Using ISET in Analyst Environment

Technical Note

Technical Guide for the configuration and use of the Agilent Intelligent System Emulation Technology (ISET) G2197AA with Sciex Analyst.

Introduction

Sciex ´s adoption of the Agilent Instrument Control Framework (ICF) for their Analyst Data System is called Analyst Device Driver (ADD). Sciex ADD is available as separate download package via the Sciex webpage in the support section.

For the compatibility of ADD with Sciex Analyst software, please refer to Sciex Analyst release note of the version in question. This guide describes how to configure ISET in Sciex Analyst Software environment.

Table 1   Supported and unsupported configurations using ISET in Analyst

Sciex ADD	Agilent ICF Agilent LC Driver	ISET support for Sciex Analyst
ADD 1.3	A.02.05 A.02.18	ISET 1 ISET 2 ISET 3 ISET 4 ISET 4.2
ADD 1.2	A.02.04 A.02.14	ISET 1 ISET 2 ISET 3 ISET 4
ADD 1.1	A.02.04 A.02.14	ISET 1 ISET 2 ISET 3 ISET 4
ADD 1.0	-	ADD 1.0 is no longer supported. Sciex recommends upgrading to higher ADD versions.

Prerequisites/Compatibility Information

- For general software requirements such as operating systems, refer to the Sciex Analyst and ADD documentation.
- The ISET manual provides a list of modules capable of emulation. All requirements for ISET are outlined accordingly in the ISET manual G7120-90310 https://www.agilent.com/cs/library/usermanuals/public/ISET4_USR.pdf

NOTE ISET is not available in a dual needle set up of the 1260 and 1290 Multisampler (G7167A/B). Single needle setup is required.

ISET Trial

A 700-hour demonstration/trial version of ISET is available with the following pumps:

- Agilent 1290 Infinity II Flexible Pump (G7104A firmware B.06.56 and later)
- Agilent 1260 Infinity II Flexible Pump (G7104C firmware B.07.20 and later)
- Agilent 1290 Infinity Quaternary Pump (G4204A firmware B.06.56 and later)
- Agilent 1290 Infinity II High Speed Pump (G7120A firmware B.06.42 and later)
- Agilent 1290 Infinity Binary Pump (G4220A firmware B.06.42 and later)
- Agilent 1290 Infinity Binary Pump VL (G4220B firmware B.06.42 and later)

A pictogram in the LC status dashboard indicates whether the demonstration or full version is active.

Table 5 Pictograms of ISET versions

Figure 1 Pictograms of ISET versions

End of Trial Period requires reconfiguration in Analyst

The trial period is available for each of the listed pumps and cannot be disabled. The trial period begins with the first initiation of the pump. Unless the trial version is upgraded to a registered version, the ISET function will be deactivated when the trial period has lapsed.

NOTE   The deactivation of ISET at the end of the trial period generates a configuration change for the pump:

When the end of the 700-hour trial period is reached, the system will continue to display the ISET pictogram in the LC Status Dashboard until the pump is restarted. With the restart of the pump, the hardware pump configuration changes and the ISET trial version is no longer present on the pump itself. As a result, the LC Status Dashboard will no longer display the ISET pictogram.

Still, ISET is present for the ADD Profile. The configuration needs to be corrected in the ADD Hardware Profile by performing a new auto-configuration of the LC system. Only after a new auto-configuration is the change in ISET availability in the software known. The configuration steps are outlined in this document.

If the reconfiguration does not take place, the system will not be able to operate. The pump will appear in offline mode. When hovering over the status indicator in the pump tile within the LC dashboard, a configuration mismatch is displayed.

NOTE   Methods generated during the trial period might require a manual resolution, if ISET was enabled in the method. For details see, "Migration of Method generated during the ISET trial period" on page 12.

Disabling the ISET Trial License to avoid reconfiguration

With any non-Agilent software, the end of the trial license requires an instrument reconfiguration and a reboot of the software and instrument. To avoid the reconfiguration, the trial license can now be deactivated *before configuring the instrument*.

NOTE   If you first configure your system and deactivate the trial license afterwards a reboot and a new auto-configuration is required.

ISET trial licenses can be deactivated using Lab Advisor B.02.12 or greater on the ISET-capable pumps (G4204A, G4220A/B, G7104A/C, and G7120A).

1   Go to the instrument control tab on the left side of the Lab Advisor Software.
2   Go to the corresponding pump's special commands.
3   Go to the section titled **License Dongles**.
4   Deactivate the trial license. Now the instrument configuration won't change after the end of the ISET trial.

The ISET trial license can also be reactivated if necessary. The trial license contains a total of 700 hours and the trial license clock only counts when the trial license is activated. For example, if the trial license is deactivated with 600 hours remaining and then reactivated a week later, the module has 600 hours of trial ISET remaining upon reactivation.

The **License Dongles** section of Lab Advisor can also be used to deactivate ISET licenses installed via the ISET dongle.

Setting up ISET in Hardware and Software

Instrument Set Up

1   Close Analyst.

2   Switch off the Agilent LC system, or at least the Agilent pump. Plug the ISET dongle into the USB port on the back of the pump.

3   Power on the pump.

4   Wait until the USB dongle stops blinking.

5   Switch off the pump. You can remove the USB dongle or leave it inserted.

6   Switch on the pump to finalize the activation procedure.

7   Switch on all modules in the Agilent LC instrument system.

HINT   Details on the activation process are outlined in the ISET manual
https://www.agilent.com/cs/library/usermanuals/public/ISET4_USR.pdf

Ensure that all Agilent LC modules in the system meet or exceed the minimum firmware requirements specified by the 3rd-party CDS software vendor and Agilent's firmware set/firmware interoperability requirements. Agilent recommends using the latest available firmware set.

https://www.agilent.com/en-us/firmwareDownload?whid=69761

Configuration of ISET in Analyst

1   In the **Hardware Configuration,** generate the instrument **Hardware Profile** and click **Add Device** to add the MS instrument in question (for details see Analyst documentation). After the final MS setup, the **Create New Hardware Profile** window opens.
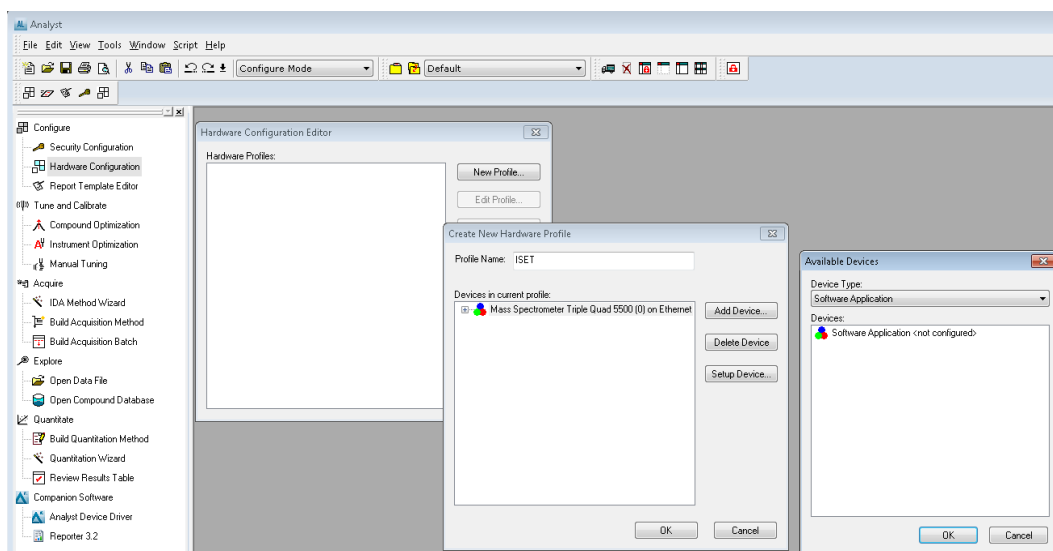

Figure 2   Hardware Configuration Editor

2   For the LC configuration, the ADD integration needs to be added first. Click **Add Device** again and add it.

3   In **Available Devices > Device Types**, select **Software Application**.

4   Click **OK** to leave the screen.

5   In the **Create New Hardware Profile** window select **Software Application** and click **Setup Device.**

6 Make sure to select **Analyst Device Driver** in the **Software Application Setting**.
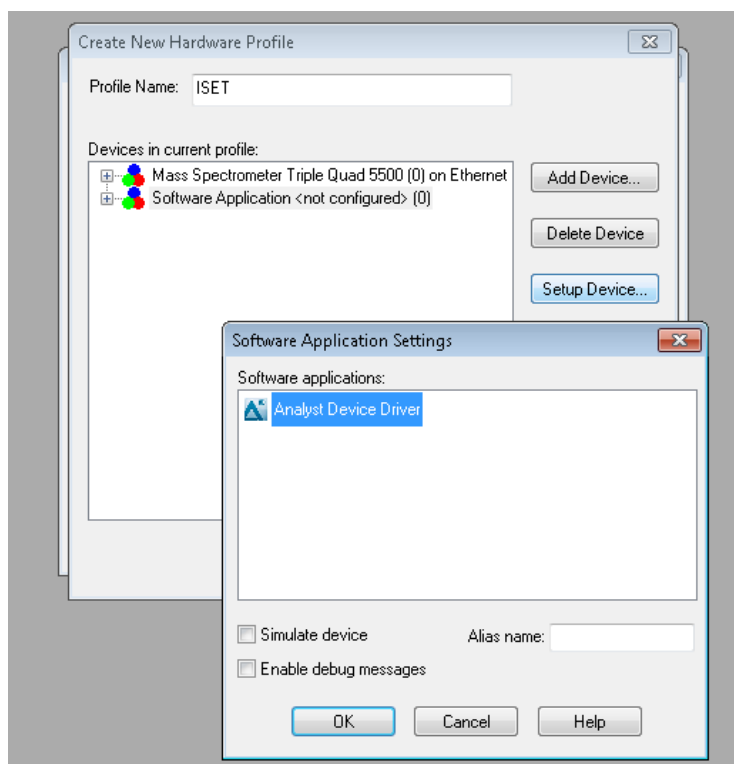

Figure 3 Software Application Settings

7 Select **Analyst Device Driver** and click **OK** to close the screen.

NOTE   If steps 6 and 7 are not done, the hardware profile cannot be finished. The system will remain offline.

8 Click **OK** to leave the screen.

9 Close the **Hardware Configuration Editor**.

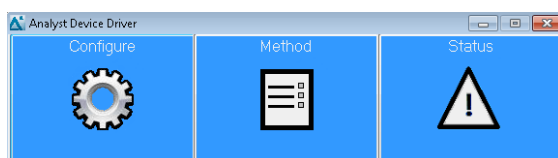**10** In **Companion Software** double-click **Analyst Device Driver**.

Figure 4 Analyst Device Driver

11 Click **Configure**. The configuration screen opens.

12 In the configuration screen, select **Agilent 1100/1200/1260/1290 LC** and click **Auto Configure**
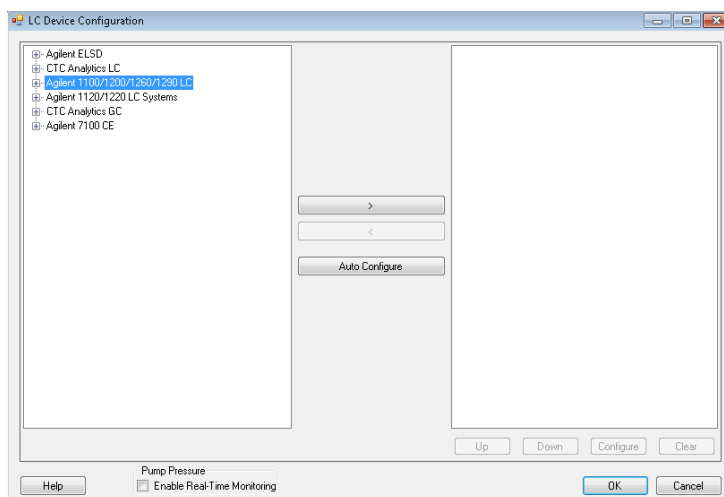

Figure 5 LC Device Configuration

13 Enter the IP address or hostname of the instrument and click **OK**. The instrument is detected, and the LC modules are shown on the right side of the configuration window.
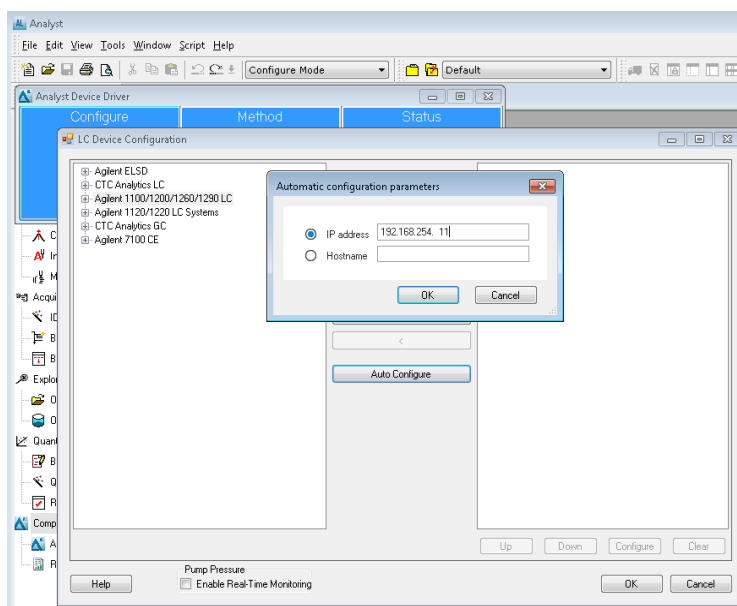

Figure 6 Automatic configuration parameters

NOTE The default IP address is 192.168.254.11. Please refer to the Agilent User Manual of the module with the LAN connection, if an IP address change is required. The detector is the preferred access point for control via LAN due to the high data rates generated

14 Double-click on the pump in the right window section or click **Configure**. The pump configuration screen opens.

15 As the configuration is directly read out of the instrument, the pump configuration window indicates the current ISET configuration status. If **ISET installed** is:

a selected, ISET demo mode is active or ISET is available via a dongle.

This does not mean that ISET is used in a method, it only indicates that ISET is available and could be used in a method.

b not selected, ISET is not detected and therefore not present.
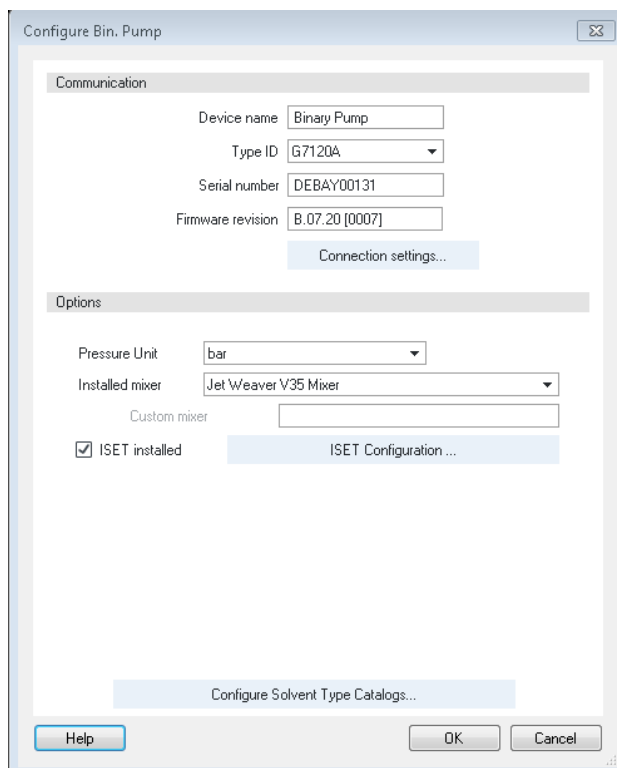

Figure 7 ISET detected on instrument

16 Click **OK** to leave the **Configuration Pump** window.

17 Click **OK** to leave the **LC Device Configuration** window.

Setting up ISET in Hardware and Software

To work with the LC system, the hardware profile needs to be activated first.

1 Double-click **Hardware Configuration** to open the **Hardware Configuration Editor**.
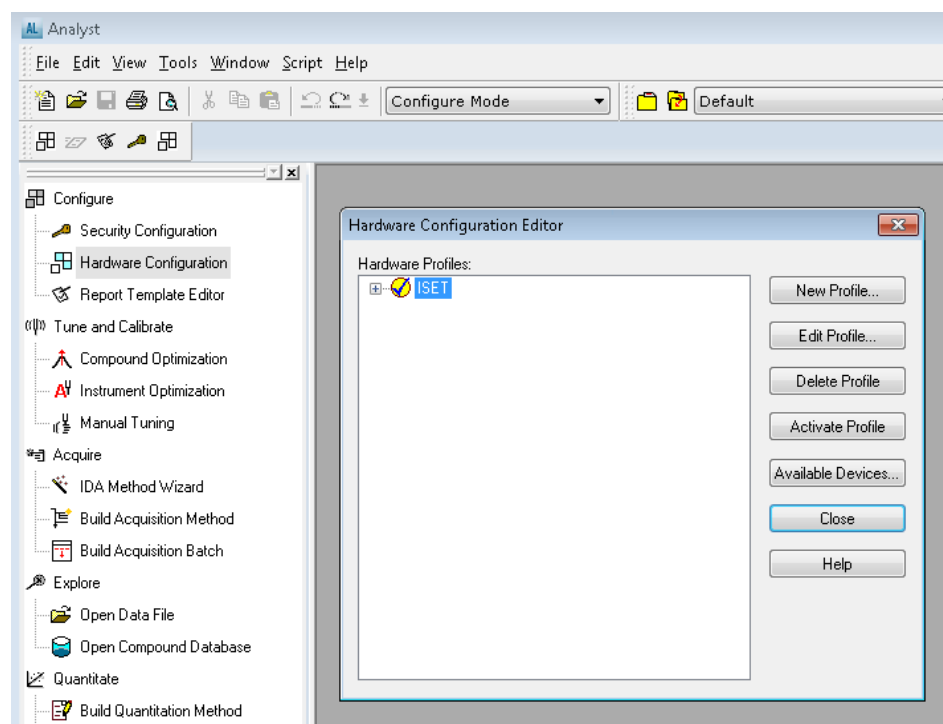
2 Click **Activate Profile**.

Figure 8 Hardware Configuration Editor

Generating an ISET method in Analyst

1   Start Analyst and open the Analyst main window.

2   Go to the Analyst Device Driver window and click **Status**. The upcoming LC Status window automatically displays all available online modules. The pump user interface now includes the ISET pictogram.

   • If the pictogram is displayed in gray, ISET is present, but used in the current method.

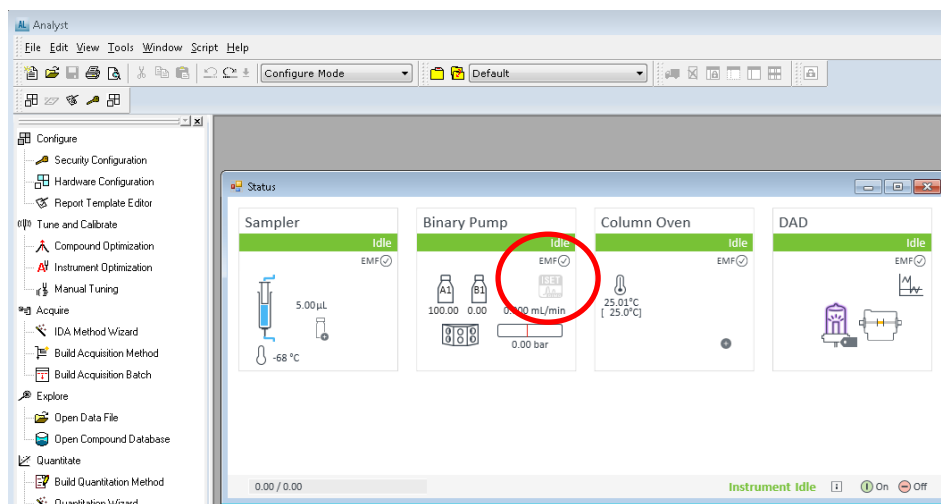   • If the pictogram is black, ISET is present and already enabled for the current method.

Figure 9   ISET in LC Status Dashboard in Analyst – ISET installed, but not enabled for current method

3   To generate an acquisition method, the LC portion needs to be defined in the Analyst Device Driver. When opening the acquisition method via **File > New > Acquisition Method**, only the MS part method parameters can be entered. Save this method using a specific name, and then the LC part of the method has to be added next.

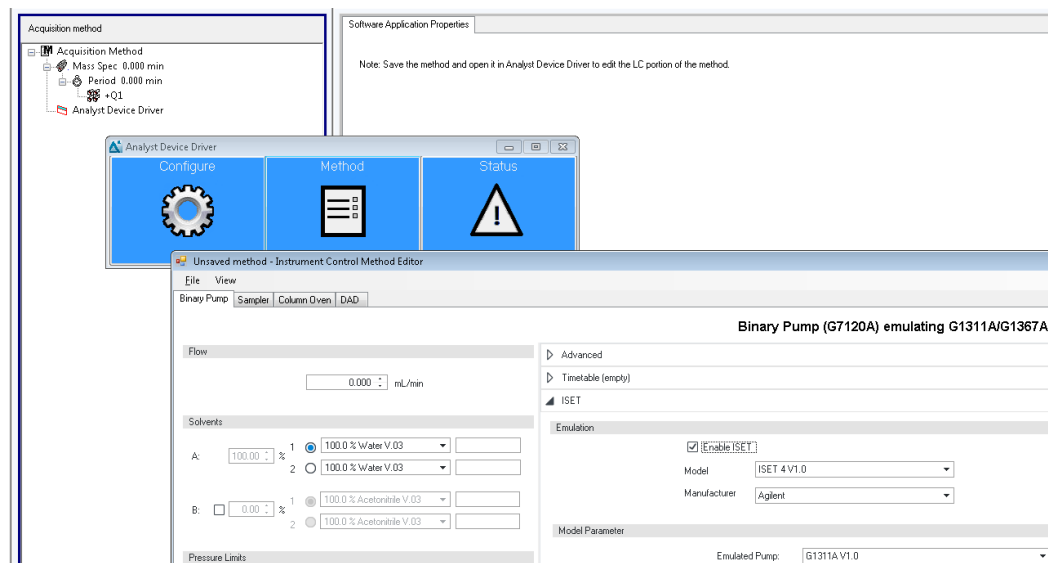   To enter the LC method parameters, go to ADD and click **Method.** The method dialog opens.

Figure 10 Instrument control method editor

Generating an ISET method in Analyst

4 Select the pump tab to enter the ISET method parameters. For details on the parameters, refer to the online help and the ISET user manual.

  a Locate the ISET method section and select the **Enable ISET** check box.

  b Select the appropriate ISET version. It is recommended to use the newest ISET version.

  c Choose the manufacturer of the system you want to emulate.

  d Select the emulated pump and sampler. The ISET solvent model is not required for common solvents like water, MeOH and ACN.

  e If you use non-standard configurations of the original system or different capillaries, **Enable manual fine tuning** might be required to manually adjust ISET settings. Details are outlined in the ISET user manual.
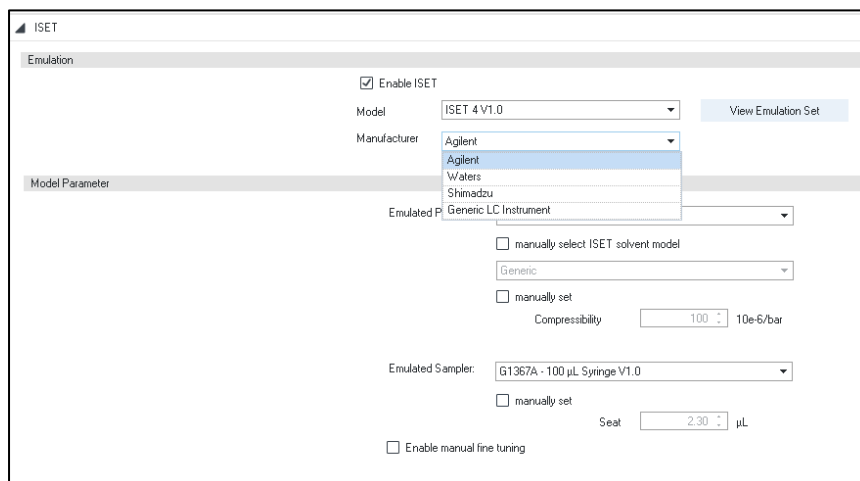

Figure 11 Setting up ISET in the acquisition method

5 Select **File > Save method to Analyst.dam file**. The acquisition method folder opens, and the LC method parameters must be saved to the previously generated MS acquisition method.

6 Close the LC method screen (ADD).

During running sequence:

• Executing an acquisition with an ISET method, the ISET pictogram in the LC status dashboard interface for the pump will indicate that ISET is enabled and used and your method is set up and ready for the first injection.

• If an acquisition with a non-ISET method is executed, the ISET pictogram is gray.
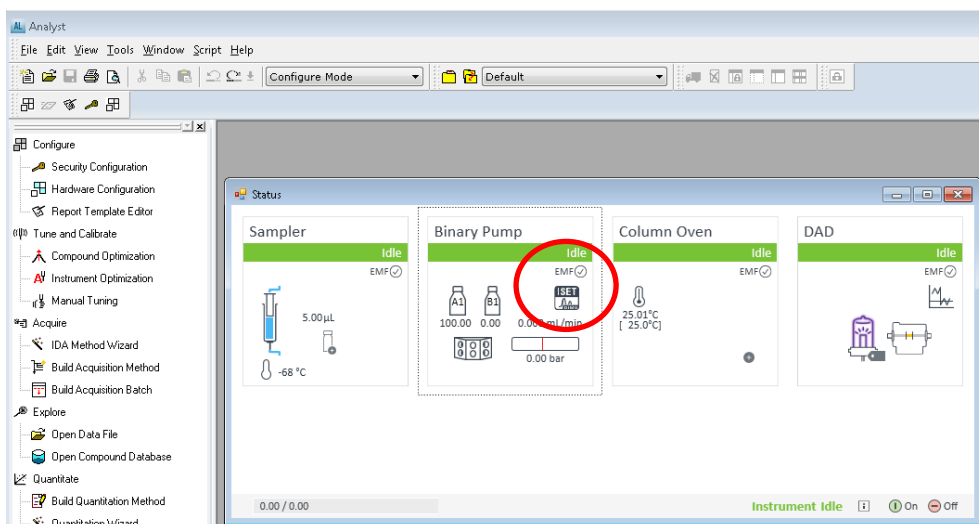

Figure 12 ISET pictogram in pump status tile of the LC status dashboard – enabled

Migration of Method generated during the ISET trial period

While ISET is present on the configuration, two variants are possible

- Methods without **enabled ISET** method parameters
- Methods with **enabled ISET** method parameters

It is possible to identify these variants in the in the pump method screen or on the LC status dashboard.

In the method screen, go to the tab **ISET** and check whether the parameter **enable ISET** is selected. As the parameter **enable ISET** is a method parameter, this parameter is present only if

- the ISET trial version is active
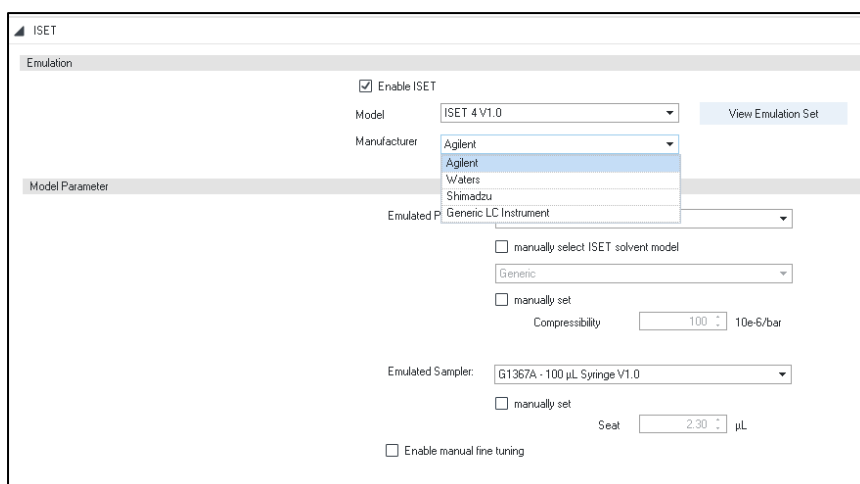- ISET is installed and active via a dongle.

Figure 13 ISET check box in the pump method screen

On the LC status dashboard, review the pump status tile

- If ISET is available, but not enabled - the ISET pictogram in LC status dashboard is grey (see Figure 9 on page 10)
- If ISET is available and enabled, the ISET pictogram in the LC status dashboard is black (see Figure 12 on page 11)
- If the ISET pictogram is missing on the pump status tile, the ISET functionality is not available anymore.

If either the USB dongle is de-installed/de-activated or the 700-hour-ISET trial version expires, the method parameter along with the ISET pictogram in the pump tile will be removed (after a reboot of the pump). This is a method change due to a configuration change. Each method created with this configuration requires manual method resolution to adjust to the new configuration.

As current Analyst Software (status February 2019) does not offer method resolution (manual or automatic), all methods created need to be re-written. Also, prior to the method generation, ensure to update the LC configuration by deactivating the profile, starting ADD and performing the configuration as described in this document.

Getting Help

For more information or help, please consult either Sciex for Analyst or Analyst Device Driver related questions, or Agilent Technologies for instrument related questions.

References

Agilent InfinityLab LC with ISET User manual
https://www.agilent.com/cs/library/usermanuals/public/ISET4_USR.pdf(G7120-90310)

Application Notes / Information on ISET available on www.agilent.com

Article about ISET published in Eurolab, June 2018, page 25
https://www.agilent.com/en/applicationfinder/applicationfinder

www.agilent.com