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## Release Notes

SII for Empower 1.3 • September 2023

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## 1 Introduction

Thermo Scientific™ Standard Instrument Integration (SII) for Empower™ is an interface driver for controlling Thermo Scientific chromatography instruments<sup>1</sup> within Waters™ Empower™ software.

SII for Empower is built on the modern Thermo Scientific™ Chromeleon™ 7 Chromatography Data System framework. It is meant to serve as a replacement for DII for Empower™ as this product is based on Chromeleon 6 technology which will shortly reach its end-of-life.

Due to its new technology, SII for Empower also greatly enhances the usability of the system via a modern UI for online instrument control and instrument method editing.

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<sup>1</sup> See List of Supported Instruments for currently supported modules.

## 2 Abbreviations

The following abbreviations are used throughout this document. Further explanations can be found in the chapters of use.

<b>SII</b>	Thermo Scientific™ Standard Instrument Integration – Driver interface framework that allows control of supported Thermo Scientific™ chromatography modules under various software environments, using the Chromeleon 7 framework.
<b>DII</b>	Dionex Instrument Integration – Driver interface framework that allows control of supported Thermo Scientific™ chromatography modules under various software environments, using the Chromeleon 6.8 framework.
<b>xxxxxx</b>	Chromeleon and SII for Empower issue tracking ID
<b>LTSB</b>	Long Term Support Branch (referring to releases of Windows Enterprise Operating Systems)
<b>LAC/E</b>	Laboratory Acquisition and Control / Environment
<b>DAD</b>	Diode array detector
<b>PMT</b>	Photo multiplier tube

### 3 Scope of this Document / Other Resources

The Release Notes describe the main features, list supported instruments and compatibility with Waters Empower and Windows operating systems for SII for Empower. If you require further information, for example, about installation, first steps, or troubleshooting, refer to one of the documents listed below.

<b>List of Supported Instruments</b>	Lists the instruments and modules that are supported with SII for Empower. Provides details of module specific limitations.
<b>Installation Guide</b>	Gives step-by-step instructions for installing and configuring Thermo Scientific SII for Empower, and describes all the requirements for installing SII for Empower (for example, PC and operating system requirements).
<b>Quick Start Guide</b>	Describes the basic operation of SII for Empower. Provides step-by-step instructions on how to control instruments and acquire data from HPLC and IC modules supported by SII for Empower via the Empower software.
<b>SII for Empower Online Help</b>	Provides information and help regarding the various options in SII for Empower which are specific to SII for Empower. Contains a section on troubleshooting helping to minimize the downtime of the instrument.
<b>Certificate of Validation</b>	Declaration that the product has been developed and tested according to the specification and appropriate standards.

**Tip:** The SII for Empower PDF documents are available on the SII for Empower installation disk in the folder Documents and also from the Windows start menu via Start -> Thermo SII for Empower -> Documents.

<b>Chromeleon 7 Installation Guide</b>	Components shared with Chromeleon 7 are automatically installed as part of the installation of SII for Empower, so no specific installation steps are required.
<b>Chromeleon 7 Quick Start Guide</b>	Describes the basic operation of Chromeleon 7. Functionality that is shared with SII for Empower is the Instrument Configuration Manager, the Instrument Method Wizard/Editor and the Instrument View.
<b>Chromeleon 7 Online Help</b>	Provides general information and help regarding the various options in SII for Empower which are shared with Chromeleon 7.

**Tip:** The Chromeleon 7 PDF documents are available from the Windows start menu via Start -> Thermo Chromeleon 7 -> Documents.

## 4 Product Features

SII for Empower 1.3 provides support for new chromatography instrumentation and improves on usability, features, and performance over Dionex Instrument Integration for Empower 1.16. The new modules/instruments and features are listed in this section.

SII for Empower replaces the former integration product DII for Empower and is recommended to be used for new installations. This ensures customers use the newest functionality and provides up to date integration into the existing IT infrastructure, e.g. Windows 10.

### 4.1 Drivers

All new modules are supported with Empower panels.

#### 4.1.1 Thermo Scientific TRACE 1600 GC – New and Updated Drivers

This release of SII for Empower introduces support for the following GC instruments for which separate installers are provided on the media in the Drivers folder:

- Thermo Scientific TRACE 1600 Series GC
- Thermo Scientific AI/AS 1610 Sampler

Additionally, the TriPlus RSH driver has been updated to support the TriPlus RSH Smart. A separate installer is available in the Drivers directory for this as well.

**Note:** There are known issues with the drivers on the media, please use a newer version available from Thermo Scientific

#### 4.1.2 ICS VWD – New Driver [122128]

This release introduces support for the Dionex ICS VWD module for use in combination with various IC systems.

### 4.2 General

#### 4.2.1 Empower Instrument licensing

SII for Empower 1.3 introduces a new licensing feature in order for Thermo Scientific Instruments to be correctly recognized in Empower. When configuring an instrument in SII for Empower, it is necessary to select the instrument type (GC, IC, or LC) to ensure compatibility with Empower licensing. This assignment is checked in SII for Empower to ensure the correct selection is made before the configuration is saved.

**Note:** All non-LC type instruments will need to have their configurations re-saved upon upgrade to SII for Empower 1.3

**Note:** All Instrument Methods for non-LC instruments created with earlier versions of SII for Empower will need to be opened and re-saved upon upgrade to SII for Empower 1.3

### 4.3 Compatibility

#### 4.3.1 Waters Empower [CM-10711]

Version 1.3 of SII for Empower has been validated for use with the following versions of Waters Empower 3:

- Feature Release 4 on Windows 10
- Service Release 3 on Windows 10
- Feature Release 5 on Windows 10



- Service Release 4 on Windows 10
- Service Release 5 on Windows 10
- Empower 3.6.0
- Empower 3.6.1
- Empower 3.7.0
- Empower 3.8.0

It supports all Empower installation types, i.e. Empower Personal Workstation, Empower Workgroup and Enterprise client/server.

When migrating from DII for Empower to SII for Empower it is suggested to keep an independent installation of DII for Empower for full reporting functionality. While reports on chromatographic results previously gathered with DII for Empower can still be retrieved, some reporting functionality (e.g. instrument method content) is limited.

### **4.3.2 Chromeleon 7 [CM-10711]**

Version 1.3 of SII for Empower is based on Chromeleon 7.3.1 technology.

### **4.3.3 Microsoft Windows [CM-17037]**

Version 1.3 of SII for Empower is compatible with Windows 10 (Pro + Enterprise x64 English), and Windows Server 2016 (x64 English). For further details, please see the supported operating systems for Chromeleon 7.3.1 provided with this release.

### **4.3.4 Citrix XenApp [28350]**

Version 1.3 of SII for Empower has been tested and validated to be compatible with Citrix XenApp 7.6 installed on Windows Server 2012 R2 (x64 English) for Empower 3 FR4 and Citrix XenApp 7.15 installed on Windows Server 2016 (x64 English) from Empower 3 FR5.

### **4.3.5 LAC/E box [63141]**

Version 1.3 of SII for Empower has been tested and validated to be compatible with the following models of LAC/e box:

- eLAC/E 16 on Windows 10 Enterprise 2016 LTSB x64
- cLAC/E 16 on Windows 10 Enterprise 2016 LTSB x64

### **4.3.6 Non-English Empower**

Version 1.3 of SII for Empower has been tested and validated to be compatible with the following non-English language versions of Empower:

- Empower 3 Japanese edition [52683]
- Empower 3 Chinese version

## 5 Resolved Issues

This chapter describes all issues that have been resolved with the release of SII for Empower. If an issue is not listed here, it has not been resolved with this software update.

The numbers in the first column of the table below refer to the Thermo Fisher Scientific tracking IDs.

ID	Description
<b>167921</b>	Integrion and ICS-6000: Clicking the Rescan button on the Chromeleon 7.3 Consumable Inventory user interface would not properly detect the consumables installed on the system or refresh the consumable list, which prevented any sequences from being run on that system.
<b>162854</b>	Corona Veo: It was not possible to use multiple injections per line in a sample set when a Corona Veo is configured as SII Detector and attached to a non-Thermo Scientific LC system.
<b>29281</b>	Vanquish Charger: When using the Charger, following each injection a plate would be returned to the Charger. This behaviour has been improved such that the plate remains in the autosampler chamber until a different plate is required for the subsequent injection.

## 6 Known Limitations

Currently, Thermo Scientific Standard Instrument Integration for Empower version 1.3 has the following limitations:

### 6.1 Instrument Control

The SII for Empower workstation must be in the domain and have access to the DNS, and the user working with the client component must be a domain user. Without domain name resolution, the Instrument View will take very long (several minutes) to launch.

Internal reference: [54161]

#### 6.1.1 Configuring Trays (Plate Types)

The layout of your HPLC autosampler and the location of your samples must be defined in Empower. This requires the operator to select plate types or trays used in the autosampler for sample injection. The plate type defines both the overall plate dimensions and the number and dimensions of the sample wells the plate contains. Currently, Thermo Scientific Standard Instrument Integration for Empower cannot automatically add the different Thermo Scientific autosampler trays to the list of Plate Types in Empower. Instructions describing how to manually configure the plates/trays are provided in the SII for Empower help and Quick Start Guide.

**Note:** Once you create plate types, they are available to all projects.

**Note:** 10 and 22 Prep Vial trays are currently not supported.

**Note:** 10 ml Poly Vials are currently not supported.

#### 6.1.2 Missing vials with AI/AS1300

In Chromeleon, the AI/AS1310 has two options for handling missing vials: "Abort Sequence", "Skip injection, continue sequence". By design, when the AI/AS1300 is controlled by SII for Empower, the skip option is not supported, and therefore all missing vials will cause acquisition of the current sequence to be aborted.

Internal reference: [62012]

#### 6.1.3 Spurious warning in Message Centre

If the user creates a new instrument method with SII for Empower using default values, selects the method, and then clicks on the "Setup" button, the message centre will show the spurious warning: "Device = 'SamplerModule.Sampler': Missing Inject command."

Internal reference: [47645]

#### 6.1.4 Instrument type not displayed in Command Box

When viewing the command box in the ePanels for an instrument, the instrument type is not displayed. This is a read-only property, and can be seen in the Empower Link driver configuration in the Instrument Configuration Manager

#### 6.1.5 Changing the configuration of the Empower Link Driver

If the configuration of the Empower Link driver is changed in any way (from one allowed instrument to another), it is necessary to reboot the PC in order to be able to use the newly configured instrument.

#### 6.1.6 Other Module-specific Limitations

For limitations specific to a module please refer to the List of Supported Instruments.

## 6.2 Data Acquisition and Storage

### 6.2.1 Instrument Methods

Avoid using the 'Remove Equilibration Stage' button on the pump gradient page of the Instrument Method Editor. Methods without this stage will fail when executing Monitor Baseline and/or Setup Method. More details are available in the online help.

### 6.2.2 Empty instrument method

If the user starts to create an instrument method, and immediately saves this (empty) method, attempted usage of this method via the Run Samples and Setup workflow, a warning message will appear in the message centre stating: "Value cannot be null. Parameter name: s"

Internal reference: [47960]

### 6.2.3 Single Module Support

When operating the Corona Veo alongside Acquity modules some controls in the Instrument Method Editor will not be shown – thus leading to all channels being acquired.

Internal reference: [35679]

### 6.2.4 Monitor Baseline/Setup Method

During Monitor Baseline, 3D data are not acquired.

### 6.2.5 Monitor Baseline

If the user begins acquisition without first stopping the monitor baseline function, the error message "Stopped the sequence queue run" can be seen in the message centre.

### 6.2.6 TRACE 1300/1600 GC Monitor Baseline

It is not possible to monitor the baseline when using a TRACE 1300 GC instrument.

Internal reference: [61874]

### 6.2.7 Sample Functions

The Empower sample functions 'Equilibrate', 'Condition Column', 'Inject Immediate Standards' and 'Inject Immediate Samples' must not be used when using an SII Detector configuration, for example a Thermo Scientific Corona Veo in combination with a Waters HPLC. More details are available in the online help.

### 6.2.8 Abort after sample

If using "abort after injection completed" in combination with "Continue with next sample set" the message "System Idle – User Abort" does not appear although expected by Empower users.

### 6.2.9 Non-Inject Functions

When using the non-inject functions (Monitor, Equilibrate etc) the warning message "Device='SamplerModule.Sampler': Missing inject command can be seen in the message centre.

### 6.2.10 TRACE 1300/1600 GC Shutdown Method not Downloaded

If using a shutdown method for a TRACE 1300 GC combined with a TriPlus 500 Autosampler, this will not be downloaded to the instrument.

Internal reference: [66246]

### 6.2.11 Smart Startup not supported

Although the Smart Startup tab appears in the Instrument Method Editor, this has **not** been validated for use and is thus not supported at this time as it cannot be guaranteed to work.

### 6.2.12 Error after running Shutdown Method

If you run a sequence with a shutdown method at the end, the shutdown method parameters get sent to the instrument, but the Status of the modules (in the mini-panels) go to Error, and the Message Center shows Error messages.

Internal reference: [63013]

## 6.3 Non-English language versions of Empower

### 6.3.1 Error when reviewing data on non-English Empower/Windows 10 [64436]

When data is reviewed in Empower by double-clicking, pressing review button, or right-click and selecting review on the channel data or result data, an error message is raised. The message, in Japanese/Chinese characters, says "Failed to start application (Review)".

The error is caused by an issue in the Waters Empower application and can be worked-around in one of the following ways:

- Double-click while holding down the "SHIFT" key, the error will not occur and the data will open normally
- Using the "QuickStart" mode instead of "Professional" mode will open the data without the error
- Follow the steps described by Waters at [https://support.waters.com/KB\\_Inf/Empower\\_Breeze/WKB66934\\_Empower\\_ErrorFailed\\_to\\_start\\_application\\_Review](https://support.waters.com/KB_Inf/Empower_Breeze/WKB66934_Empower_ErrorFailed_to_start_application_Review)

### 6.4 Autozero Delay with ICS-5000 [141579]

When collecting data using SII for Empower with an ICS 5000 with the Autozero setting, there is a delay of approximately 0.3s between the start of data acquisition and the autozero being applied.

### 6.5 Upgrade from SII for Empower 1.0

Any attempted upgrade from SII for Empower 1.0 will fail due to a renamed file. This only affects upgrades from SII for Empower 1.0, all upgrades from other versions (1.1, 1.2) will succeed. The station IQ will suggest that the installation has been successful but give an error relating to a missing file. In the event that the user has SII for Empower 1.0, this should be uninstalled and then SII for Empower 1.3 installed.

### 6.6 Method Import from DII for Empower

SII for Empower does not provide means for importing instrument methods which were created with DII for Empower.

### 6.7 Instrument IQ and OQ

The instrument IQ and OQ for modules controlled through SII cannot be done within Waters Empower.

For an SII System (all modules controlled within SII) the instrument IQ/OQ can be executed within Chromeleon. A Chromeleon installation and license is needed.

For an SII Detector (a single module controlled within SII), instrument IQ/OQ is not supported.



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