

Controlling the Agilent 1260 Infinity/1290 Infinity II Multisampler (G7167A/B) in Waters Empower 3 environment using the Agilent Instrument Control Framework

Technical Note

Technical Guide for the configuration and use of the Agilent 1290 Infinity II Multisampler (G7167B) and the Agilent 1260 Infinity Multisampler (G7167A) with Waters Empower 3 using the Agilent Instrument Control Framework (ICF).

Contents

Introduction 2

Prerequisites 2

Defining and Assigning Plates in Waters Empower 3

Multisampler Method Setup 8

Start an Analysis in Empower 3 11

Appendices 13

- A Configuring an Agilent LC in Empower 13
- B Importing Agilent Well Plate Definitions 19
- C Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates 23
- D Optional Multisampler Method Setup Parameters 26



Introduction

The Agilent Instrument Control Framework (ICF) is a software component that manages the communication between the chromatography data system (CDS) and the instrument driver. This component makes it easier and faster for CDS software vendors to implement control of Agilent LC, CE and GC instruments in their data systems or workstations. Based on new standard instrument drivers from Agilent, ICF eliminates much of the delay and effort of using low-level instrument control codes and the need of software developers to write their own native drivers.

Waters Instrument Control Software (ICS) is Waters Corporation adoption of the Agilent Instrument Control Framework for their data systems.

This guide is designed to assist you in setting up a Multisampler based method. Additional appendices explain the process to perform additional, sometimes optional, configuration steps to use the Multisampler.

NOTE

For more information on support, refer to the Waters Release Note.

Prerequisites

Instrument Prerequisites

- Agilent 1290 Infinity II Multisampler (G7167B) or Agilent 1260 Infinity Multisampler (G7167A) with Firmware Rev. D.06.60 or higher.
- Other Agilent LC modules in the LC system *must meet or exceed* the minimum firmware requirements specified by the 3rd-party CDS software vendor and meets Agilent's firmware set/firmware interoperability requirements. http://www.chem.agilent.com/_layouts/agilent/downloadFirmware.aspx?whid=79809

Software Prerequisites:

The operating system and Empower prerequisites are documented in the Waters Empower Instrument Control Release Notes for Agilent Instrument Control.

At minimum the following components are required:

- Waters Instrument Control version (ICS): ICS 2.1 Hotfix #716004653 including
 - Agilent ICF Version A.02.03 DU1 HF2
 - Agilent ICF-LC Driver Version A.02.11 SP1 [72]

Ensure that all prerequisites are met before proceeding to the next step. The component versions can be verified in the operating systems Control Panel/Program and Features.

Account set up

• For installation, please ensure the account being used has Administrator rights and privileges.

NOTE

Defining and Assigning Plates in Waters Empower

NOTE

In order to use Agilent well plates with Empower and the Multisamplers, well plate definitions for these plates must exist already in Empower. If they are not present, then you will need to import at least one Agilent plate definition file for the first time. See Appendix "B - Importing Agilent Well Plate Definitions" on page 19 for importing Agilent well plate definitions.

Proceed with the following steps to define the Agilent well plate within Empower.

- 😌 Infinity II in Infinity II as System/Administrator Run Samples File Edit View Inject Actions Customize Help New Method Set ... l_o Open Method Set ... Instrument Method New Sample Set Method Template ... Open Sample Set Method Template ... Amounts ... Sample Set Info... Inje Dissolution GC Sample Set Info... Molecular Mass Calculator... Plates Alter Running Sample Cut Ctrl+X Ctrl+C Сору Paste Ctrl+V
- 1 Go to the main Edit menu then click Plates.

2 Within a row of the Plate Type Name column click the drop down arrow and select the plate of interest. If the plate type is not present it need either to be imported (Appendix "B - Importing Agilent Well Plate Definitions" on page 19) or to be created manually (Appendix "C - Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates" on page 23).

2790 Layout	Create New Pla	ate Type	Clear Plates	Plate Sequenci	ng Mode	I≒	<u></u>	<u> -</u>	<u>]</u> [.
Plate Type N	ame	Plate L	ayout Position		~ ~			~	~
Agilent54 Vial/Plate 24 vial (open access) 384 well, 80uL 48 uCfuge tube, 0.5ml 48 uPl, 80uL 96 well (tall), 1mL 96 well (tall), 2mL 96 well (tall), 300 uL Agilent54 vialPlate	, 2mL ^								

NOTE

The selected plates defined in the table above must be the same type and position as defined in the Tray and Plate Configuration dialog of the Multisampler graphical user initerface (refer to step 8 on page 6). Otherwise the mismatch prevents starting the analysis.

- **3** Ensure that the just defined well/vial plates for Empower matching the assigned well/vial plates for the Multisamplers.
- 4 Go to the Instrument Status display.

Multisampler ? – 🖬 💿 🎯 : MIIS Idle 🗖	🧯 Binary Pump 🔋 🗕 💿 💿 EMF 🖉 🛛 Idle 🚺	🖬 🧪 Column Comp. 🖸 🞯 🕬 😒 🛛 Idi	? _ = = 💙 DAD	? _ = 🕡	FLD ? = =
10.00 µL W	41 61 (10000 0.000 0.050 mL/mi 100.00 0.000 0.050 mL/mi 1016 bar	40.00°C [40.00°C]	40.00°C	۲ ۲	n
0.00	/ 0.00		nstrument Idle		⊖0n () 0ff

5 Right mouse click on the **Instrument Status** of the Multisampler to display the context-sensitive menu.

NOTE

Perform these steps only if you have changed the drawer configuration from last time.



- **6** Click **Modify** from the drop-down menu list and select the **Drawer Configuration** option.
- 7 Click the Start button.



The Multisampler will run through its configuration procedure – this may take some minutes.

	Control Method Injector Program Error Method Identify Device Home All				
Multisam;	Reset Injector Switch Valve to Bypass Switch off Tray Illumination Auto-clean Prime	2 – E 😽	DAD DAD	? — ■ Idle	_
	Modify Assign Wellplates	00 mL/min 0,00 ber	ument		
0,0	0 7 0,00 ule Options Diagnostics Log		Idle		

8 Right mouse click on Multisampler Instrument Status and click Assign Wellplates.

This accesses the Tray and Plate Configuration of the Multisampler.

9 Select Tray and Plate Configuration of P1 up to PX (depending of the configured drawers) and select the well/vial plate matching the type previously set in defined plate within Empower. Then click **OK**.

NOTE

If the correct drawer configuration is not directly displayed in the LC Status Window after the **Drawer Configuration Change** either scan the instrument again or reboot the LAC/E box.

NOTE

The selected plates here must be the same type as in **Define Plates** configured within Empower.



10 Return to the Multisampler Instrument Status, click on Modifiy, click on Right Capillaries, enter the appropriate settings for the Loop Capillary and the Seat Capillary, and then click Assign.

🔒 Right Capillary Set	up				
Loop Capillary					
Capillary:	G4267-60300	: Sampl	e Loop-Flex 20 μL right	-	
Physical Volume:	33.00	μL	Inner Diameter:	0.20	mm
Injection Volume:	20.00	μL	Length:	1040.00	mm
Capillary:	G4267-87012	: Seat a	assembly 0.12 mm 1290 Ir	nfinity LC 💌	
Seat Capillary Capillary:	G4267-87012	: Seat a	assembly 0.12 mm 1290 lr	nfinity LC	
Physical Volume:	1.50	μL	Inner Diameter:	0.12	mm
Physical Volume: Injection Volume:	1.50	μL μL	Inner Diameter: Length:	0.12	mm
Physical Volume: Injection Volume:	1.50 0.00	μL μL	Inner Diameter: Length:	0.12	mm mm
Physical Volume: Injection Volume:	0.00	րե	Inner Diameter: Length:	0.12	mm

Multisampler Method Setup

This section describes the setup of the Multisamplers method and its various parameters once the LC system has been setup and configured in Empower.

NOTE

It assumes you have completed the necessary steps to connect the modules and configured them within Empower. See Appendix "A - Configuring an Agilent LC in Empower" on page 13 for how to configure a Multisampler system.

It also assumes you have already imported, defined and assigned the required Agilent well plate definition. See the previous section.

🚱 Infinity II in Infinity II as System/Administrator - Run Samples			- • •
File Edit View Inject Actions Customize Help			
▶ 2	Continue on Fault		
Sample Name:			
Function: Inject Samples			
Method Set:			
Plate/Welt 1 Develop			
Injection Volume: 10.0 +			
Run Time: 10.00 + Options			
<u></u>			
() Single (Samples / Sample Sets / Running /		51	
Industrati Mathod	Sample Set Time Remaining 0.00.00.00		
To	tal Samples Time Remaining: 0.00.00.00		
Frite Marsian Salari	New Centre Cet Time 0.00.00.00		
	Herr Julipe Set Time. 0.00.00.00	Sample Set	
🔝 Multisampler 2 🖉 🛔 Binary Pump 2 🖉 🖉 Column Comp. 2 🖉 🌱 DAD 2 🖉			
O O M O Idle O O M O Idle O O M O Not Ready Not Ready			
5.00 µL 100.00 0.00 23,28°C 23,15°C			
L 💰 🔯 🖏 0.000 mL/min			
0,00 / 0,00 Instrument 1 👔 🕞 On 🚺 Off			
Instrument Status Module Options Diagnostics Log			
For Help, press F1	System Idle	0#	* # 0 //.

The Agilent Instrument Status screen and ICF software under Empower is shown above with the Multisampler configured at the bottom of the screen.

The instrument method and the method set can be created in Empower by accessing the Empower Run Samples screen. The Instrument method is set up and saved through the Edit/Instrument Method dialog.

The Multisampler dialog screens for setting appropriate method parameters are shown below ("Edit Instrument Method" on page 9). Additional/optional Multisampler method setup steps are provided in Appendix "D - Optional Multisampler Method Setup Parameters" on page 26.

Edit Instrument Method

1 Go to Edit and click Instrument Method.



2 Click the Multisampler tab. The Instrument Method Editor is displayed with the default settings and the available Advanced features. Enter the appropriate parameters in these fields and click the save icon to save the method.

trument Method Pretreatment Method Auxiliary Channels General Thstrument C	onfiguration
tinary Pump Multisampler Column Comp. DAD	
	Multisampler (G7167B)
Injection	Advanced
	Sampling Speed
Injection volume: 5,00 ‡ µL	Draw Speed: 100,0 🛟 µL/min
	Eject Speed: 400,0 🗘 µL/min
Needle Wash	Wait Time After Draw: 1,2 📜 s
Standaro Wash	Nanda Halak Davia
Stoptime Posttime	
 As Pump/No Limit Off 	Unset
○ 1,00 〕 min	
	High Throughput
	Injection Valve to Bypass for Delay Volume Heduction
	Enable Overlapped Injection
	C When Sample is Flushed Out
	After Period of Time
	0,00 ¢ min
	Injection Path Cleaning

3 Enter the Name, Method Comments (optional), click **Save** and close the Instrument Method Editor.

Save current Instrument Method			8
Names:			
InstrMethNewTst InstrMethod			
InstrMethodNew			-
Newrestmethou			
Name:			
Method Commenter			
Method Comments.			
			ľ
	Save	Cancel	Help

Start an Analysis in Empower 3

NOTE

Ensure the Agilent well plate is positioned in the lowest drawer position of the Multisampler! All positions in the Sample Hotel must be filled either with dummies or drawers. The drawers must be installed from bottom to top.

Create a Single Injection/Run

To create a single injection/run, follow the steps below for creating a Method Set. This can be performed from the main Empower Run Samples screen.

🕄 Infinity II in Infi	nity II as System/Administrator - Run Samples
File Edit View	Inject Actions Customize Help
<u>b</u> 2 8	
Sample Name:	S1
Function:	Inject Samples
Method Set:	Infinity II
Plate/Well:	4:A,1 Develop Methods
Injection Volume:	10,0
Run Time:	10,00 • Options
	»
	amples / Sample Sets / Running /

- 1 Ensure you are on the Single tab as outlined above and enter appropriate values including Sample Name, Function, Plate/Well, Injection Volume and Run Time.
- **2** When entering the info for the Plate/Well, select the appropriate position of the sample or vial. For example "4:A,1" refers to a vial in sample position A1 being used in Plate 4 (P4).

NOTE In Empower 3, "4:A,1" corresponds to "P4-A-1" in the Multisampler user interface. For more information on plate configurations, refer to the Appendix "C - Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates" on page 23 and the Agilent 1200 Infinity Series Multisamplers User Manual.

3 Click the lnject Icon (outlined above) to start the analysis.

Create a Series of Injections

To create a series of injections, follow the steps below for creating a Method Set. This can be performed from the main Empower Run Samples screen.

😫 Infinity II in Infinity II as System/Administrator - Run Samples							
File	Edit Vie	ew In	ject A	ctions	Customize H	lelp	
I č	o 🇞 🖡	3		<u>*</u>	L	ЙФ́Ф́ Н-С-	
).	Plate//Vell	Inj Vol (uL)	#of I⊓js	Label	SampleName	Level	
1	1:A,2	1,0	1	U01	S1		
Γ							
Ļ							
	Single	<u>k Sam</u>	ples / 8	Sample	Sets 🔏 Runnin	q /	

- 1 Select File/New Sample Set Method/Using Sample Set Wizard from the top level menu and follow the steps provided on screen. In the example above in the Samples tab, the Sample Set Method table contains a series of parameters for making multiple injections.
- **2** Ensure there are values for Plate/Vial position, injection volume, the number of injections per vial, Label and Sample Name in the Sample Set Method table. In this example above, "1:A,2" refers to sample position A2 being used in Plate 1 (P1).
- 3 Click on the green Run icon (outlined above) to start the analysis.
- E In Empower 3, "1:A,2" corresponds to "P1-A-2" in the Multisampler user interface. For more information on plate configurations, refer to the Appendix "C Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates" on page 23 and the Agilent 1200 Infinity Series Multisamplers User manual.

NOTE

Appendices

A - Configuring an Agilent LC in Empower

NOTE

These configuration steps have to be followed whenever a new module is added or removed. Previously, the old configuration has to be deleted from the DHCP server configuration. Then the Empower software has to be shut down and the LAN connection to the module has to be switched off and on again. When the LAN connection has been restored the new configuration procedure can be started.

HINT

Ensure that the module hosting the LAN connection is enabled to use DHCP. This can be achieved by setting up the DIP switches of the module in a specific order. Please refer to the manual of the module hosting the communication.

1 Access the Configuration Manager as System Administrator as shown below.



- **2** Go to Properties of the Empower Nodes.
- **3** Click **Configure DHCP** button on the Configure DHCP tab.

ᡖ System/Administrator - Configuration Manager 🗖	
File Edit View Records Tools Help	
Filter By: Default 🗨 Edit View Update Max Rows 1000 📝 🖌 🔰	
Image: System s Image: System s Node Type Owner Node Comments	
B S Node IC-ep3fr2-b1' Properties	x
General Instruments Serial Ports Configure DHCP Access	
	_
The Waters DHCP Server is designed to work automatically without user intervention bit is none cases up with each to change or specific DHCP TP Address MAC Address Type Name	
Interview of the boling sport water of	
Conigae Dr.CP	
For Help, press FI	

4 Check the IP Address and the MAC Address of the instrument. If the parameters are correct click **OK**. To add a new instrument, **Click Add...**

5 Use **Add IP Address** screen to set the Instrument Type (select **Agilent LC** from the drop-down list) and enter a unique name for the system in the Serial Number/Unique Name field then click **OK**.

🖶 System/Administrator - Configuration Manager	
File Edit View Records Tools Help	
Filter By: Default Edit View Update Max	Rows 1000
Empower 3 Configuration Mode Name Node Type Owner Node Comm Departs 1 Ic-ep3fr2-b1 Empower System	rents
Systems	
🖸 🚭 Node 'Ic-ep3fr2-b1' Properties 🛛 🔀	
General Instruments Serial Ports Configure DHCP Access	H Waters DHCP Server Configuration
The Waters DHCP Server is designed to work automatically without user intervention but in some cases you will need to change or specify DHCP settings for the instrument network or third-party instruments in your laboratory.	IP Add Add IP Address
Click the button below to configure third-party Ethernet instruments on this node or to use a different IP address range for your instrument network.	IP Address I · · · · · · · · · · · · · · · · · ·
Configure DHCP	Serial Number/ Unique Name
	Add Edit Remove OK
OK Cancel Help	·
For Help, press F1	1 Total

The unique name defined here will then be used as the address in the Node/Properties/Instrument tab.

6 From the main menu, navigate to the Node/Properties/Instrument tab and click the Scan Instruments button to check you have a connected instrument.

Node 'Ic-	Node 'Ic-ep3fr2-b1' Properties							
General	Ins	struments S	erial Ports Configure DHI	CP Access				
	_					_		
	E.	Туре	Address	OK ?	Serial Number	4		
	1	AgilentLC	AgilentLC#InfinityIIDemo	No				
	4							
	. [
		Sca	an Instruments	Remove In:	strument			
				ок	Cancel	Help		

From the example LC Status Windows information view (accessible via *in* the LC status window), you can review the list of connected LC modules and related information as shown.

8							
Vendor	Name	Part Number	Serialnumber	Firmware Revisior	Connection Info	Driver Version	Additional Information
Agilent	Quat. Pump	G7104A	DEBAX00158	B.06.73 [0002]	134.40.26.205	A.02.11 SI 517.05	
Agilent	Binary Pump	G7120A	DEBA200149	B.06.73 [0001]	134.40.26.205	A.02.11 SI 517.05	
Agilent	Multisampler	G7167B	DEBAS00205	D.06.72 [0002]	134.40.26.205	A.02.11 SI 517.05	
Agilent	Column Comp.	G7116B	DEBA400197	D.06.72 [0002]	134.40.26.205	A.02.11 SI 517.05	Slave Firmware: C.06.72 [0001]
Agilent	RID	G1362A	DEAA601801	A.06.54 [002]	134.40.26.205	A.02.11 SI 517.05	
Agilent	DAD	G7117B	DEBAW00171	D.06.72 [0002]	134.40.26.205	A.02.11 SI 517.05	Access Point
Configurat	ion as of last onli	ne instrument o	connection				Print Close

The next series of steps enables the connected system to be configured and visible in Empower.

1 Click File, New and click Chromatographic System to make the new LC system accessible to Empower.

File Edit View Records	Tools Help			
New	+	Project		
Open	Ctrl+O	Node		
Clone		Chromatographic System		
Properties		User		
Backup Project Restore Project(s) Backup Database		User Group User Type Plate Type Library		
Import Libraries/Spectra Export Libraries Export Spectra Restore Pre 3.0 Library	a -			
Exit				

2 Select Create New System to initiate the wizard and click Next >.

ᡖ System/Administrator - Configuration M	anager	
File Edit View Records Tools Help		
1955 💰 🕺 🗙 1866		
Filter By: Default		Edit View Update Max Rows 1000
Filter By: Default Filter By: Default Filter By: Default Frojects Frojec	Node Name 1 Ic-ep3fr2-b1	Edit View Update Max Hows 1000 a Node Type Owner Node Comments 1 Empower System Chromatographic System Wizard - Type Entry Chrose 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 Help
 For Help, press F1		

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



4 In the Allowed Access dialog box, select the radio button Owner, Group and World. Click Next >.





5 Enter the System Name and System Comment (optional) then click Finish.

After the configuration procedure, the LC system should appear in the list of systems as shown in the example below.

ᡖ System/Administrator - Configuration Manager							
File Edit View Records Tools Help							
285 🖋 🗶 🗴 🖻 🖻							
Filter By: Default							
🖃 🖶 Empower 3 Configuration	1	System Name	Node Name	OnLine	System Comments		
	1	Infinity2	lc-ep3fr2-b1	No			
Sustems	2	my second instrument	lc-ep3fr2-b1	Yes	my second instrument		
eCord							
🔤 😨 Users							
🖉 User Groups	F						
- 🕵 ? User Types	F						
- 🧼 Plate Types	⊢						
System Audit Trail							
Source of the System Audit Trail	L						
	F						

NOTE

You can only run an analysis when OnLine is set as Yes in the table above.

B - Importing Agilent Well Plate Definitions

In order to use Agilent well plates in conjunction with Empower 3 and a Multisampler, well plate definitions must exist already. These steps outline the procedure for importing new Agilent well plate definition files into Empower.

NOTE

If the Agilent well plate types are not present in the list, it will be necessary to search and import at least the Agilent 54-well plate definition .txt file as this is not installed automatically by Empower 3. Also, importing of plate definition .txt files can only be performed one at a time.

From the Configuration Manager window, select Plate Types in the left navigation pane to display the current list of well plate types available that can be used within Empower. Determine if the Agilent well plate types are present. In the example, the plates do not exist so follow the steps below.



1 Right click on an empty row of the **Plate Type Name** table to select the list of plate menu functions.

ile Edit View Records Tools Hel	ip		
29 🗗 🕺 🖉 🖉	B		
Filter By: Default		✓ Edit View	Update Max Rows 1000
📲 Empower 3 Configuration	T	Plate Type Name	
Projects	1	24 uCfuge tube, 1.5mL	
Sistems	2	24 vial (open access), 2mL	1
Elibraries	3	384 well, 80uL	
eCord	4	48 uCfuge tube, 0.5mL	
😰 Users	5	48 vial holder, 2mL	
Ser Groups	6	96 well (tall), 1mL	
Plate Types	7	96 well (tall), 2mL	
- System Audit Trail	8	96 well (tall), 350uL	
🐗 Offline System Audit Trail	9	96 well w/700uL insert	
	10	96 well, 300 uL	
	11	Agilent54VialPlate	New
	12	ANSI-24Tube1.5mLHolder	Delete
	13	ANSI-24∀ial4mLHolder	Export to Text
	14	ANSI-384well100uL	Import from Text
	15	ANSI-384well250uL	Properties
	16	ANSI-48Tube0.65mLHolder	Copy
	17	ANSI-48∀ial2mLHolder	
	18	ANSI-96well1mL	Hide Column
	19	ANSI-96well1mLGlassInser	Show All Columns
	20	ANSI-96well2mL	Print Table
	21	ANSI-96well350uL	Table Properties
	22	ANSI-96well700uLGlassins	

2 Select Import from Text from the menu list.

ᡖ System/Administrator - Configuration Manager							
File Edit View Records Tools Help							
🏓 🖥 🛃 🔊 🖉 🗙 🔏 🖻							
Filter By: Default		✓ Edit View	Update Max Rows 1000				
🖃 📇 Empower 3 Configuration		Plate Type Name					
Projects	1	24 uCfuge tube, 1.5mL	1				
	2	24 vial (open access), 2mL	1				
Libraries	3	384 well, 80uL	1				
eCord	4	48 uCfuge tube, 0.5mL	1				
🖉 Users	5	48 vial holder, 2mL	1				
User Groups	6	96 well (tall), 1mL	1				
Plate Tropes	7	96 well (tall), 2mL	1				
- System Audit Trail	8	96 well (tall), 350uL	1				
🚽 🐻 Offline System Audit Trail	9	96 well w/700uL insert					
	10	96 well, 300 uL		-			
	11	Agilent54VialPlate	New				
	12	ANSI-24Tube1.5mLHolder	Delete				
	13	ANSI-24Vial4mLHolder	Export to Text				
	14	ANSI-384wel/100uL	Import from Text				
	15	ANSI-384well250uL	Properties				
	16	ANSI-48Tube0.65mLHolder	Conv				
	17	ANSI-48Vial2mLHolder					
	18	ANSI-96wel/1mL	Hide Column				
	19	ANSI-96well1mLGlassInser	Show All Columns				
	20	ANSI-96well2mL	Print Table				
	21	ANSI-96well350uL	Table Properties				
	22	ANSI-96well700uLGlassins	Column Properties				
				1			
			1				
			1				
			1				

3 The **Import Plate Type From Text File** dialog appears. Click the **Browse** button and navigate to the **Agilent Plates for Import** folder as described in the next step.

System/Administrator - Configuration N File Edit View Records Tools Help	1anag)	er		
<u></u>	3			
Filter By: Default		✓ Edit Vie	w Update Max Rows 1000	
Empower 3 Configuration) je	Plate Type Name		
Projects		24 uCfuge tube, 1.5mL		
Systems	2	24 vial (open access), 2m	L	
🗈 🛷 Libraries	3	384 well, 80uL		
	4	48 uCfuge tube, 0.5mL		
S Users	5	48 vial holder, 2mL		
Ser Types	6	96 well (tall), 1mL		
Plate Types	7	96 well (tall), 2mL		
- 🐴 System Audit Trail	8	96 well (tall), 350uL	Import Plate Type From Text File	
	9	96 well w/700uL insert	Waters can import a plate type definition from a text file.	
	10	96 well, 300 uL	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	
	11	Agilent54∀ialPlate	and and an accord faile of a compare type according to	
		ANSI-24Tube1.5mLHolder	Plate Type Definition Import File: Browse	
	13	ANSI-24Vial4mLHolder		
	14	ANSI-384well100uL	U:\Users\locAdmin\Desktop\AgilentPlatesForImport\Empower 3\En-U5	
	15	ANSI-384well250uL	New Dista Torra Manag	
	16	ANSI-48Tube0.65mLHolde	New Plate Type Name:	
	17	ANSI-48∀ial2mLHolder	Agilent54VialPlate	
	18	ANSI-96well1mL	OK Crossel	
	19	ANSI-96well1mLGlassInse		
	20	ANSI-96well2mL		
	21	ANSI-96well350uL		
	22	ANSI-96well700uLGlassIn	.sert	
	\vdash			
	\vdash			

4 The location of the Agilent well plate import files are part of the Waters Empower Driver pack currently located on the Empower Driver Pack CD in folder Agilent ICF/Agilent ICF Support v 2.1 Hotfix 1/AgilentPlatesForImport/Empower 3/En-US and take it from here. Navigate to this folder using Explorer.

~					
😋 🔵 🗢 📙 🕨 AgilentPl	atesForImport 🕨 Empower 3 🕨 En-US				
Organize 🔻 Include in	library 👻 Share with 👻 New folder				
🔆 Favorites	Name				
🧮 Desktop	15HRV5mlVialPlate.txt				
鷆 Downloads	15HRV6mIVialPlate.txt				
📃 Recent Places	15VialPlate.txt				
	📄 96DeepAgilent3.txt				
🧊 Libraries	📄 96DeepAgilent4.txt				
Documents	96DeepRitter41.txt 384Agilent.txt 384Corning.txt				
👌 Music					
📔 Pictures					
🚼 Videos	📄 384Greiner.txt				
	📋 384Nunc.txt				
👰 Computer	📄 Agilent27Eppendorf500uL.txt				
鑑 Local Disk (C:)	📄 Agilent27Eppendorf1500uL.txt				
👌 DVD Drive (D:) GSP1	📄 Agilent27Eppendorf2000uL.txt				
	ANSI96Well500uL.txt				
年 Network	ANSIAgilent54VialPlate1500uL.txt				

5 In this example, an Agilent 54-well plate will be selected. Select the Agilent 54VialPlate text file and click OK to import.

System/Administrator - Configuration M	lanag	er	
	1		
Filter By: Default		✓ Edit Viey	W Update Max Rows 1000
🖃 🖶 Empower 3 Configuration	E	Plate Type Name	
Projects		24 uCfuge tube, 1.5mL	
Sveteme	2	24 vial (open access), 2mL	
	3	384 well, 80uL	
🖶 🛁 eCord	4	48 uCfuge tube, 0.5mL	
🖉 Users	5	48 vial holder, 2mL	
Ser Groups	6	96 well (tall), 1mL	
Plate Types	7	96 well (tall), 2mL	
System Audit Trail	8	96 well (tall), 350uL	Import Plate Type From Text File
🚽 🍕 Offline System Audit Trail	9	96 well w/700uL insert	Waters can import a plate tupe definition from a text file
	10	96 well, 300 uL	Browse to or type in the path and name of the plate type file,
		Agilent54VialPlate	then enter the desired name of the new plate type definition.
		ANSI-24Tube1.5mLHolder	Plate Tupe Definition Import File:
		ANSI-24Vial4mLHolder	
	14	ANSI-384well100uL	C:\Users\locAdmin\Desktop\AgilentPlatesForImport\Empower 3\En-US
	15	ANSI-384well250uL	
	16	ANSI-48Tube0.65mLHolde	New Plate Type Name:
	17	ANSI-48Vial2mLHolder	Agilent54VialPlate
	18	ANSI-96well1mL	
	19	ANSI-96well1mLGlassInse	OK Cancel
	20	ANSI-96well2mL	
	21	ANSI-96well350uL	
	22	ANSI-96well700uLGlassIns	sert

C - Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates

If the well/vial plate of interest is neither present in Empower nor part of the available well/vial plate definitions for import, the well/vial plate need to be manually defined within Empower.

As all dimensions are required to successfully define the well/plates you find the parameters for the some of the Agilent well/plates below. If you know the dimensions, proceed to the next step – manual set up.

Plate Rows and Columns Referencing	Plate Rows and Columns Referencing	Plate Rows and Columns Referencing
Plate Type	Row and Column Dimensions - mm	Origin
Name agilent 54 vial plate	Number Spacing	Origin: Top Left C Top Right
Format W	Rows 6 13.00	C Bottom Left C Bottom Hight
	Columns 9 13.00	Scheme
Plate Dimensions - mm		Referencing: • XY C Sequential
X Y Height	Row and Column Offsets - mm	Horizontal: CABC C123
127.60 85.60 36.00	None Offset	Vertical:
	Row Offset: Odd 0.00	E Securatial Continuous
X Y	C Even	Horizontal First Priority
Top Left 9.20 9.20	None Urrset - mm	
	C Even	Terminology
Diameter Depth		Plate Plate
Well Size 3.20 23.00		Well vial
OK Cancel Help	OK Cancel Help	OK Cancel Help

The 3 screens shown above refer to Agilent's 54 vial plates.

Plate Rows and Columns Referencing	Plate Rows and Columns Referencing	Plate Rows and Columns Referencing
Plate Type	Row and Column Dimensions - mm	Origin
Name Agilent 96 well plate	Number Spacing	Origin: Top Left Top Right
Format XY	Rows 8 9.00	C Bottom Left C Bottom Right
	Columns 12 9	Scheme
Plate Dimensions - mm		Referencing: • XY C Sequential
X Y Height 127.70 85.60 14.30	Row and Column Offsets - mm	Horizontal: C A B C @ 1 2 3
	None Offset	Vertical: • A B C • 1 2 3
Well Dimensions - mm	Row Offset: C Odd 0.00	Sequential Continuous
Top Left 8.50 8.50	None Offset - mm	Horizontal First Priority
Dismotor Dooth	C Even	Terminology
Vial Size 850 11.2		Plate
Weil Size 0.00 The		Well well
OK Cancel Help	OK Cancel Help	OK Cancel Help

The 3 screens shown above refer to Agilent's 96 well plates.

Appendices C - Manual Set Up of Well Plates and Example Configuration Layouts for Standard Agilent Well Plates

Plate Rows and Columns Referencing	Plate Rows and Columns Referencing	Plate Rows and Columns Referencing
Plate Type	Row and Column Dimensions - mm	Drigin
Name Agilent 384 well plate	Number Spacing Rows 16 4.50	Origin: Top Left Top Right C Bottom Left Dettom Right
	Columns 24 4.50	Scheme
Plate Dimensions - mm		Referencing: • XY C Sequential
X Y Height 127.80 85.60 14.40	Row and Column Offsets - mm Offset	Horizontal: CABC C123
Well Dimensions - mm	Row Offset: C Odd 0.00	Sequential Continuous
X Y Top Left 3.70 Well Location 3.70	Column Offset: C Odd 0.00	Horizontal First Priority
Diameter Depth	C Even	Plate Plate
		Well
OK Cancel Help	OK Cancel Help	OK Cancel Help

The 3 screens shown above refer to Agilent 384 well plates.

Manual Set Up of Well/Vial Plates

- 1 To manually define plates go to the main Edit menu then click Plates.
- 2 In the upcoming dialog select Create New Plate Type.

Defi	ne Plates For Sample Set Method		
I	2790 Layout Create New F	Plate Type Clear Plates	Plate Sequencing Mode
Ē	Plate Type Name	Plate Layout Position	
1	Agilent54	1	(A,1) (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A9)
2	Agilent54	2	
3	Agilent54	3	
4	Agilent54	4	
5	Agilent54	5	
6	Agilent54 🗾 👻	6	(E,1) (E2) (E3) (E4) (E5) (E6) (E7) (E8) (E9)
			1
	OK Cano	el Help	Inject Standards Insert Append

NOTE

The selected plates defined in the table above must be the same type and position as defined in the **Tray and Plate Configuration** dialog of the Multisampler graphical user interface (refer to step 8 on page 6) otherwise a mismatch will result when starting the analysis.



D - Optional Multisampler Method Setup Parameters

The information provided below are additional/optional steps in setting up a Multisampler method.

1 This set of parameters can be used to reduce the amount of potential carryover in the system. Click **Injection Path Cleaning** and enter the corresponding values in the fields provided.

🔂 Untitled in Infinity II as System/Administrator - Instrument Method Editor				- • ×
File Edit View Help				
Instrument Method Pretreatment Method Auxiliary Channels General Instrument Conf	figuration			
Binary Pump Multisampler Column Comp. DAD				
			Multisam	pler (G7167B)
Injection	Advanced			
	Injection Path Cleanin	g		
Injection volume: 5,00 📜 µL	Standard Wash			
		Mode: F	lush Port 👻	
Needle Wash		Time:	3 ; s	
Standard Wash 💌		Location:		
Stoptime Posttime		Repeat:	з 📜	
	Multi-wash			
C 1.00 0 min C 1.00 0 min	Step Solvent	Time [s] SeatBa	ckFlush Needle₩ash	Comment
	1 S1	3 🗸		
	2 <u>52</u> 3 53	3 1		
	Start Cond. S1			
Done				li.

2 Right mouse click on Multisampler Instrument Status and click Control. Select the parameters as shown in the example and click OK.

😫 Control	
Missing Vessel	Illumination
Ignore missing vessel	💿 On 🖸 Off
At Power On	Cooler
Turn on Cooler	 On 16 ⁺ ⁺C Off Max. Temperature ∠ 5°C below ambient
Automatic Turn On	
Turn on at Friday, Ma	arch 06, 2015 11:00:00 AM 🔅 👻
Pump Connected to Sampler	Clear Workspace
G7120A:DEBA200149	At End of Analysis 👻
	Ok Cancel Help

3 Right mouse click on Multisampler Instrument Status and click Auto-clean.

🕒 Auto-clean Settings and Start			
Injection Valve			
Switch Injection Valve			
Standard Wash			
🔽 Wash Right Needle	Duration	3	s
Flush Flow Path			
Flush Flow Path	Duration	5	s
Ensure to set the composition and the of the action	flow of your pump a	ecordingly prior to	o the start
		Start	Cancel

4 Select the Duration and click the Start button.

5 Return to the Multisampler Instrument Status, click on Prime, enter the Duration period and then click Start.

🔒 Prime Setting	s and Start 📃 🗖 💌
Prime Settings	
Duration	3 s
Note that the M	ultisampler primes to wash port
Note that the Mi using first solven	ultisampler primes to wash port t (S1)

NOTE

The use of the reference vial array is currently not supported. It is not possible to enter the reference vial position (1-5) for the sample set.

NOTE

For more information on the available functions, please consult the Agilent 1200 Infinity Series Multisamplers User Manual.



Part Number: G7167-90150

Edition: 10/2015 Printed in Germany © Agilent Technologies, Inc 2015

Agilent Technologies, Inc Hewlett-Packard-Strasse 8 76337 Waldbronn Germany