Software Development Documentation

Product Release Notes

Atlas TRACE 1300 GC v1.0

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Installation Notes

About Atlas TRACE 1300 GC v1.0

Atlas TRACE 1300 GC v1.0 is a new instrument control Extension for controlling the Thermo Scientific™ TRACE™ 1300 range of Gas Chromatographs.

The TRACE 1300 GC range is designed from the ground up for a new level of usability, giving you unprecedented flexibility with the ability to switch instant-connect injectors and detectors in minutes without tools. With its ability to boost productivity, accelerate response times, and lower total cost of ownership, this compact GC system is a smart investment for any lab.

Previously, control for the TRACE 1300 GC was available in Atlas via the Chromeleon Instrument Integration Extension. The release of Atlas TRACE 1300 GC v1.0 introduces a fully 'native' driver for this GC, designed to provide the same look-and-feel, simple set-up and reliability as other GC drivers available in Atlas.

Atlas TRACE 1300 GC v1.0 controls all Inlets, Detectors and Auxiliary options available for the TRACE 1300, 1310 and 1300E models of GC.

Atlas TRACE 1300 GC v1.0 allows one or two AS/AI 1310 and/or AS/AI 3000 Autosamplers to be controlled. These can be connected through the GC, via the Autosampler connection port on the rear of the instrument, or by being directly connected, via RS232 to a Thermo Scientific 247 Instrument Controller. Where two autosamplers are connected to a dual-inlet TRACE 1300, these can be controlled simultaneously or independently. The choice of which autosampler and/or inlet is being used for a particular acquisition is defined in the Workbook (see the Instrument Method – System Page section below)

The Atlas TRACE 1300 GC v1.0 release consists of two Atlas Instrument Control Extensions:

- Thermo Scientific TRACE 1300 GC v1.0
- 247 WCF Update AT-994

> For a full list of all instruments and modules supported by Atlas, please see "Atlas List of Supported Instruments Atlas TRACE 1300 GC v1.0".
>
> This list, which has been updated for this release, contains details of the supported firmware, connection type and supported version of Atlas instrument control extension(s) required to control each instrument/module.

Description of Changes

Atlas TRACE 1300 GC v1.0

The following sections briefly describe some of the key features in the Atlas TRACE 1300 GC v1.0 driver. For a full list of all SCRs addressed in this release please refer to the Software Changes section below.

Instrument Configuration

Once installed, the Atlas TRACE 1300 GC v1.0 Extension adds a new option to the **Instrument Type** dropdown list in the Instrument Manager Add Instrument Wizard:

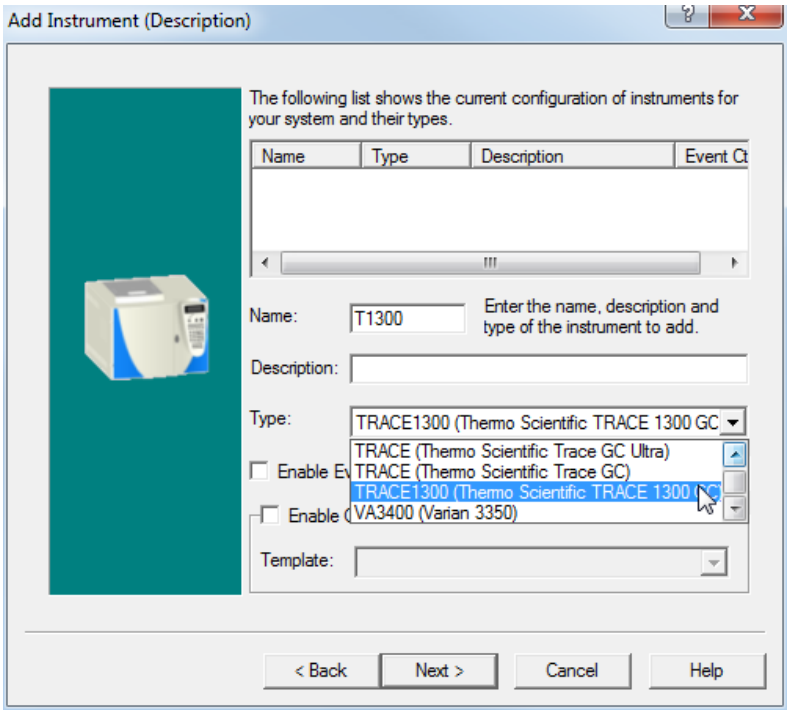


Figure 1: Thermo Scientific TRACE 1300 GC option in Add Instrument Wizard

When this option has been selected, the Add Instrument Wizard will open a series of TRACE 1300 pages to allow the instrument to be configured, each one containing all the options required to configure the various areas of the instrument.

Once a TRACE 1300 instrument has been created, the Instrument Properties dialog box in Atlas Instrument Manager displays the same TRACE 1300 pages as the Add Instrument Wizard.

> **Note:** The exact pages displayed, and the options displayed on each page will vary depending on the configuration of the instrument and the options chosen in earlier pages.

Instrument Configuration – General page

This page contains all communication options, as well as on/off options for optional instrument devices and modules.

Select the **Auto-Start** option on the GC and in the Add Instrument Wizard when using a Gas Sampling Valve and no Autosampler. **Auto-start** should be *un*-ticked when using an Autosampler.

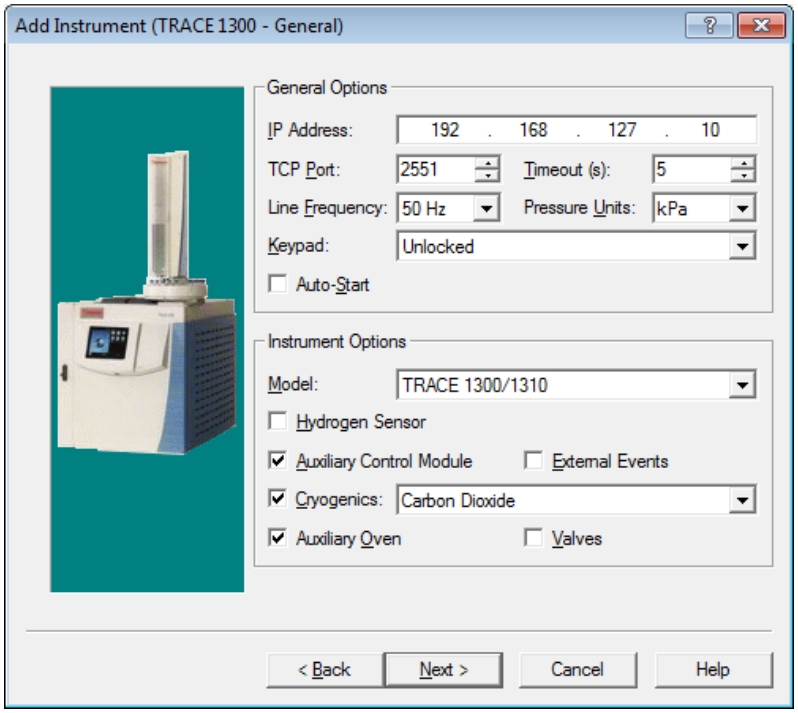


Figure 2: TRACE 1300 - General page

You can simplify the process of configuring an Instrument by entering just the instrument's **IP Address** in the General tab of the Add Instrument Wizard and clicking Next, accepting all default values for Inlets, Detectors, Valves, etc.

Then open the Instrument Properties dialog box and use the **Upload Configuration from Instrument** button to let Atlas automatically complete the selection and configuration of your instrument.

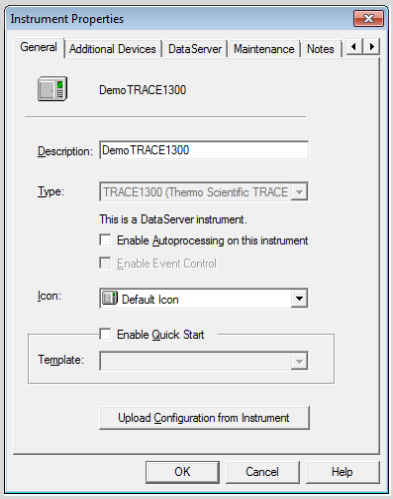


Figure 3: Upload Configuration from Instrument

Instrument Configuration – Inlets page

This page contains all options for selection and configuration of up to two Inlets.

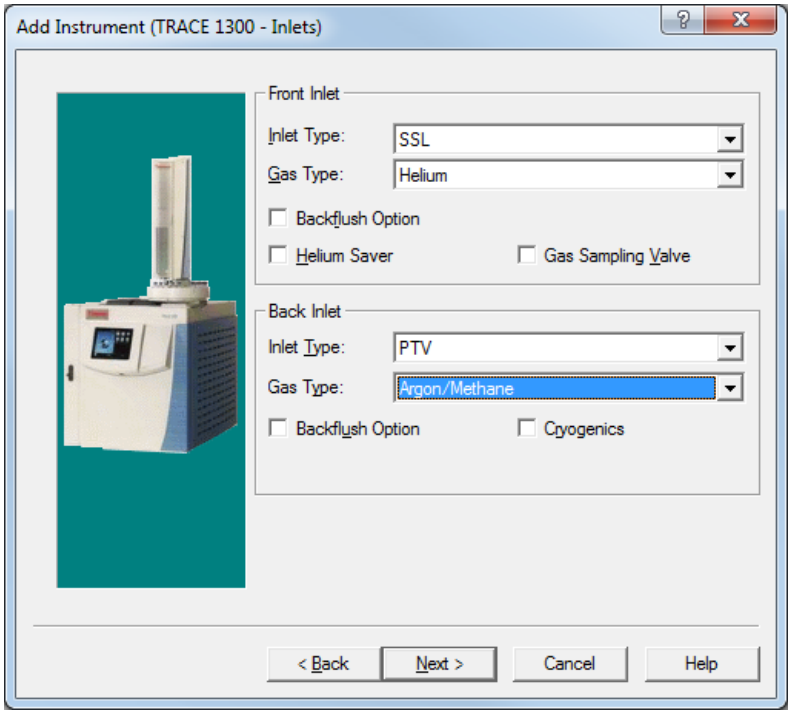


Figure 4: TRACE 1300 – Inlets page

Note: The TRACE 1300 Gas Sampling Valve uses the Carrier gas for purging and actuating the valve, so an inert gas must be used. Consequently, Hydrogen cannot be selected in the Gas Type dropdown when the Gas Sampling Valve checkbox is ticked.

Instrument Configuration – Autosamplers page

This page contains all options for selection and configuration of up to two AI/AS1310 or AI/AS3000 autosamplers.

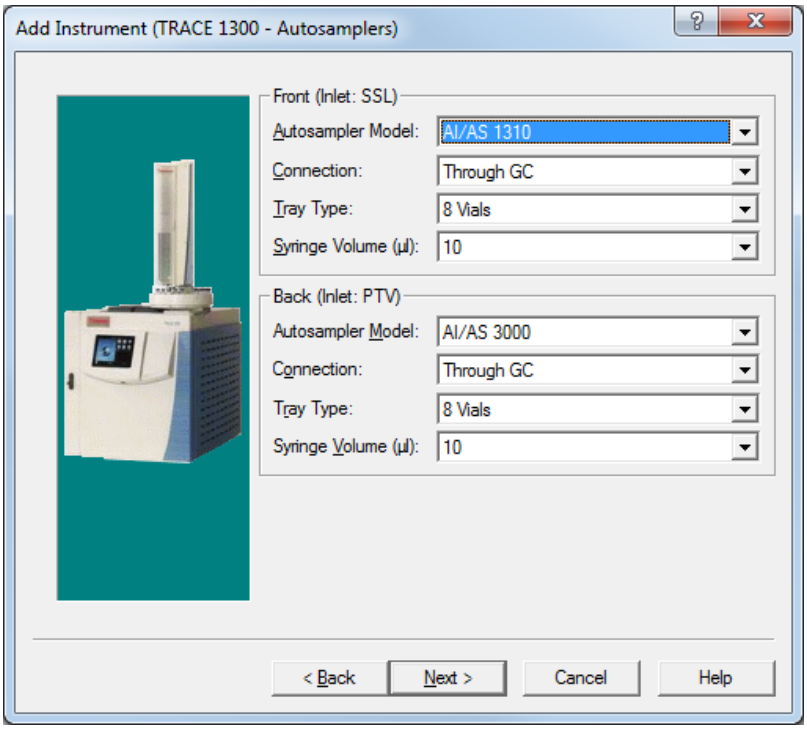


Figure 5: TRACE 1300 – Autosamplers page

See the Autosampler Configuration Options section below for further information about the options Atlas provides for using autosamplers with the TRACE 1300 GC, the different single and dual autosampler 'modes' available for the TRACE 1300 GC, and for details of the connections required for each mode.

Instrument Configuration – Detectors page

These pages contain all options for selection and configuration of up to four Detectors (Front, Back, Left Auxiliary and Right Auxiliary).

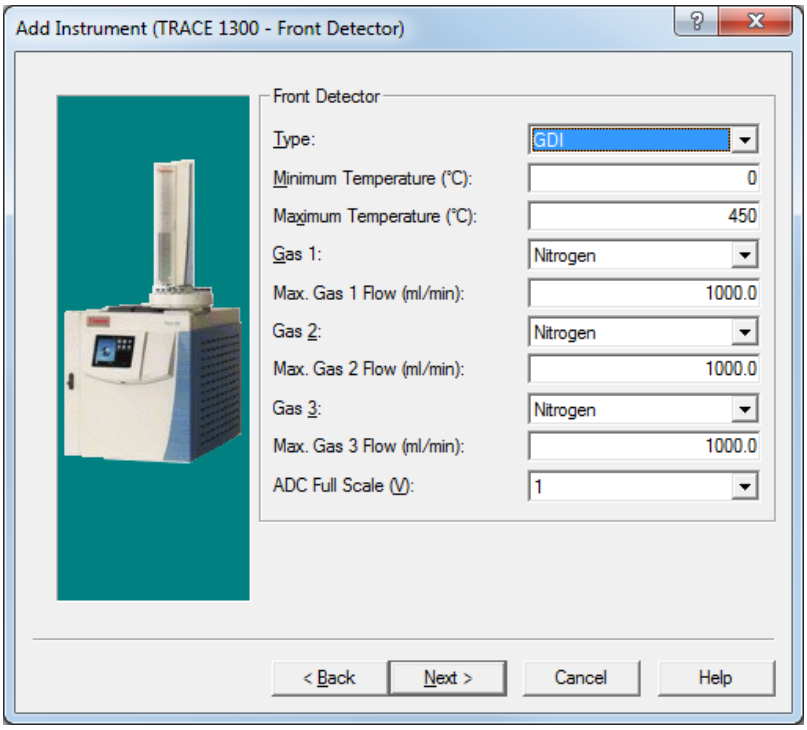


Figure 6: TRACE 1300 - Detectors page (exact options depend on Detector Type selected)

Instrument Configuration – Auxiliary Carriers page

This page contains all the options for selection and configuration of up to six Auxiliary Carrier gases:

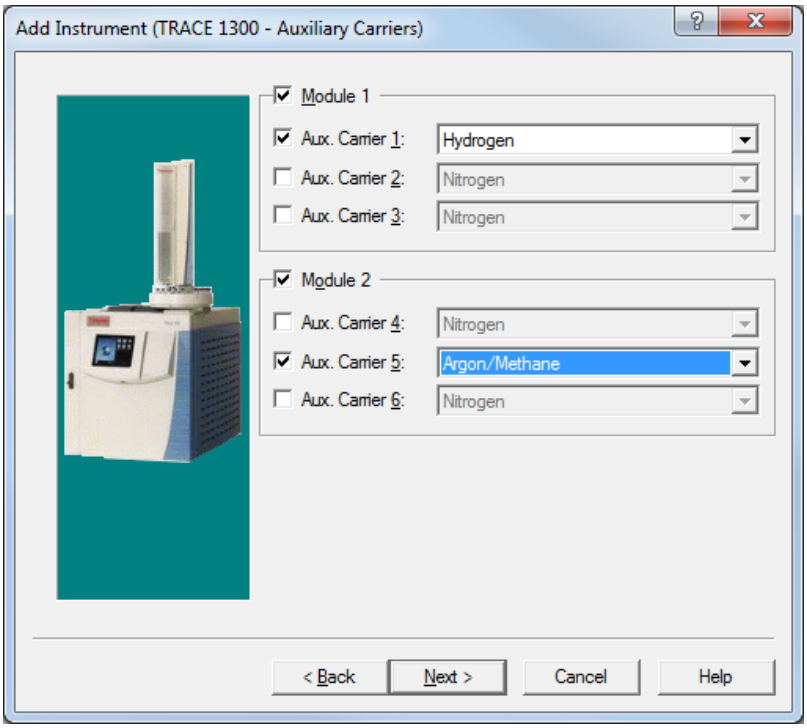


Figure 7: TRACE 1300 - Auxiliary Carriers page

Instrument Configuration – Auxiliary Heaters page (requires Auxiliary Oven or Auxiliary Control Module to be configured on General page

This page contains all the options for selection and configuration of up to four Auxiliary Heaters. The **Auxiliary Heater** options require the **Auxiliary Control Module** checkbox to be ticked in the General tab. The **Auxiliary Oven Heater** options require the **Auxiliary Oven** checkbox to be ticked:

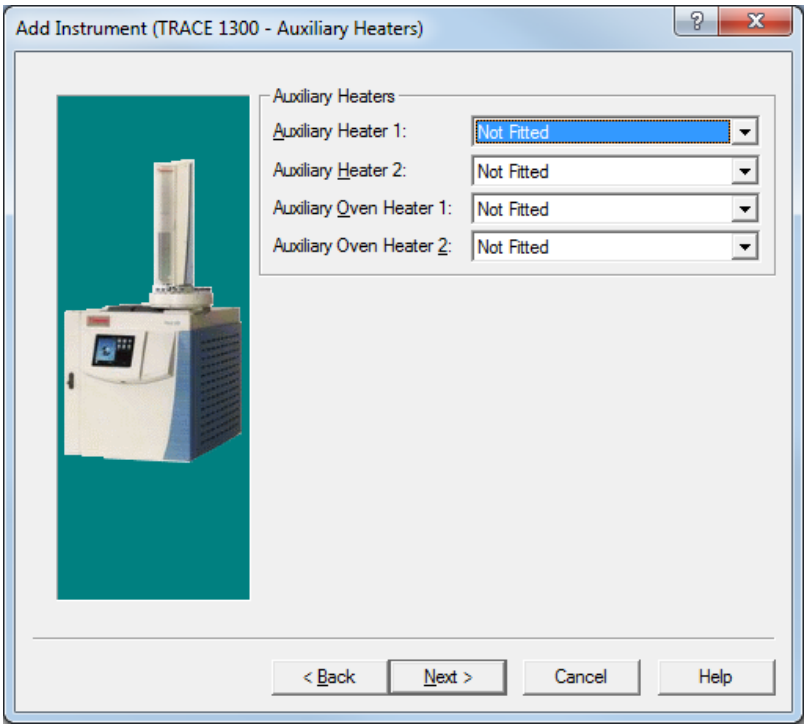


Figure 8: TRACE 1300 - Auxiliary Heaters page

Instrument Configuration – Valves page (requires Valves to be configured on General page)

This page contains all the options for selection and configuration of up to eight Switching and/or Sampling valves. Each valve can be independently named, and this name is used throughout Atlas.

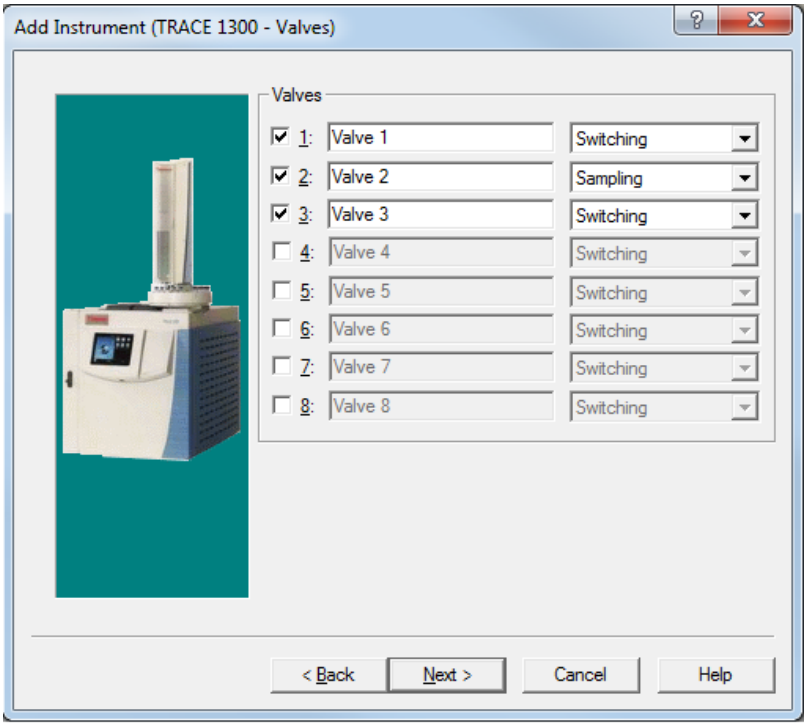


Figure 9: TRACE 1300 - Valves page

Instrument Configuration – External Events page (requires Auxiliary Control Module and External Events to be configured on General page)

This page allows the selection and naming of up to eight External Events, which allows external devices to be connected to the GC and triggered by Atlas during acquisition. Each event can be independently named, and this name is used throughout Atlas.

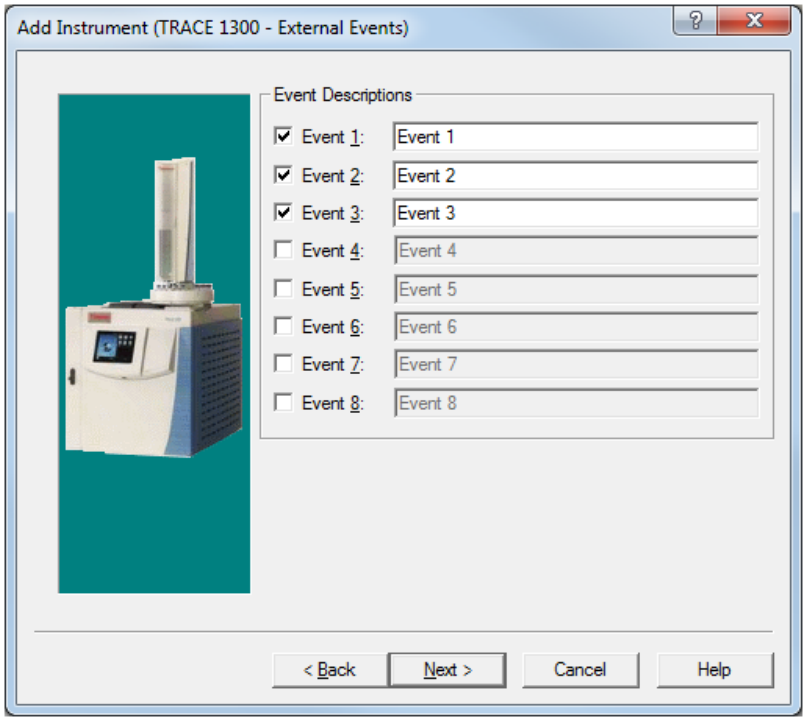


Figure 10: TRACE 1300 - External Events

Instrument Configuration – Signals page

This page allows the switching-state of a number of External triggers to be managed.

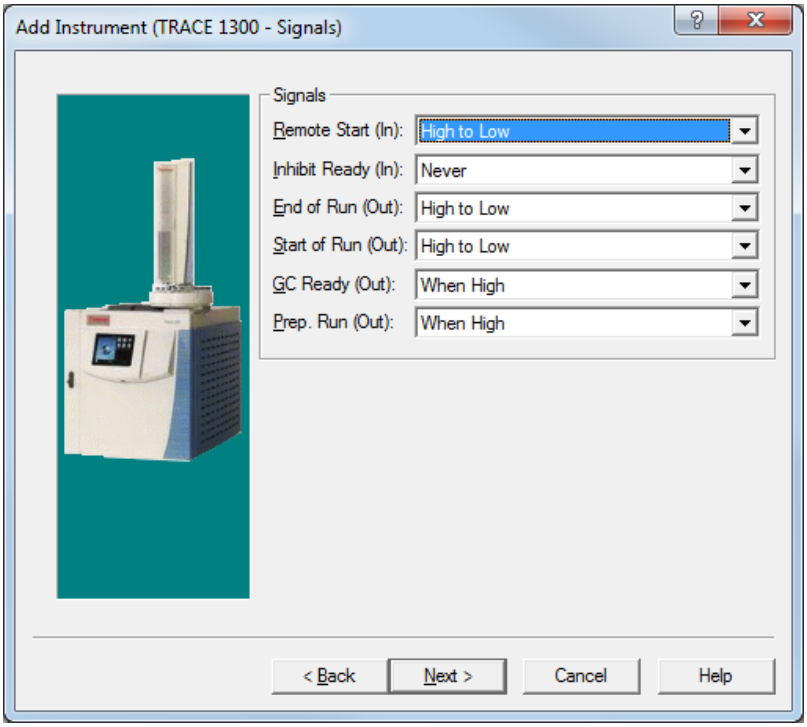


Figure 11: TRACE 1300 – Signals

Option	Description
Remote start in	Allows another device to start the GC when the **Remote start in** signal changes from **High** to **Low** or **Low** to **High**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **High to Low**.
End of run out	Signals another device that the run has ended when the End of run out signal changes from **High** to **Low** or **Low** to **High**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **High to Low**.
Inhibit ready	Delays readiness until the GC receives a signal from another device. Select **When High**, **When Low** or **None**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **None**.
GC ready out	Signals another device that the GC is ready when the GC ready out signal is high or low. Select **When High** or **When Low**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **When Low**.
Start of run out	Signals another device that the run has started when the Start of run out signal changes from **High** to **Low** or **Low** to **High**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **High to Low**.
Prep-run out	Signals another device that the GC is preparing for a run when the Prep-run out signal is **high** or **low**. Select **When High** or **When Low**. **Note:** When connected to an AI/AS 1310/3000 autosampler, select **When Low**.

Table 1: TRACE 1300 signal state descriptions

Atlas Instrument Method

When a Workbook is created in Atlas and assigned to a TRACE 1300 instrument, the Atlas Instrument Method editor displays up to 13 pages (tabs) specific to the TRACE1300. The exact number depends on the configuration defined for the instrument.

> **Note:** This section provides an overview of the Atlas Instrument Method for the TRACE 1300 GC control, and details of Atlas-specific settings. It does not describe the function of each instrument set-point. For more detailed information about the instrument settings and their function, refer to the TRACE 1300 GC Hardware Manual provided with your instrument.

Instrument Method – System page

This page contains general system settings used by Atlas to configure channels, Sequence pages and acquisition time.

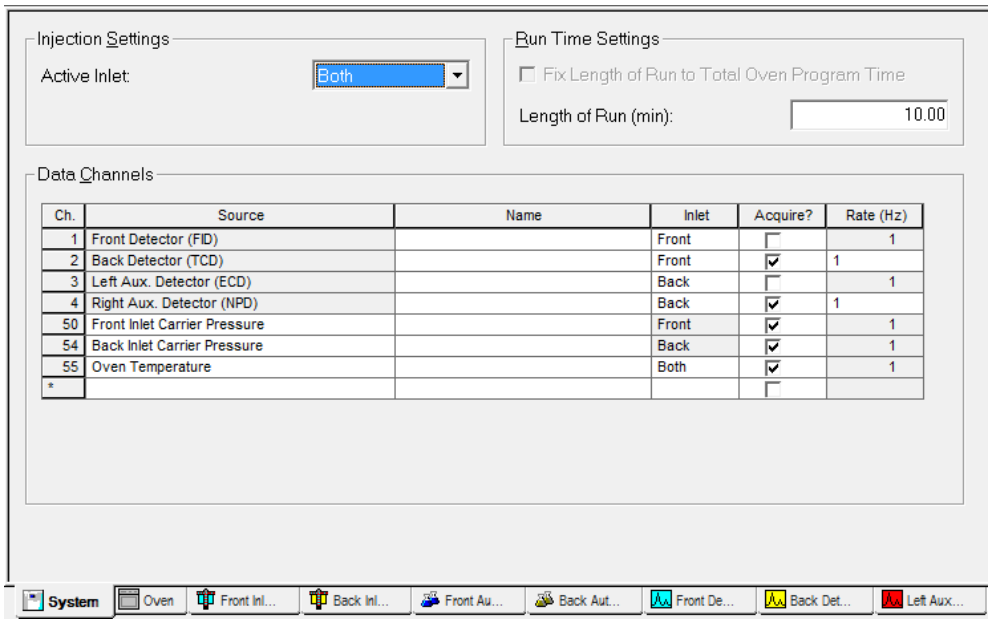


Figure 12: Instrument Method - System Page

Option	Description
Active Inlet	Use this list to select the Active Inlet for this Workbook. The available settings are **Front**, **Back**, or **Both**. When **Front** is selected from this list, the front inlet is used and only Samples on the front inlet tab of the Atlas Sample Sequence view are active. Samples cannot be added to the back inlet tab, and any Samples already in the back inlet tab will be ignored. The reverse is true when **Back** is selected. When **Both** is selected from this list, Samples from both the front and back inlet tabs are acquired. Atlas automatically interleaves the Samples in front/back pairs. The exact order of interleaved Samples can be viewed on the combined Sequence tab of the Sample Sequence view. The options available in the Active Inlet list depend on the configuration of inlets for the Instrument (the selections made in the Add Instrument Wizard or Instrument Properties Dialog Box). The data acquired for Samples associated with the active inlet depends on the settings made in

<table>
<tr><td></td><td>the Data Channels section.

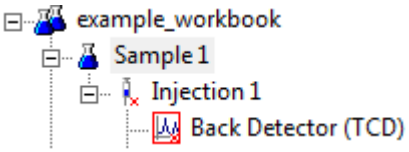
Note: If only one inlet is configured, only that value is allowed, e.g. if only the Front inlet is configured, Front is the only value allowed. If neither inlet is configured, no value is displayed. (But when saved, the method will contain the value “Manual”.)</td></tr>
<tr><td>Fix Length of Run to Total Oven Program Time</td><td>Use this option to match the total run time with that of the set up in the temperature program on the Oven Page. When you select this option, the Length of Run field becomes read-only and contains the value calculated from the oven temperature program. For new Workbooks, this option is selected by default, unless the oven program is marked as not in use (Ignoring). Clear the option to enable making an entry in the Length of Run field.

With this option unticked, the Length of Run can be set to be shorter than the oven temperature program.

Note: The TRACE1300 GC does not allow Length of Run to be longer than the oven temperature program. See SCR121680 in the Known Issues section.</td></tr>
<tr><td>Data Channels</td><td>Use this grid to select which data channels will be assigned to which inlet’s samples, to define whether a channel’s data will be acquired for this Workbook, and to optionally provide a Channel Name for Atlas to use to identify the data channel in the Sample Explorer Tree (if no Name is entered, Atlas uses the Source as the Channel name).

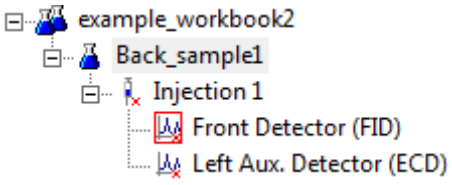
Example 1: If the column connected to the instrument’s front inlet outputs to the back detector, the grid row would contain the following row:

<table>
<tr><th>Ch.</th><th>Source</th><th>Name</th><th>Inlet</th><th>Acquire?</th><th>Rate (Hz)</th></tr>
<tr><td>2</td><td>Back Detector (TCD)</td><td></td><td>Front</td><td>☑</td><td>1</td></tr>
</table>
And the Sample Sequence tree contains a Back Detector channel for all Front inlet samples:

Example 2: If two columns are connected to the instrument’s back inlet, which simultaneously output to both the front detector and the right auxiliary detector, the grid row would contain the following rows:

<table>
<tr><th>Ch.</th><th>Source</th><th>Name</th><th>Inlet</th><th>Acquire?</th><th>Rate (Hz)</th></tr>
<tr><td>2</td><td>Front Detector (FID)</td><td></td><td>Back</td><td>☑</td><td>1</td></tr>
<tr><td>3</td><td>Left Aux. Detector (ECD)</td><td></td><td>Back</td><td>☑</td><td>1</td></tr>
</table>
And the Sample Sequence tree contains a Front Detector and Left Aux. Detector channel for all Back inlet samples:

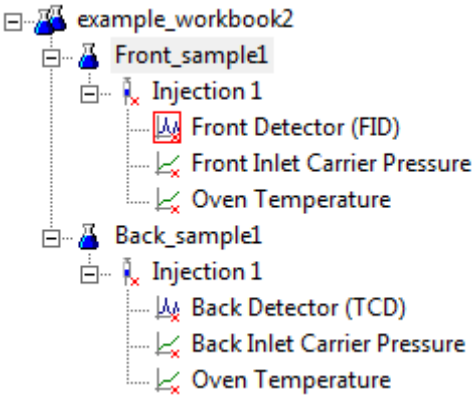
 

The list of channels in the Source column contains all Detector signal outputs as well as non-chromatography ‘auxiliary’ data output, allowing real-time capture of Temperatures, Flow Rates, and Pressures for all modules of the instrument.

Example 3: If the Oven temperature was being tracked for all samples (front and back inlet), and the inlet pressure was being tracked for each inlet, the grid would contain the following rows:</td></tr>
</table>

Ch.	Source	Name	Inlet	Acquire?	Rate (Hz)
50	Front Inlet Carrier Pressure		Front	☑	1
54	Back Inlet Carrier Pressure		Back	☑	1
55	Oven Temperature		Both	☑	1

The Sample Sequence tree contains Front Inlet Carrier Pressure and Oven Temperature channels for all Front Inlet Samples and Back Inlet Carrier Pressure and Oven Temperature channels for all Back Inlet Samples. The same Oven Temperature data is visible for both Front and Back Samples:



Note: Auxiliary data channels are not included in any processing or calculation, but can be overlaid onto chromatograms to provide additional insight into analyses.

Table 2: TRACE 1300 Instrument Method - System page descriptions

Instrument Method – Ignoring modules

Each module configured in the instrument has a corresponding Method page in the Atlas Instrument Method view. Each module page contains an 'in-use' checkbox (labelled as **Oven Settings** in Figure 12 below). When this is ticked, Atlas will send to the instrument all of the setpoints on that page.

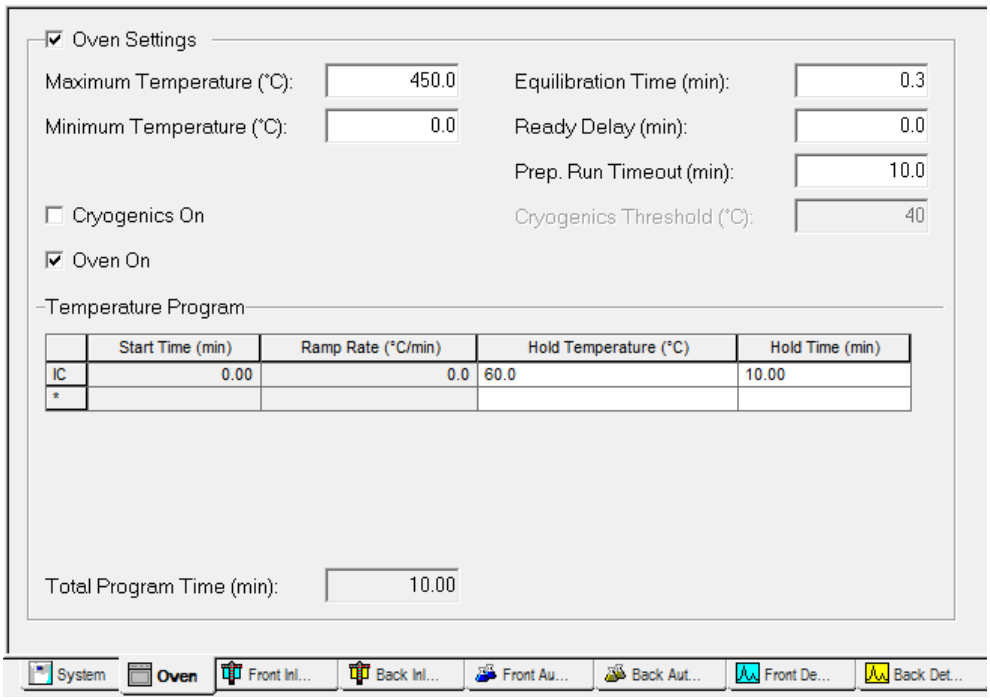


Figure 13: Instrument method - Oven page, set as in-use

If the in-use checkbox is un-ticked, Atlas disables all controls on the page and changes the checkbox label to "Ignoring". In this case, Atlas does not send any of the setpoints in this section to the

instrument, and the instrument will use any existing setpoints, either manually-entered or set by a previous acquisition, for the run:

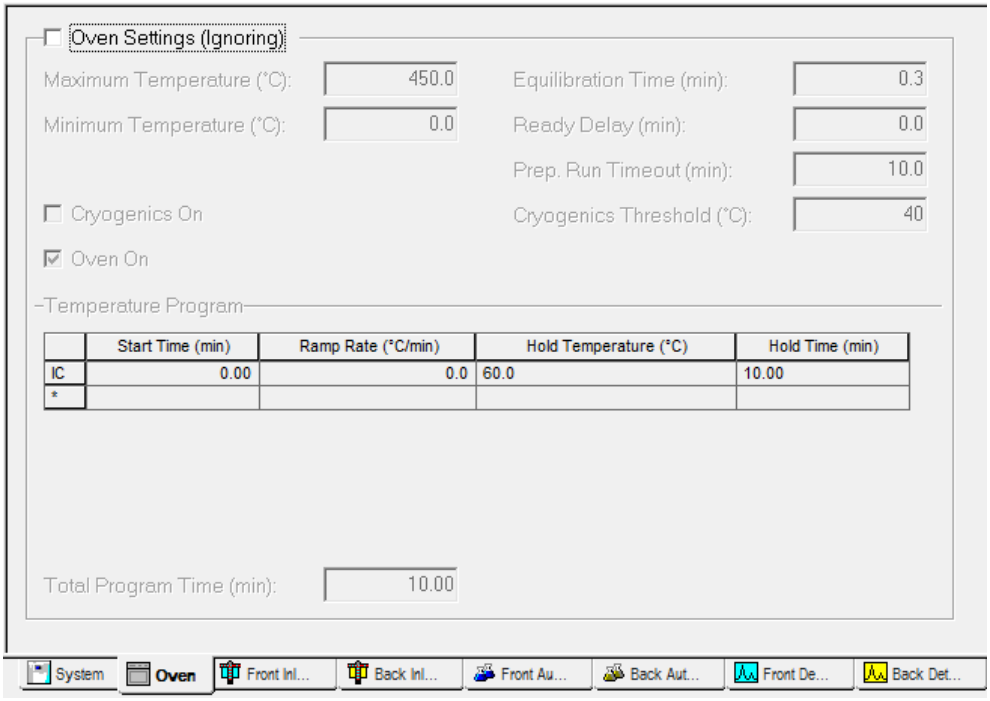


Figure 14: Instrument Method - Oven page, set as Ignoring

Additionally, some options with in a method page can be individually ignored. For example, in Figure 14, the Cryogenics and/or Oven can be turned off, by unticking their checkboxes, while the other controls remain on.

Note: If a method section is marked as not being in use (Ignoring), that does *not* mean that the module itself is not in use; it simply means that the Atlas method will not be sent to the instrument for that module.

Instrument Method – Autosampler page

The Atlas Instrument Method displays a separate page for each autosampler configured in the Add Instrument Wizard or Instrument Properties dialog box.

Injection Volume

Atlas allows two options for configuring Sample Volume. Injection volume can either be entered in the Instrument Method or in the Sample Sequence. The **Use Sequence Sample Volume** checkbox allows you to decide which of these modes Atlas should use.

If the *same* injection volume is required for all Samples in the Workbook, un-tick the "**Use Sequence Sample Volume**" checkbox and enter a value in the Instrument Method page:

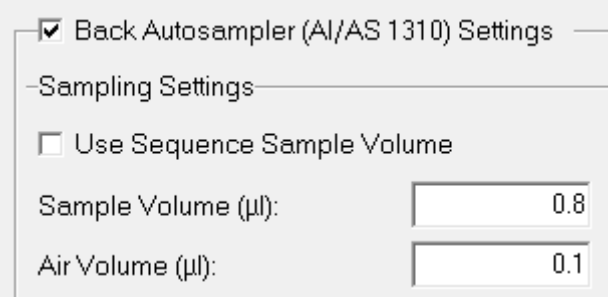


Figure 15: Instrument Method - Autosampler page, one volume for all samples

If *different* injection volumes are required for each sample, tick the **Use Sample Sequence Volume** checkbox and enter injection volumes in the **Inj. Vol.** column in the Sample Sequence grid.

Missing Vials

The autosampler method page also allows you to choose how missing injections should be handled. There are two options available:

Figure 16: Instrument Method - Autosampler page, Missing Vial options

- Stop Run: If the autosampler encounters a missing vial, the run will stop and an error will be displayed in the Instrument Manager Status
- Continue: If the autosampler encounters a missing vial, a 'fake' injection will be performed (no sample washes, no sample draw, no sample injection) and the Workbook will continue. The full oven program runs (see SCR121594) and Atlas will display a chromatogram of 'noise'. The Instrument Log (accessed via File > Properties > Workbook Logs) will record any missing vials where a 'fake' injection was performed.

Instrument Status and Direct Instrument Control

When a TRACE 1300 GC is configured in Atlas and connected, the Instrument Status window can be displayed to show the real-time status of all instrument modules. To view the Status window, double-click on a TRACE 1300 instrument, or select **Open > Instrument** from either the instrument's right-mouse context menu, or from the Instrument Manager **File** menu.

The Instrument Status window has two TRACE1300-specific pages: an Instruments page and a Diagnostics page. Both of these pages use the same "panel per module" that Atlas uses for other instrument control (Agilent 1100/12x0 HPLCs, Agilent 7890 GC, Thermo Scientific A2D, etc):

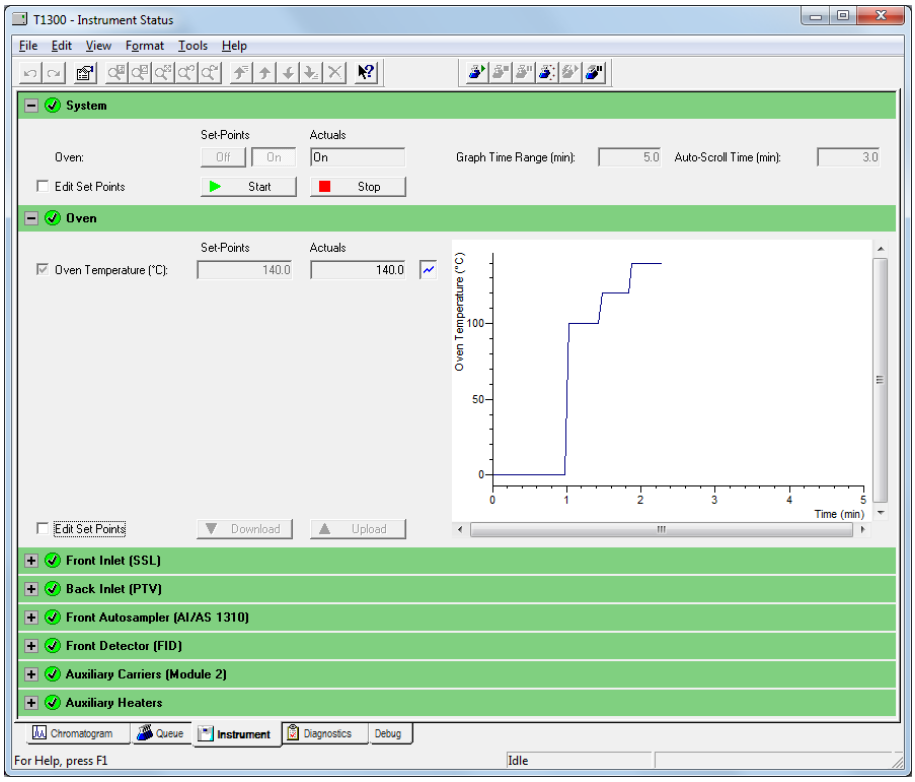


Figure 17: Instrument Status - System and Oven pages

> **Note:** The exact panels displayed, and the options displayed on each panel will vary depending on the configuration of the instrument and the options chosen in the instrument Properties.

Instrument Status window – General usage

The status panels display a column of Set-Points and a column of Actuals. These are updated from the instrument at a regular interval. For some values, it is not possible to change the setting, so only an 'actual' value is shown.

Some settings can be turned "off" on the instrument. For example if the **Oven Temperature** is set to **Off** the GC will not attempt to control the oven temperature and the it will eventual reach ambient temperature. For settings which can be turned off, a checkbox is displayed alongside the setting in the Instrument Status window. The checkbox is ticked when the set-point is "on" and the checkbox is unticked when the value is "off".

To edit a set-point, the **Edit Set-Points** checkbox for the panel must be ticked. Once this checkbox is ticked, controls in the Set Points column are enabled for each editable setting, and the Upload and Download buttons (if present) are enabled.

Any modifications to the instrument's set-points can be made in the appropriate control and downloaded to the instrument by clicking the **Download** button.

Automatic regular upload of set-points and actuals does not occur while the **Edit Set-Points** checkbox is ticked. This is to prevent values from the instrument over-writing values that the user might be editing. However, current values can be manually uploaded by clicking the **Upload** button. Once the **Edit Set-Points** checkbox is unticked, automatic upload of the set-points from the instrument resumes, so any edited values that were not downloaded are lost.

The Edit Set-Points checkbox is disabled when the instrument is disconnected or the instrument keypad is locked (see **Keypad** setting in the General tab of the Instrument Properties dialog box).

Instrument Status Window – Status Graphs

Most numerical actuals can be displayed as a graph. Only one actual can be graphed per panel; the value to be graphed is selected using the **Display <value> as graph** button next to the actual value.

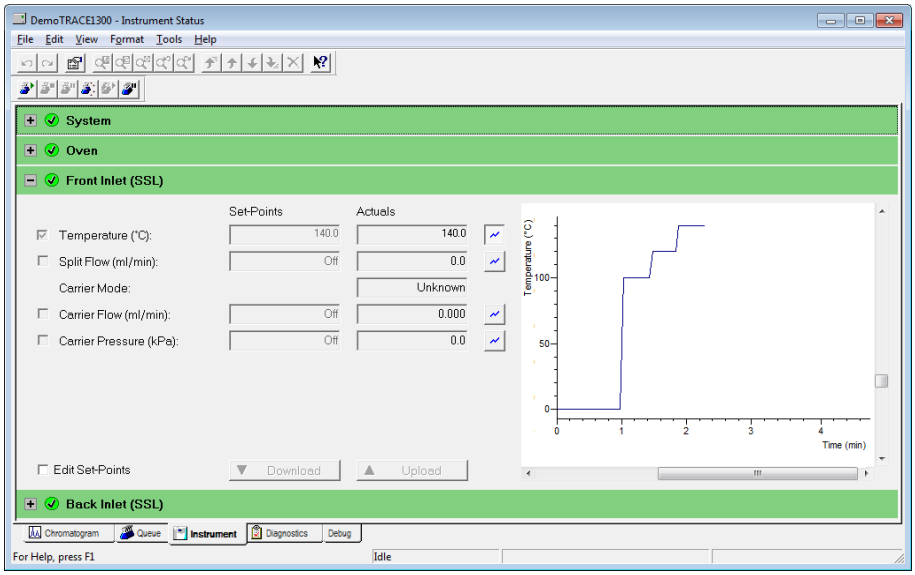


Figure 18: Instrument Status – Front Inlet temperature shown as graph

Note: If the value being displayed on the status graph is also being acquired into Atlas as a chromatography or auxiliary channel, the two graphs may not always be identical. This is due to differences in the sampling rate used by the status window and the Atlas data.

Status graphs can be formatted by using the context (right mouse-button) menus for each graph. The format of the graph is stored in the user preferences, with separate preferences being stored per panel.

Status graphs automatically scroll as more data is collected. To change the amount of data displayed and the regularity of scrolling, select the **Edit Set-Points** checkbox on the System panel. Graph Time Range determines the extent (in minutes) of X axis of status graphs. Auto Scroll Time determines how often the graph scrolls. So, if you set the Graph Time Range to 5.0 minutes and the scroll time to 0.1 minutes, the graph will not scroll its X axis for the first 5 minutes, but will then scroll the X axis every 0.1 minutes. Graph Time Range and Auto-Scroll Time are saved as user preferences.

Instrument Status Window – Diagnostics page

The Diagnostics page contains up to five panels, depending on instrument configuration:

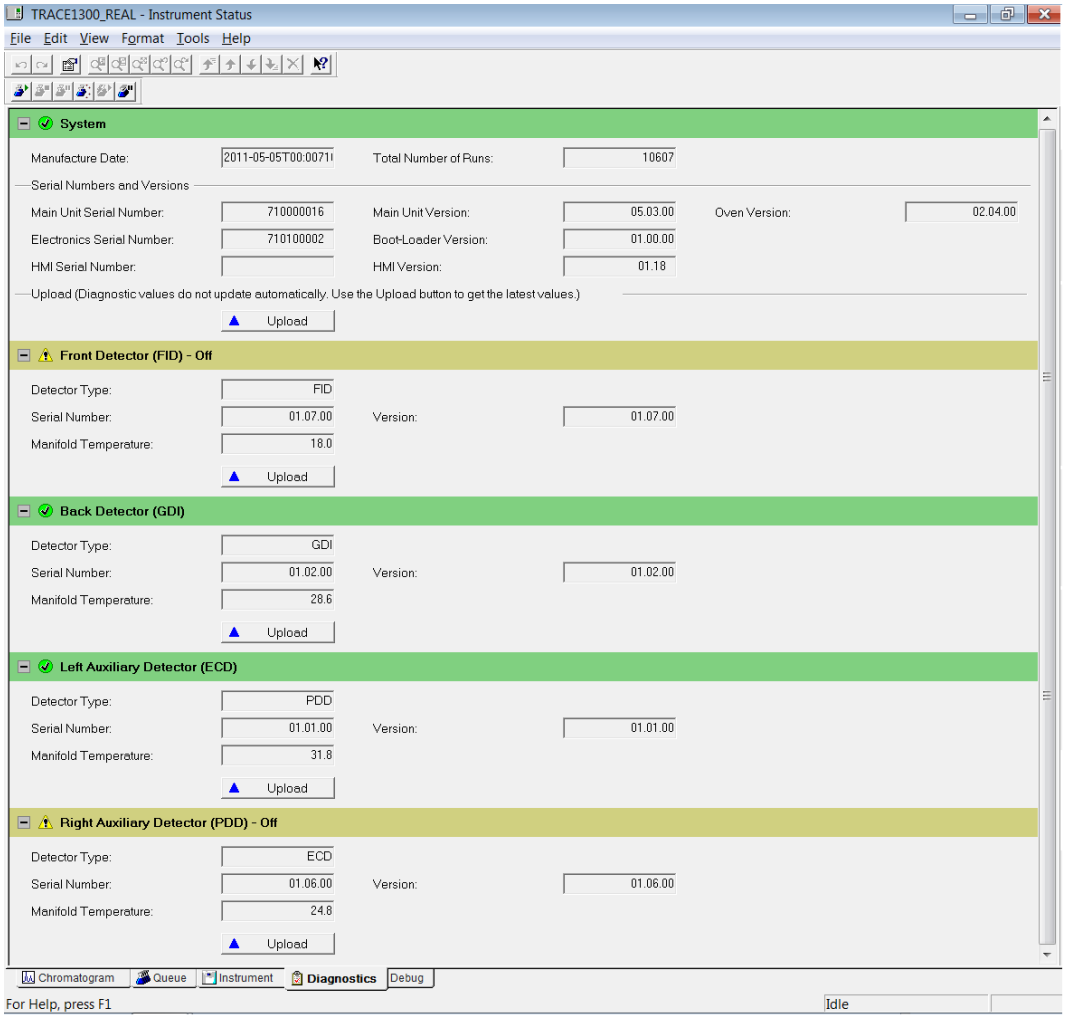


Figure 19: Instrument Status - Diagnostics page

Each panel contains mostly 'static' data (Dates, Serial and Version numbers, etc). Consequently the content of each panel is not updated automatically and is only updated either when the Status window is opened or when the **Upload** button is clicked.

Autosampler configuration options

Atlas supports a range of Autosampler options for the Thermo Scientific TRACE 1300 GC:

- AS/AI3000
- AS/AI1310 (also known as AS/AI3000 series II)
- TriPlus
- TriPlus 300 Headspace

Control of the TriPlus and TriPlus 300 are provided as additional devices, via Chromeleon Instrument Integration (CII) version 2.1 or later. See the CII v2.1 Release Notes for further details.

Control of AS/AI3000 and AS/AI1310 are provided natively as part of Atlas TRACE 1300 GC v1.0.

Each AS/AI1310 or AS/AI3000 autosampler serves a single inlet on the GC.

Autosampler setup – single inlet

For a GC with a single inlet, and a single autosampler, the inlet and autosampler can be configured in either the front or back position:

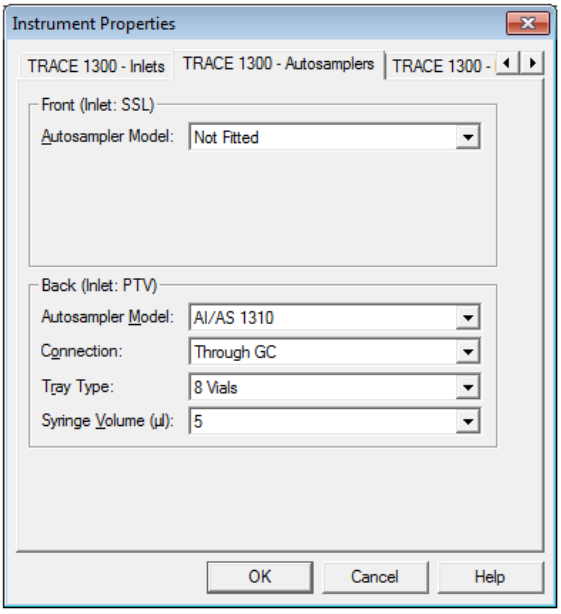


Figure 20: Instrument Properties - Single Autosampler assigned to Back Inlet, connected through GC

Once the autosampler has been assigned to either the front or back position, the **Connection** needs to be defined. The TRACE 1300 GC allows one Autosampler to be connected **Through GC**. When using this option, an RS232/Serial cable connects the "RS232" port on the rear of the Autosampler to the "Autosampler" port on the rear of the GC.

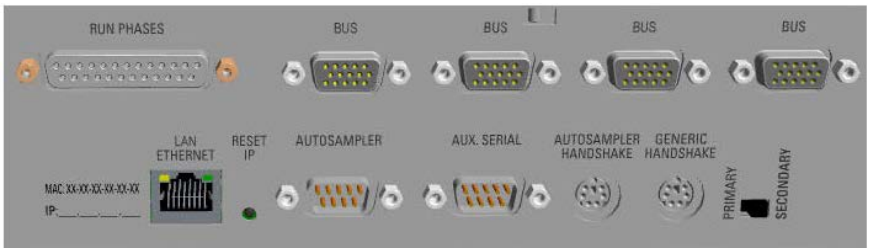


Figure 21: TRACE 1300 GC rear panel connectors

Alternatively, the autosampler can be connected directly to the same 247 Instrument Controller that the GC is connected to. When using this configuration, an RS232/Serial cable connects the "RS232" port on the rear of the Autosampler to a RS232/COM port on the rear of the 247 Instrument Controller. In the **Connection** dropdown list select the option (**COM1** to **COM10**) which matches the COM port that your Autosampler is connected to, or use the **Upload Configuration from Instrument** button in the Instrument Manager Properties dialog box to let Atlas automatically identify the connected autosampler and its COM port.

Whichever way the Autosampler is connected by RS232, a "Handshake" cable is also required to connect the 6-pin "GC" port on the rear of the Autosampler to the "Autosampler Handshake" port on the rear of the GC.

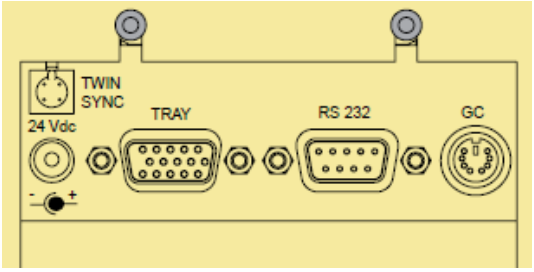


Figure 22: AS/AI1310 autosampler rear panel connectors

Note: TDS4 models of 247 Instrument Controller have six COM ports as standard. For TDS5 models of 247 Instrument Controller, an optional 8-line COM expansion board can be added, or multiple USB-to-COM connectors can be used. Your Thermo Fisher Scientific can provide further information about both of these options.

Autosampler setup – dual-inlet/dual-autosampler

For a GC with two inlets, two autosamplers are required; these can be two AS/AI3000's, two AS/AI1310's or a combination of one of each autosampler model.

In the TRACE 1300 GC hardware manuals, and in the Atlas TRACE Ultra control, the use of two inlets and two autosamplers is referred to as Gemini mode. There are two modes of Gemini operation:

- Confirmation: The sample is split into two vials by the operator. The two vials are placed into the same vial position on each of the autosamplers. The content of each vial is injected using the same autosampler programme, through equivalent flow paths (same inlet, column, detector and gases on the Front and Back), with the same results expected for each.
- High-throughput: Independent samples on each autosampler. The samples can be independently placed into any available vial position on each autosampler. Each autosampler can use an independent wash/inject programme and the flow paths (inlet, column, detector, gases) can be independent. Both injections are performed simultaneously and the same oven programme is used for both samples.

Atlas TRACE 1300 GC v1.0 supports both of these modes and, depending on how the autosamplers have been cabled, Atlas also allows you to choose between the two Gemini modes and single-injection mode within the Workbook method, rather than requiring any connection changes.

There are two ways to cable and configure dual autosamplers:

- Confirmation-only use, using a single Y-shaped COM cable: Using this cabling, *only* Confirmation mode can be performed by the autosampler. All samples must be acquired in matching pairs.
- Flexible use, using a separate COM cable for each autosampler: Using this cabling allows maximum flexibility between Confirmation mode, High-throughput mode, and front/back-only single-injection. Samples can be acquired in matching pairs, non-matching pairs, or completely independently.

Setting up your autosamplers for Confirmation-only use

In this configuration, both autosamplers must be the same model (either AS/AI1310 or AS/AI3000). A single Y-shaped COM cable connects both autosamplers either through the GC or directly to the 247 Instrument Controller. In Instrument Manager, configure only *one* autosampler and choose either **Through GC** or the appropriate (**COM1** to **COM10**) selected in the **Connection** dropdown list:

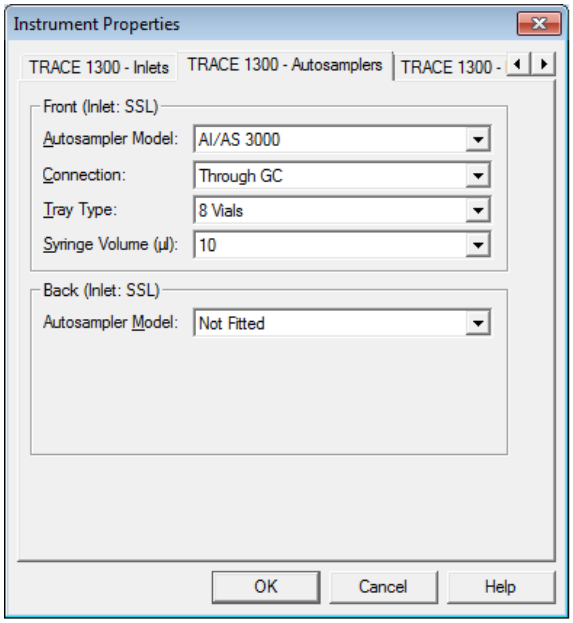


Figure 23: Configuring autosampler for Confirmation-only use

Connect a Y-shaped cable "Handshake" cable between the 6-pin "GC" port on the rear of each autosampler and the "Autosampler Handshake" port on the rear of the GC.

Connect a "Twin Sync" cable between the 4-pin Twin Sync ports on the rear of each autosampler.

Setting up your autosamplers for Flexible use

In this configuration, the autosamplers can be different models, if required. They are each independently connected by separate COM cables. One autosampler can be connected **Through GC** and the second connected directly to the 247 Instrument Controller or, alternatively, both autosamplers can be connected directly to the 247 Instrument Controller, with the appropriate COM port (**COM1** to **COM10**) selected in the **Connection** dropdown list for each directly-connected autosampler. Each autosampler can have different Tray Types and different Syringe Volumes.

As with single-autosampler configuration, click the **Upload Configuration from Instrument** button in the Instrument Manager Properties dialog box to let Atlas automatically identify the connected autosamplers, their COM ports, Tray Types and Syringe sizes.

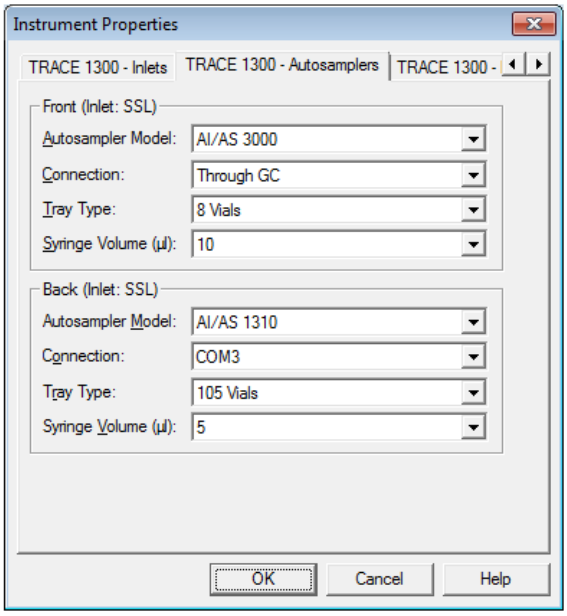


Figure 24: Dual autosamplers configured for Flexible use

Connect a Y-shaped "Handshake" cable between the 6-pin "GC" port on the rear of each autosampler and the "Autosampler Handshake" port on the rear of the GC.

Connect a "Twin Sync" cable between the 4-pin Twin Sync ports on the rear of each autosampler.

To switch between using both autosamplers (either in Confirmation or High-throughput mode) and using a single autosamplers, use of the **Active Inlet** option on the System tab of the TRACE 1300 Instrument Method. This option allows you to choose to acquire samples from the **Front** autosampler only, the **Back** autosampler only, or **Both** autosamplers simultaneously. It is not necessary to remove the Twin-Sync cable when acquiring only Front or Back autosampler samples on a dual-autosampler system.

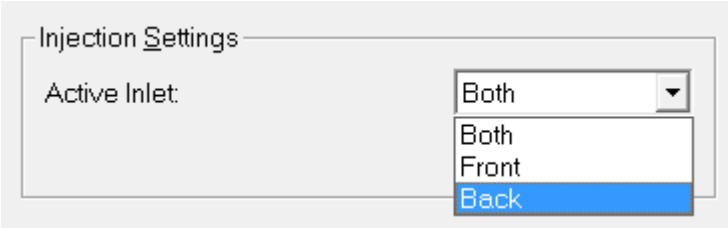


Figure 25: TRACE 1300 Method - Selecting between Front/Back/Both

Note: In Flexible use mode, Atlas displays three tabs in the Sample Sequence view; Front, Back, and Sequence. See Table 2 above for more information about setting up dual inlet/dual-autosampler samples and channels.

247 Instrument Controller Support

Atlas TRACE 1300 GC v1.0 requires .NET components that are not available in versions of 247 Instrument Controller firmware earlier than Windows Embedded Standard 7 (see the Installation Process section below for details of the update required to .NET on the 247 Instrument Controller). Consequently, Atlas TRACE 1300 GC v1.0 is only supported on TDS4 or TDS5 models of 247 Instrument Controller running WES7 versions of firmware.

At the time of releasing Atlas TRACE 1300 GC v1.0, the supported WES7 versions of firmware are:

- TDS5.33
- TDS4.33

> Contact your Thermo Fisher Scientific representative to discuss your options for upgrading TDS3 and TDS4 models of 247 Instrument Controller to the latest Windows Embedded Standard 7 technology.

Installation

Installation Notes:

- Atlas TRACE 1300 GC v1.0 must have Atlas 8.3 SR4 installed as a prerequisite.
- This release contains 2 separate extension kits:
  - Atlas TRACE 1300 GC v1.0
  - 247WCFEnable (see SCR121583 for further information – only required when connecting a TRACE 1300 GC via a 247 Instrument Controller)
- The following steps MUST be followed in the correct order to ensure correct performance of your system.
- The two extensions in this release can be installed together, followed by a single reboot of the 247 Instrument Controller.

Installation Process:

Please ensure that you follow each of these steps, including reboots.

1. To install the Atlas TRACE 1300 GC v1.0 Extension you must log on to the Atlas Server using the Administrator account, or an account that has local Administrator permissions.
2. Each of the extensions in this release are provided as zip archives. Before attempting to install, these must be unzipped into separate local directories e.g.

   C:\Thermo\Atlas\Extensions\TRACE1300_v1

   C:\Thermo\Atlas\Extensions\247WCFEnable
3. Run Configuration Manager using the 'Run as Administrator' option and select the 'Configure System' option from the File menu.

   The Atlas System Properties dialog box is displayed.
4. Click on the 'Extensions' tab.
5. Click on the Add button.
6. The File Open dialog is displayed allowing you to navigate to the directory containing the "Atlas TRACE 1300 GC v1.0" Extension kit unzipped above (e.g. C:\Thermo\Atlas\Extensions\ TRACE1300_v1)

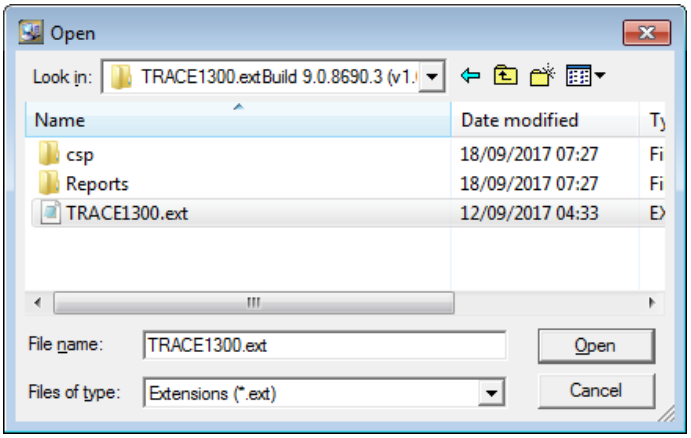


Figure 26: File Open dialog – navigate to unzipped folder

7. Select the .ext file and click the Open button.
8. The Extension (version 9.0.8690.3) is installed into the Atlas Server DSDepot folder on the Atlas Server (see Table 1). The 'Extensions' tab is updated, and displays an entry for Atlas TRACE 1300 GC v1.0 with a Version of 9.0.8690.3

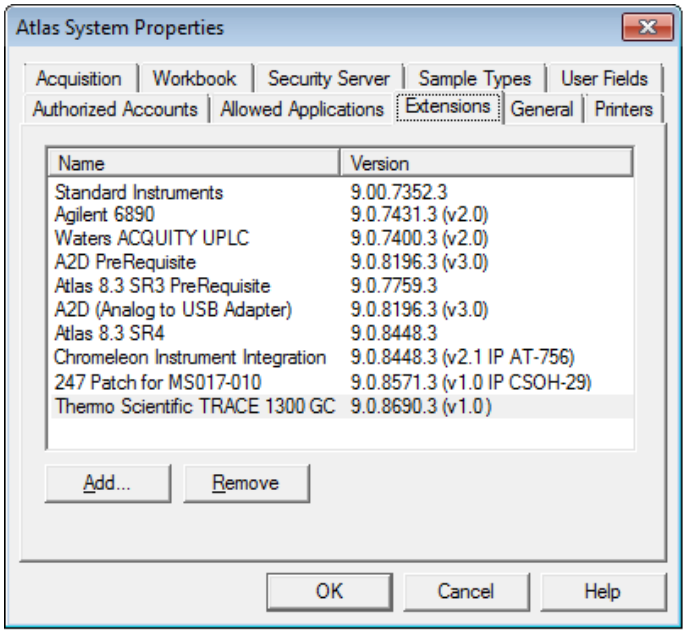


Figure 27: Configuration Manager: list of installed Extensions

9. Repeat steps 5 to 8 for the 247WCFEnable extension.
10. The Atlas Server should not need to be restarted after the extensions have been installed.
11. Atlas TRACE 1300 GC v1.0 and 247WCFEnable extensions contain files required by the 247 Instrument Controller. Each 247 Instrument Controller must be rebooted at this stage.

Users who have the necessary privilege assigned in Configuration Manager can use the DataServer Configuration (File > DataServers) dialog box in Instrument Manager to perform remote reboots of each 247 Instrument Controller

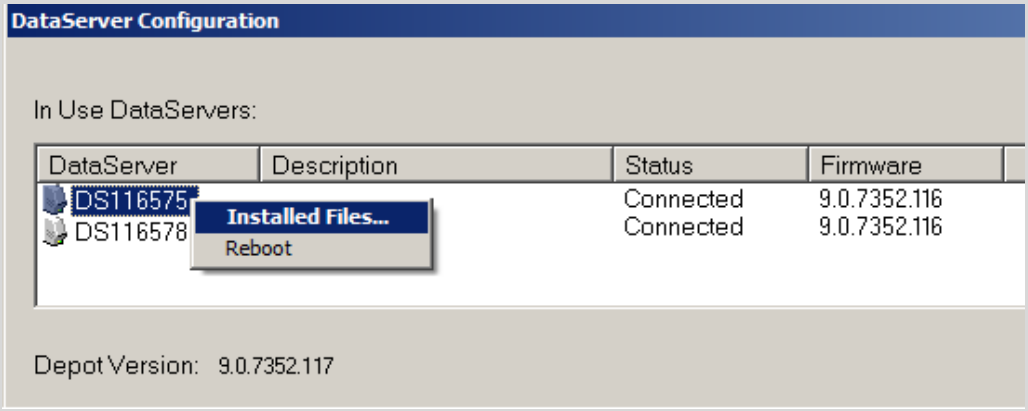


Figure 28: Rebooting 247 Instrument Controller from Instrument Manager

12. Following reboot, each 247 Instrument Controller will automatically copy the updated files from the Atlas server and will automatically reboot itself. This process may take a few minutes to perform

The DataServer Configuration dialog box also allows you to check that the driver file versions on the 247 Instrument Controller match the expected file versions in the DSDepot on the Atlas Server

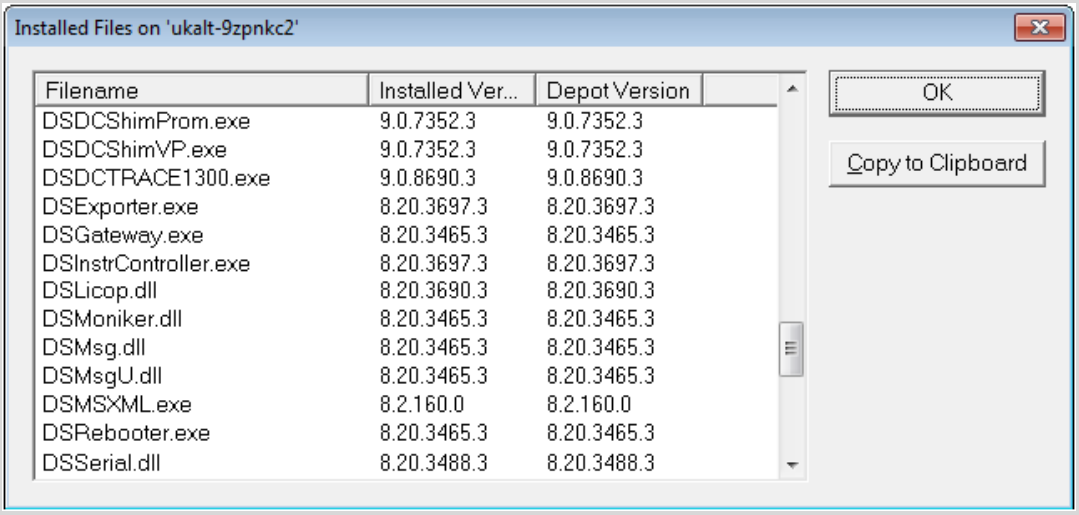


Figure 29: Example Installed Files dialog

13. On each Atlas Client, using an account with Administrator credentials, restart the Atlas application. Atlas will automatically copy the updated files from the Atlas Server and put them into the correct location.

Following the implementation of SCR116938 in Atlas 8.3 SR4, Atlas Clients can now be updated without requiring Administrator log-in.

For a full description of the background to this mechanism, and configuration instructions, please refer to the "Atlas 8.3 SR4 Enhanced File Security Technical Note" available, along with the Atlas 8.3 SR4 Extension Kit, from the download area of the Thermo Informatics Support site.

Updated Files

The following table lists the files that are included in the Extension kits for this release.

When an Extension is installed, all files are initially copied to the DSDepot folder on the Atlas Server.

Files required by the 247 Instrument Controller are automatically copied to the correct location when the 247 IC is rebooted.

Files required on the Atlas Client are automatically copied to the correct location when Atlas or Instrument Manager are run.

Please see installation instructions for full information.

Atlas TRACE 1300 GC v1.0 Extension

File	Atlas Server/Client Location	247 Location	Version
DSDCTRACE1300.exe	-	C:\Thermo\DS	9.0.8690.3
GCMS.GC.Common.dll	-	C:\Thermo\DS	3.3.0.0
GCMS.GC.Inst.dll	-	C:\Thermo\DS	3.3.0.0
GCMS.GC.Inst.Wrapper.dll	-	C:\Thermo\DS	2.0.0.0
LSIETRACE1300.dll	<Atlas_folder>	-	9.0.8690.3
LSIPTRACE1300.dll	<Atlas_folder>\Components\Instruments	C:\Thermo\DS	9.0.8690.3
LSSPTRACE1300.dll	<Atlas_folder>\Components\Instruments	-	9.0.8690.3
Thermo.GCMS.Common.dll	-	C:\Thermo\DS	0.0.0.0
TRACE1300RegisterThermoGCMS.bat	-	C:\Thermo\DS	Date: 12/09/17
TRACE1300.csp	<Atlas_folder>\csp	-	Date: 12/09/17
LSIPTRACE1300.rmm	<Atlas_folder>\Reports	-	Date: 12/09/17

Table 3: Atlas TRACE 1300 GC v1.0 files

247WCFEnable Extension

File	Atlas Server/Client Location	247 Location	Version
247WCFEnable.exe	-	C:\Thermo\DS	9.0.8665.3

Table 4: 247WCFEnable file

Software Changes

The following list details the System Change Requests (SCRs) that have been implemented in this upgrade release.

Note: Some of these issues were originally raised against the CII-based version of TRACE 1300 GC control in Atlas. Where the new native control resolves these issues, they are marked here as Implemented.

Resolved SCRs

SCR	Summary
116026	Trace 1300 GC: Autosampler injects if quit at Wait Inject
116027	TRACE 1300 GC: stop/fake inj option needed for missing vials
116029	Atlas CII: TRACE 1300 Instrument Manager stays at Idle if a run is started outside of Atlas
117357	TRACE 1300 GC: Post-acquisition snapshotting not working correctly
118099	Atlas CII: TRACE 1310 / AS 1310: Atlas can sometimes allow Back samples to acquire when Active inlet is set to Front in Front/Back mode
118100	Atlas CII: TRACE 1300 / AS 1310: Incorrect boundary validation for Vial No and Inj Vol columns in Sequence when in Gemini mode
118105	Atlas CII: TRACE 1300: Instrument configuration becomes slow when communication with instrument is lost
119739	Atlas CII: Allow TRACE 1300 workbooks to display the method that was used to acquire
119892	Atlas CII: TRACE 1300 GC: Method editor tabs re-order themselves after instrument config changes
119893	Atlas CII: TRACE 1300 GC: Implement injection volume validation
119894	Atlas CII: TRACE 1300: AS/AI1310 driver improvement request
120515	Atlas TRACE 1300 Control: Create a native TRACE 1300 driver for Atlas
120569	Atlas TRACE1300 control: Provide a status 'plug-in' for TRACE1300GC
120570	Atlas TRACE1300 Control: Implement Method Upload from instrument
120571	Atlas TRACE1300 Control: Implement Method Download to instrument
121580	Atlas TRACE 1300 GC: Include a full instrument method report in the extension
121583	Atlas TRACE1300 Control - Instrument cannot make a connection to a 247

Table 5: SCRs implemented in this release

Known Issues

Newly-raised SCRs

NOTE: In response to customer feedback, a new procedure for assessing and prioritizing Software Issues has been implemented as of July 2015.

Software Issues are now assessed by a cross-functional team and are assigned a "Priority", which indicates the order in which issues will be addressed.

Priority ranges from 1 to 5, with 1 being the highest, and 5 the lowest.

All new Issues are assigned a Priority when they are raised.

Older Issues, created prior to this new system, will continue to be referred to by their Severity until they have been reviewed and assigned a Priority. This review of older issues is an on-going process.

For further information, please see the Thermo Informatics Support site

The following list details the new Priority 1, 2, 3, 4 or Enhancement System Change Requests (SCRs) that have been raised during this project.

SCR	Summary	Priority
121591	Atlas TRACE1300 Control - Split Ratio edit box is not visible when Flow mode is selected	3
121593	Atlas TRACE1300 Control - Changing Active Inlet and then adding samples to a partially-acquired workbook can cause problems	3
121681	Atlas TRACE1300 Control: GC doesn't turn Inlet Backflush & Purge Flow On/Off when these parameters are set in Atlas method	3
121682	Atlas TRACE1300 Control: Start button can be pressed in status window when run is paused	3
121587	Atlas TRACE1300 Control - Acquisition rate set in method sometimes not used for auxiliary channels.	4
121588	Atlas TRACE1300 Control - Status dialog diagnostics - module serial numbers are incorrect	4
121589	Atlas TRACE1300 Control - Config upload is not able to distinguish between AS/AI3000 and AS/AI1310	4
121590	Atlas TRACE1300 Control - Workbook change history contains a large number of entries when reading/writing to/from Template	4

SCR	Summary	Priority
121592	Atlas TRACE1300 Control - Configuration upload reports successful upload when instrument is disconnected	4
121594	Atlas TRACE1300 Control - When a missing vial is encountered, and the AS is set to Continue, the full oven program is still run	4
121597	Atlas TRACE1300 Control - Grid rows are disabled instead of removed by Method Upload in some situations	4
121598	Atlas TRACE1300 Control - Status window always uses default Valve and Event names	4
121680	Atlas TRACE1300 Control: If run time is longer than oven ramp total, acquisition stops at end of oven ramp	4
121684	Atlas TRACE1300 Control - Incorrect values in SSL GSV Method Upload	4
121595	Atlas TRACE1300 Control - Additional instrument control buttons requested for status window	Enhancement
121596	Atlas: Enhance Instrument method grids to use custom table styles	Enhancement

Table 6: New SCRs raised during this project