Agilent GC.
  - In the Instrument type field, select AgGC.
  - In the Serial Number/Unique Name field, type the serial number or the unique name that is in accordance with your SOP.

**Note:** Even though you configured a headspace sampler using the "Configuring a GC system to include a headspace sampler" procedure, the Waters DHCP Server Configuration dialog box lists the GC instrument only and not the headspace sampler.
5. In the **Waters DHCP Server Configuration** dialog box, click **OK**.
6. In the **Node Properties** dialog box, select the Instruments tab, and then click **Scan Instruments**. The OK? column in the Instruments tab of the Nodes Properties dialog box displays a value of Yes for the AgGC.

**Note:** Click OK to close the **Node Properties** dialog box.
7. Create a chromatographic system in Empower by following these steps:
  - From the **Configuration Manager** window, right-click **New > Chromatographic System**.
  - On the **New Chromatographic System Wizard - Type Entry** page, select Create New System, and then click **Next**.
  - On the **New Chromatographic System Wizard - Select Server** page, select the appropriate node, and then click **Next**.

**Note:** Even with a Headspace/GC system, there should be only one AgGC listed in the Empower chromatographic system.
  - On the **New Chromatographic System Wizard - System Selection** page, select AgGC from the Available Instruments list (beneath Unused Components), drag it to the New System Instruments pane, and then click **Next**.
  - On the **New Chromatographic System Wizard - Access Control** page, select Share System with other Network Users, select the appropriate Allow Access and Allow Access to Groups settings, and then click **Next**.
  - On the **New Chromatographic System Wizard - Name Selection** page, type a system name and any system-related audit trail comments in the System Comment field. Ensure that the Online check box is selected, and then click **Finish**.

**Result:** A message informs you that the system is online and ready for use.

**Note:** You can confirm that the Agilent GC or Agilent GC/HS system is configured in Empower by selecting the node in the Configuration Manager window, and then right-clicking Export to text. The Agilent GC or Agilent GC and HS configuration is exported to a text file. Review the text file output for accuracy.



- From the **Empower Log On** window, select Run Samples, and then select the project and the chromatographic system you created.

## 14 Options tab in the Instrument Method Editor

Use the Options tab to select the throughput mode for the headspace injection and to indicate your injection preference.

### Throughput Options

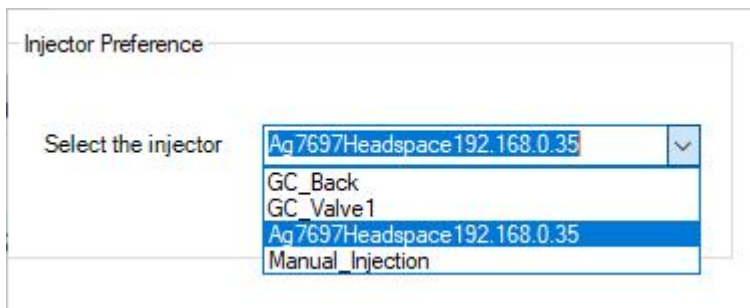
By default, High Throughput is enabled. Use this option to perform single headspace extractions. To perform multiple headspace extractions, clear the High Throughput check box. Empower considers this low throughput.

**Tip:** For throughput options, see [GC control considerations](#).

### Injection Preference

Using Injection Preference, you can choose the injector as part of the instrument method, per the Pre-Configuration Utility.

Select the injector (ALS, HeadSpace, Gas Sampling Valve, or Manual Injection) from the drop-down list, as follows.



**Note:** Here, GC\_Back represents Back ALS and GC\_Front represents Front ALS.

**Tip:** When ALS, Gas Sampling Valve, or Manual Injection is selected as the preferred injector, the High Throughput becomes disabled.

**Recommendation:** Do not use different injection sources in the same sample set.

## 15 Dual Tower support

ICF Support Layer v3.2 onwards provides support for Dual Tower acquisitions. If two sequential sample lines with both front and back injector vial numbers are present in the sample set, they are eligible for Dual Tower parallel acquisition, but only if both lines specify the same Instrument Method/Method Set, number of injections, and Runtime.

**Note:** For Dual Tower support, configure the Gas Chromatography (GC) module with both front and back autosampler towers.

Details for Dual Tower support:

- Installing ICF Support Layer v3.5.1 with the Legacy GC/HS driver might cause conflict. Do not use both legacy drivers and ICF Support in the same workstation.
- In Dual Tower mode, the vial numbers are defined using alphanumeric values:

- **F:1** Where “F” indicates the front tower and “1” is the vial number.
- **B:2** Where “B” indicates the Back Tower and “2” is the vial number.

When Dual Tower mode is disabled, the vial numbering convention remains the same as in ICF Support Layer v3.1. For more information about the numbering convention see [Agilent 6890, 7890, and 8890/8860 GC injections](#).

## 15.1 Scripts for Dual Tower support

Scripts to enable and disable Dual Tower support are located at xxx\Build folder \UtilityScripts\DualTower. You must run the scripts on all clients (including Citrix Server) and LAC/E nodes.

**Important:** To use the Dual Tower feature, you must uninstall legacy drivers.

### 15.1.1 Enabling script for Dual Tower support

To enable Dual Tower support on a client, use the "Enable\_Dual\_Tower.bat" script.

To enable Dual Tower support:

1. Navigate to the xxx\Build folder\UtilityScripts\DualTower folder.
2. Right-click Enable\_Dual\_Tower.bat and select Run as administrator.
3. Restart the client.
4. When you configure the DHCP, select the A7890 instrument type.

**Note:** The A7890 entry enables Dual Tower support for all GCs.

**Important:** If the system is configured with the AgGC instrument type, you must reconfigure the instrument type as A7890 and re-create the system.

### 15.1.2 Disabling script for Dual Tower support

To disable Dual Tower support from the registry, use the "Disable\_Dual\_Tower.bat" script.

To disable Dual Tower support:

1. Navigate to the xxx\Build folder\UtilityScripts\DualTower folder.
2. Right-click Disable\_Dual\_Tower.bat and select Run as administrator.
3. Restart the client.

**Important:** After you disable Dual Tower support, you must configure the Instrument Type again as AgGC and create the system again.

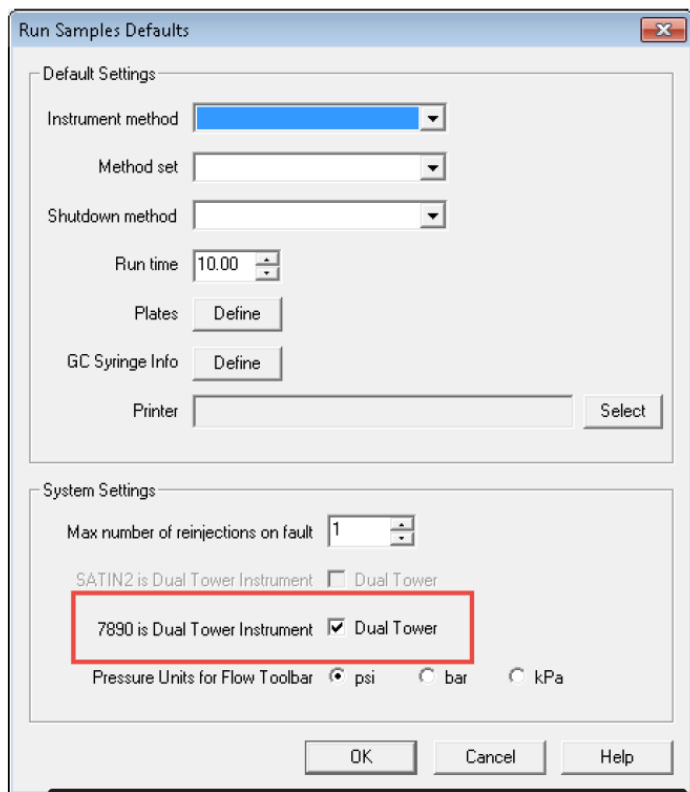
### 15.1.3 Enabling Dual Tower support in Empower

By default, Dual Tower support for any GC is disabled.

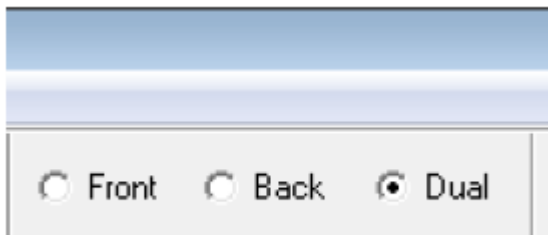
To enable Dual Tower support in Empower:

1. Open Run Samples.
2. From the menu, choose **Customize > Defaults**.
3. In the dialog box, select 7890 is Dual Tower Instrument.

**Tip:** This Empower check box enables Dual Tower support for all GC instruments.



When Dual Tower is enabled, you can see three radio buttons in the **Empower Run Samples** window.



**Notes:**

- You can use the radio buttons to view the front sample lines, back sample lines, or both front and back sample lines.
- The radio buttons have no impact on the acquisition of the vials defined in the sample set. They filter the sample set based on Front, Back, or Dual selection.

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## 16 Diagnostics log export

The diagnostics logs are the logs and messages generated from the **Empower Run Sample > Diagnostics Log** window. These logs are generated for each instrument. Different instruments have their own set of logs, which you can find on their respective diagnostics tabs. ICF Support Layer v3.5.1 lets you export diagnostics logs into an external file for troubleshooting. Scripts to enable diagnostics log export are located in xxx\Build folder\UtilityScripts\DiagnosticLogExport.\.

**Note:** The diagnostics log option is disabled by default.

### 16.1 Enabling script for Diagnostics log export

To enable the export of Diagnostics logs to an external file, use the Enable\_Third\_Party\_Logs.bat script. Run this script on any LAC/E where you want logging for the systems on that LAC/E.

To enable the export of Diagnostics logs:

1. Navigate to the xxx\Build folder\UtilityScripts\DiagnosticLogExport folder on the LAC/E you want to change.
2. Right-click Enable\_Third\_Party\_Logs.bat and select Run as administrator.
3. Restart the LAC/E.

**Result:** The logs start generating and appear in the C:\Empower\Instruments\Log\<DHCPInstrumentName> folder with the filename Third\_Party\_Instrument\_Logs\_01.txt. If the file size exceeds the limit, Empower creates a new file in the same folder with the file name Third\_Party\_Instrument\_Logs\_02.txt and the logs from Third\_Party\_Instrument\_Logs\_01.txt will be backed up in the newly created file. The Third\_Party\_Instrument\_Logs\_01.txt file continues to collect the logs with the recent messages. The logs for each instrument appear in their respective folders.

### 16.2 Disabling script for Diagnostics log export

To disable the export of Diagnostics logs to an external file, use the "Disable\_Third\_Party\_Logs.bat" script. Diagnostics logs are enabled on the LAC/E connected to the system.

To disable the export of Diagnostics logs:

1. Navigate to the xxx\Build folder\UtilityScripts\DiagnosticLogExport folder on the LAC/E you want to change.
2. Right-click Disable\_Third\_Party\_Logs.bat and select Run as administrator.
3. Restart the LAC/E.

**Note:** This disables the log export.

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## 17 CTC PAL3 tool and tray configuration from the control panel

### 17.1 CTC PAL3 tool configuration

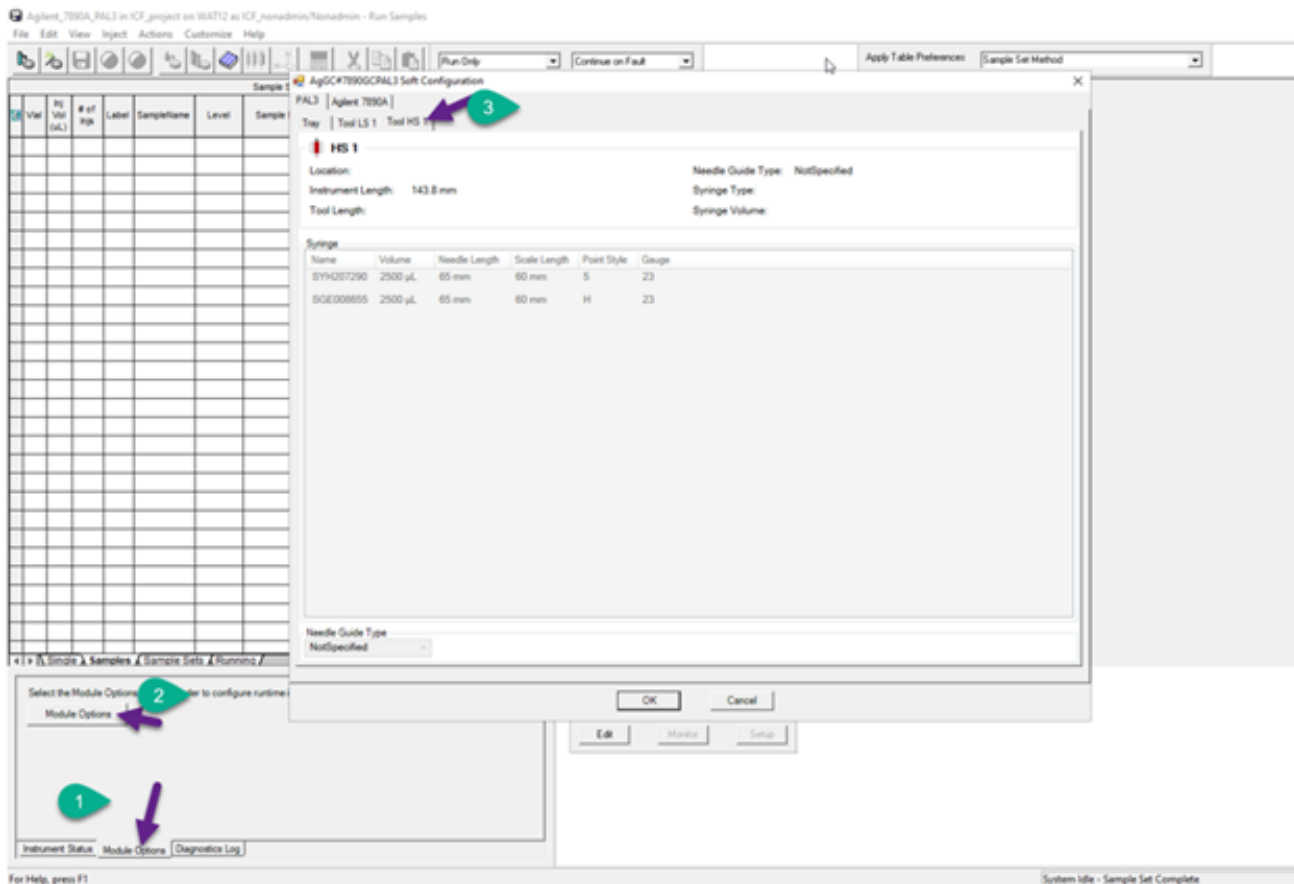
ICF Support Layer v3.4 onwards provide support for CTC PAL3 Tool change. This feature provides flexibility to make changes to the Tool (Sampler) just before starting the sample acquisition without re-configuring the instruments.

Prerequisites:

- The CTC PAL3 driver is installed along with the ICF Support Layer.
- Agilent GC and CTC PAL3 instruments are configured successfully.

The changes made to the Tool in CTC PAL3 module (HS Tool > LS Tool or LS Tool > HS Tool) are reflected in the Empower software via configuration, and the previously configured tool is disabled.

Restart (close and reopen) the Empower Run Samples window for the changes to appear in the configuration.



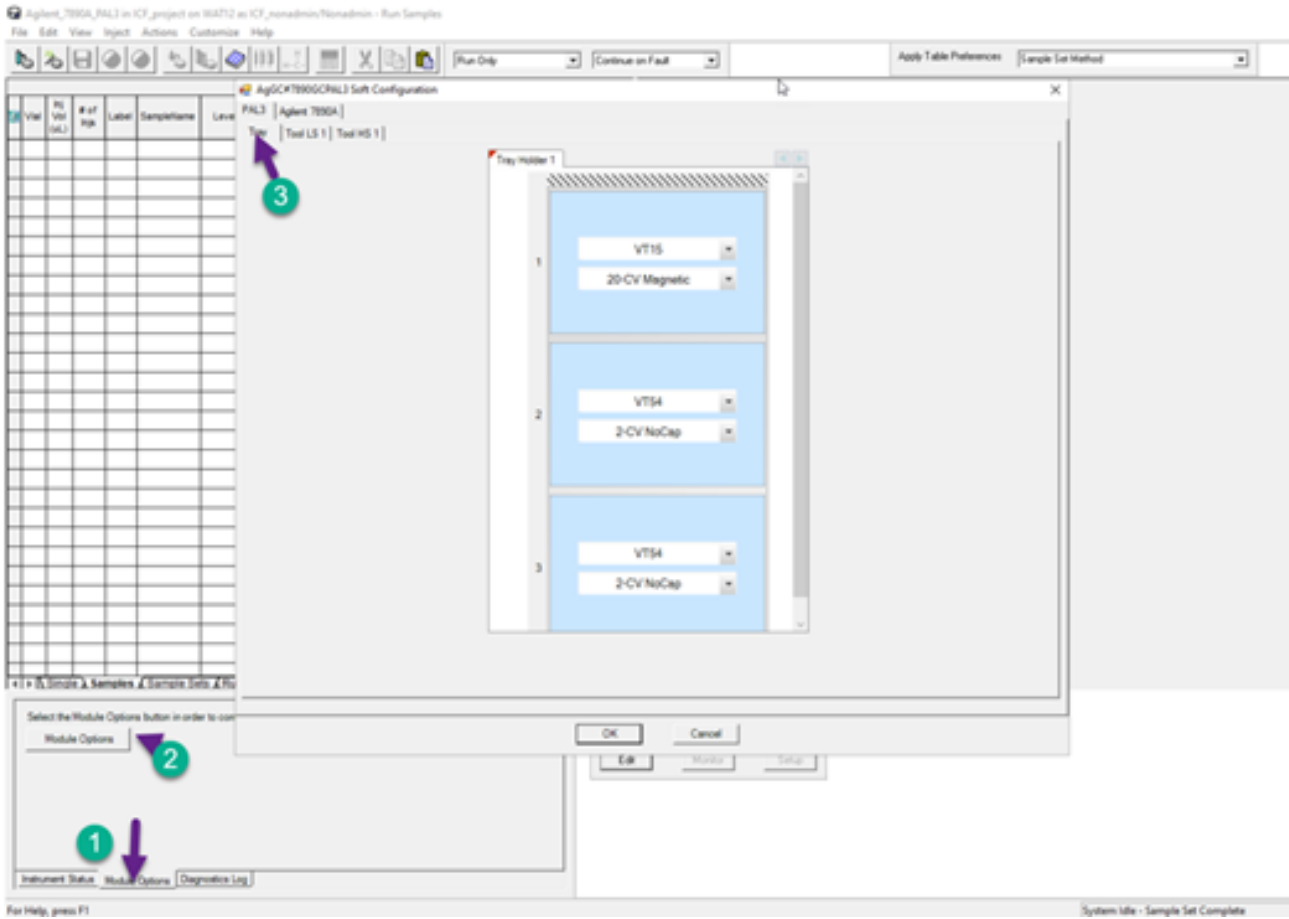
## 17.2 CTC PAL3 tray configuration

ICF Support Layer v3.4 and later provides support for CTC PAL3 Tray configuration via the Run Samples Control Panel (Module Options). This feature provides flexibility to make changes to the tray just before starting the sample acquisition without re-configuring the instruments.

Prerequisites:

- The CTC PAL3 driver is installed along with the ICF Support Layer.
- Agilent GC and CTC PAL3 instruments are configured successfully.

You have the option to change the Sample Holder “Tray” in the Run Samples window through Module Options. Changes made in the Control Panel are reflected in the CTC PAL 3 instrument terminal.



**Limitation:** You can make tray changes from the handheld terminal or the LAC/E system.