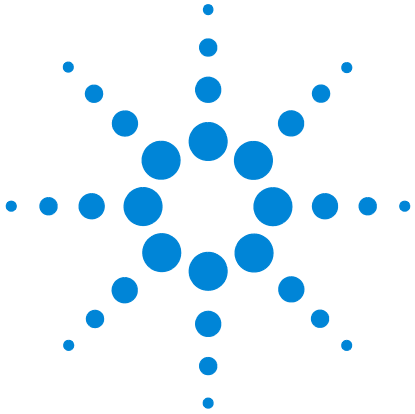

Agilent 490-Mobile Micro GC User Information

User Manual

Agilent Technologies

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Introduction

The 490-Mobile Micro GC extends the existing 490 Micro GC web portal access to mobile devices, allowing you to view instrument status or configure and control instruments through a clean, adaptive, and simplified interface.

To allow access a Micro GC, first follow the setup instructions in the 490-PRO Micro GC User Manual (G3581-90006). Enter the IP address of the GC into the browser of your mobile device to open the 490-Mobile UI.

Available features are determined by license type:

Table 1 License features

Feature	PRO license	Mobile license
Any App Basic Report	yes	yes
Mobile UI	no	yes
App: Verification Check& Alarm	yes	yes
App: Digital In	yes	no
App: Analog Out	yes	no
App: LCD	yes	no
Modbus TCP	yes	no
Modbus Serial	Depends on Modbus license	no
FTP Storage	yes	no
USB Storage	yes	yes
Stream Selector	yes	yes
Sequence	yes	yes
Reprocessing List	yes	yes
Energy Meter	Depends on EM license	Depends on EM license
History Log	Depends on API21 license	Depends on API21 license

What do you want to do?

- “Select a Workspace”
- “Start a Run”
- “View Chromatogram and Report”
- “Load a Solution”

Contents

1
User Interface

User Interface

The 490-Mobile Micro GC UI layout will automatically adjust according to the resolution of your device, adapting to both desktop and mobile use scenarios.

The UI is divided into the following regions:

- “Navigation Pane” on page 9
- “Heading” on page 10
- “Monitors” on page 11
- “Connection Status” on page 14
- “Control” on page 15
- “Workspace” on page 12

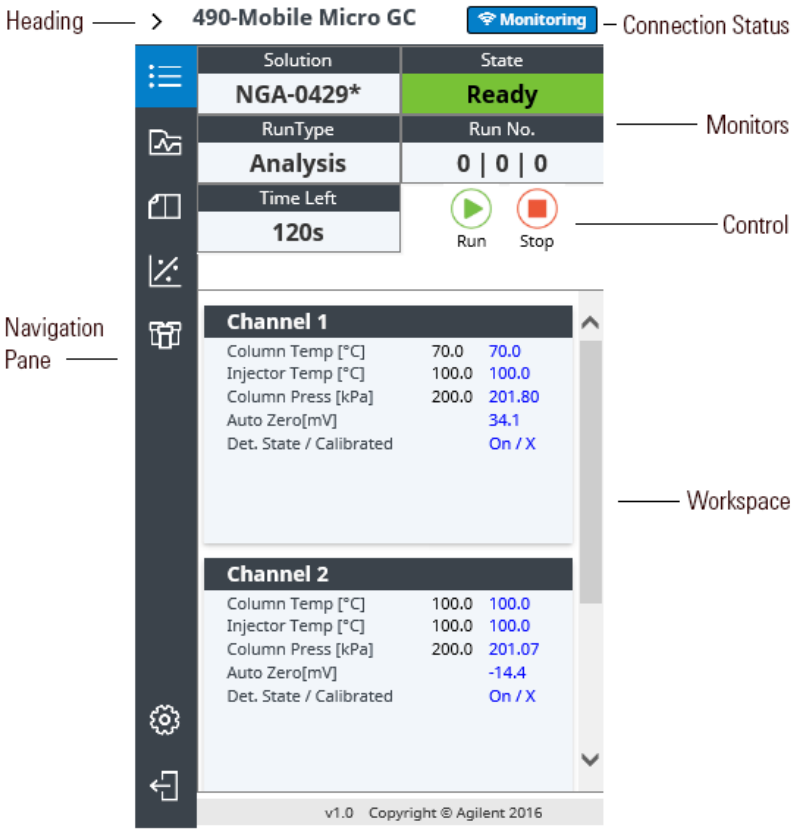


Figure 1 User interface

Navigation Pane

The navigation pane allows you to select a “Workspace”, “Change Language” settings, and “Quit”.

Tap or click › to view the navigation pane items names. Tap or click ⌄ again to hide item names.

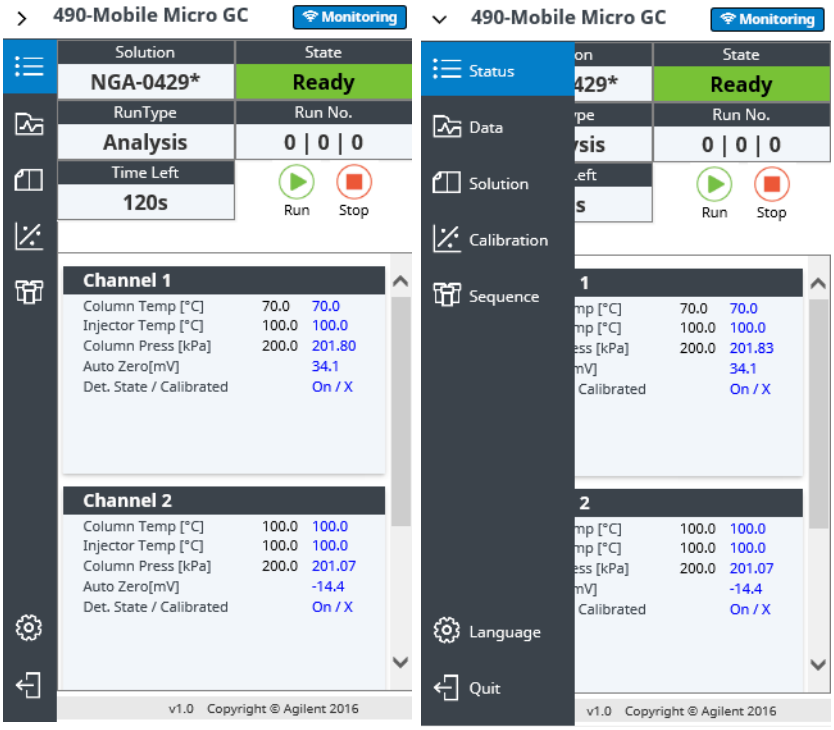


Figure 2 Navigation panes

Heading

The top of the UI is the heading. The heading displays the "Connection Status", the "Control" box, as well as several "Monitors".

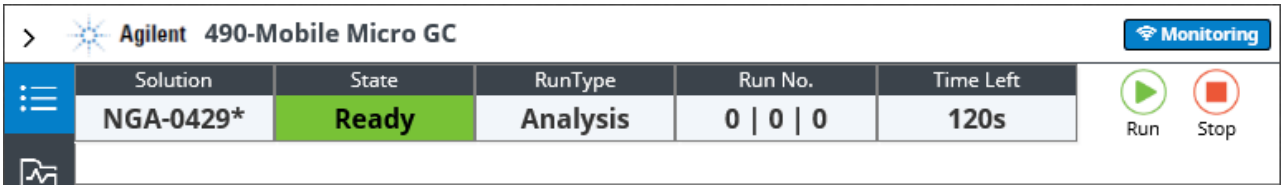


Figure 3 Desktop view

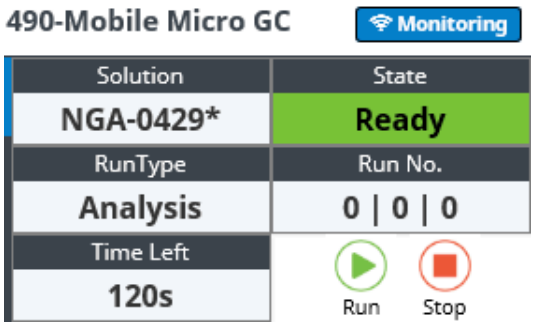


Figure 4 Mobile view

Monitors

Monitors are shown at the top of the UI and include:

- “Solution Monitor” on page 24
- “Micro GC State” on page 25
- “Run Type” on page 26
- “Alarm” on page 27
- “Run No.” on page 29
- “Countdown Timer” on page 30

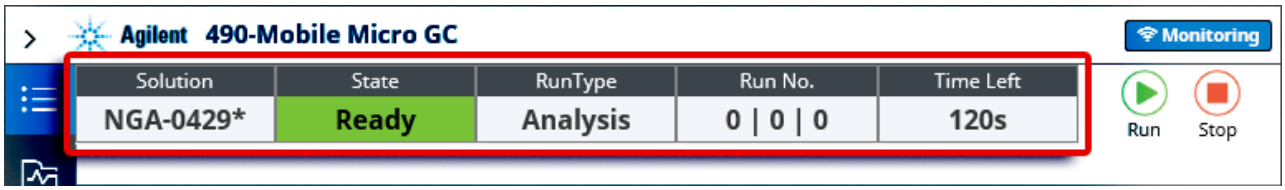


Figure 5 Monitor view

Workspace

The workspace is displayed in the main area of the UI. Each workspace is used for a unique interaction with the Micro GC. Select a workspace from the "Navigation Pane". The following workspaces are available:

- "Status" on page 32
- "Data Workspace" on page 34
- "Solution" on page 42
- "Calibration" on page 47
- "Sequence" on page 49

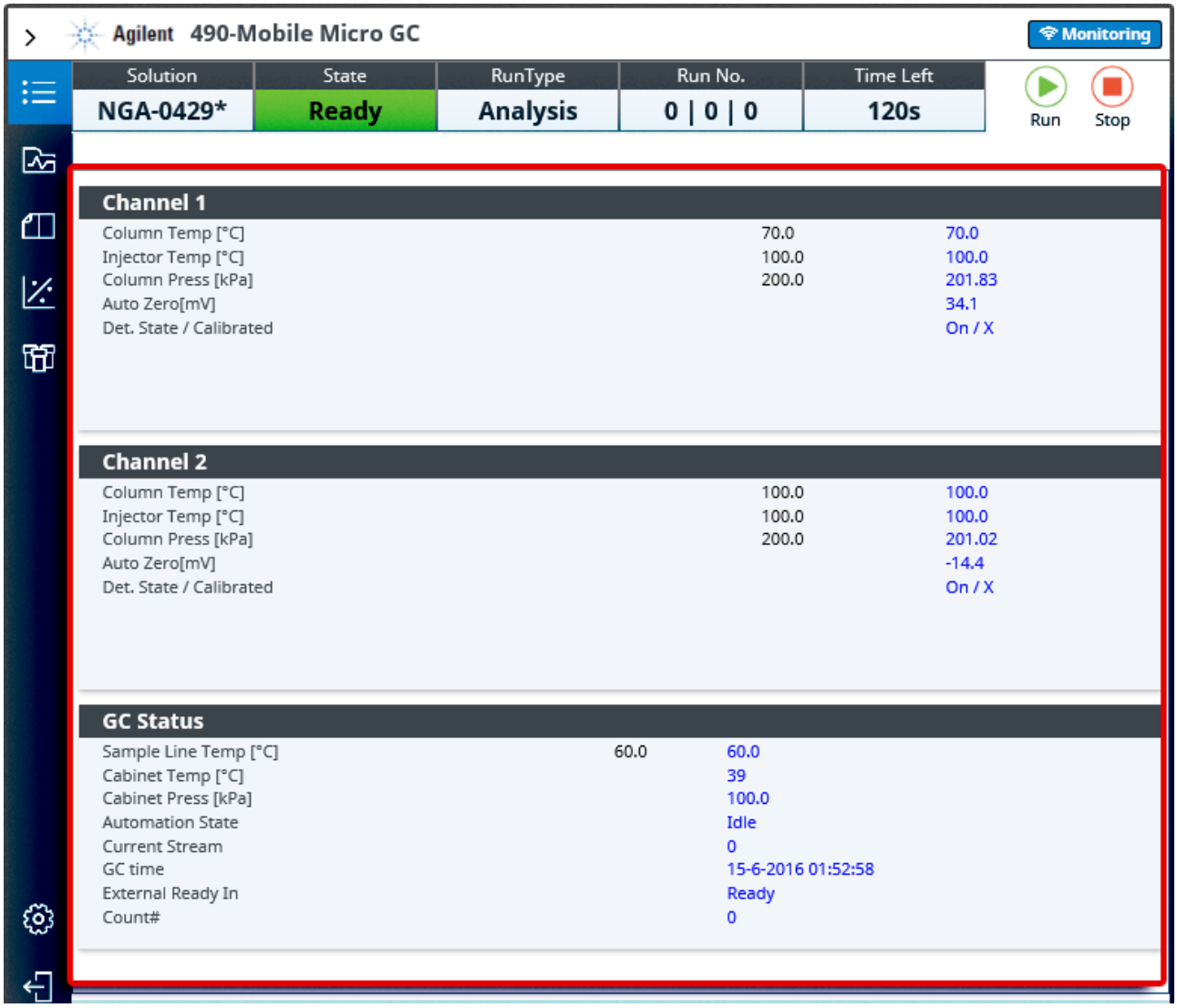


Figure 6 Workspace

Select a Workspace

From the “Navigation Pane”, tap or click a workspace to view it.

Workspace options are:

- “Status” on page 32
- “Data Workspace” on page 34
- “Solution” on page 42
- “Calibration” on page 47
- “Sequence” on page 49

The default workspace is **Status**.

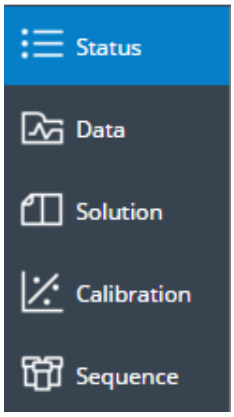
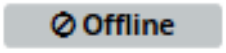


Figure 7 Navigation pane workspace options

Connection Status

The connection to a Micro GC is in one of three states:

Offline 

: No connection to target Micro GC.

Online 

: Connected to the target Micro GC, and is able to control.

Monitoring 

: Connected to target Micro GC, but read only. This happens when the target Micro GC is in use by another PC Client software, such as PROstation for 490 Mobile. In this case, the Mobile UI cannot get the write privilege from the Micro GC.

You can tap (or hover when using desktop browser) the connection status indicator to reveal a tool tip.

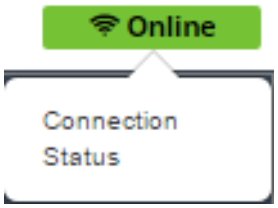


Figure 8 Connection status indicator

When multiple mobile users are connected to the same Micro GC, they all can be online. Internally, the mobile UI does not maintain a connection to Micro GC, but establishes the connection once it needs to. Each mobile UI can control the same instrument separately, as long as it does not request the control privilege at the same time (Micro GC can support only one controller at a time). If multiple requests are made at the same time, only one of them will be accepted and the operations from other clients will be rejected by the instrument. The user will also get a notification that the request has been rejected.

Control

The control area contains buttons used to start and stop a run. See “Start a Run” on page 16 and “Stop a Run” on page 18 for more information.

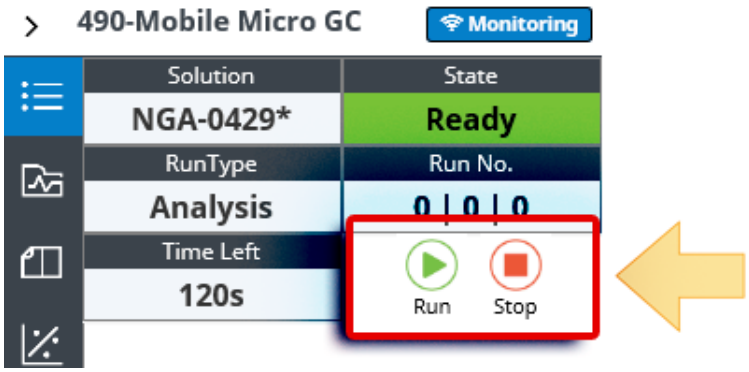


Figure 9 Control area

Start a Run

1 Tap or click the run button.

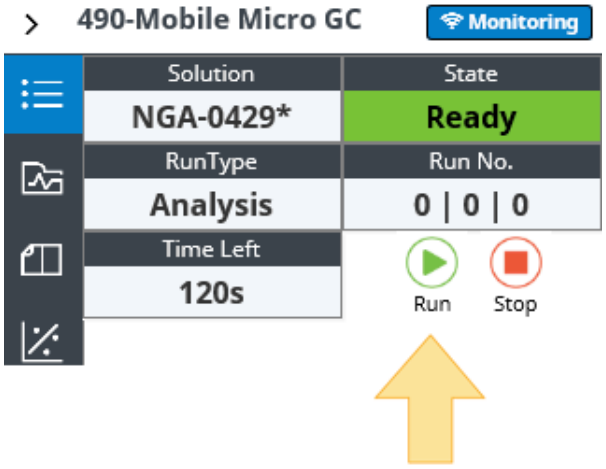


Figure 10 Run button

2 Choose which type of run to start.

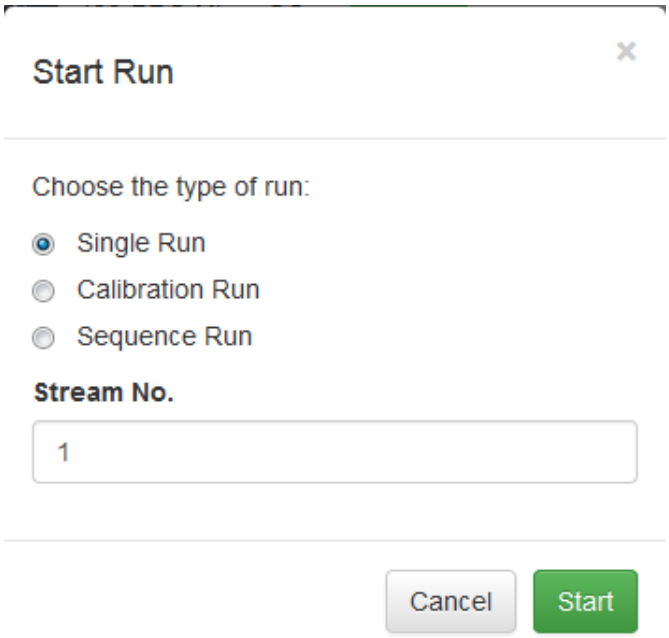


Figure 11 Run options

When **Single Run** or **Calibration Run** is chosen and a stream selector is configured in the Micro GC, you must input the **Stream No**.

A **Sequence Run** does not require **Stream No**.

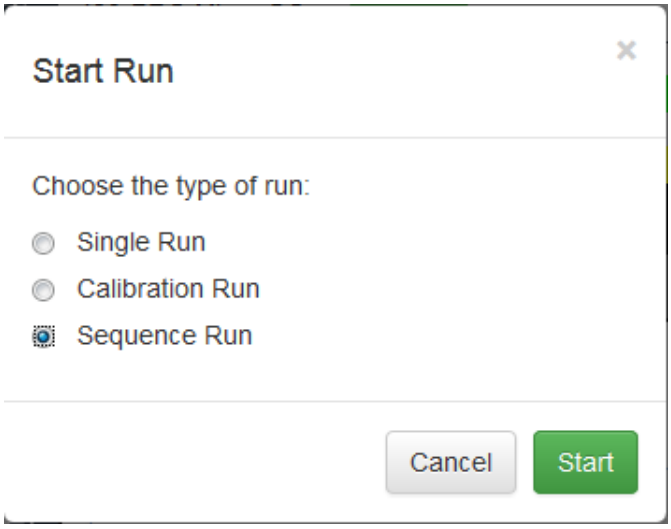


Figure 12 Sequence run option

If a stream selector is not configured, the **Stream No.** field will not display.

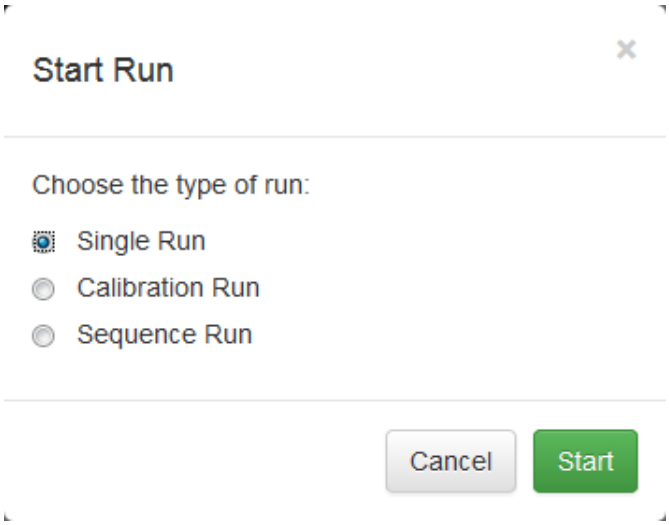


Figure 13 Stream selector not configured option

Stop a Run

1 Tap or click the stop button.

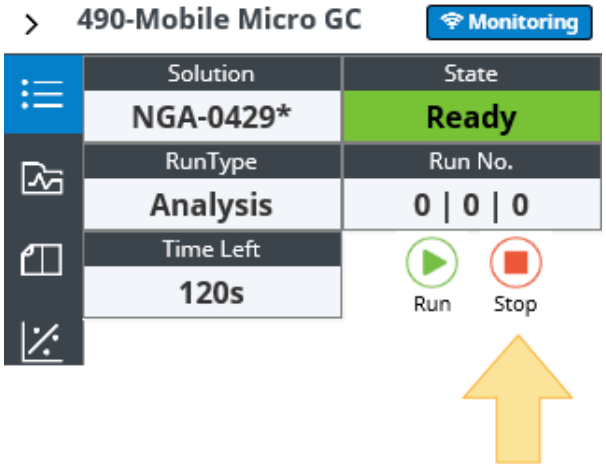


Figure 14 Stop button

2 Select when to end the run. The run can be stopped immediately or after the completion of the current run or sequence.

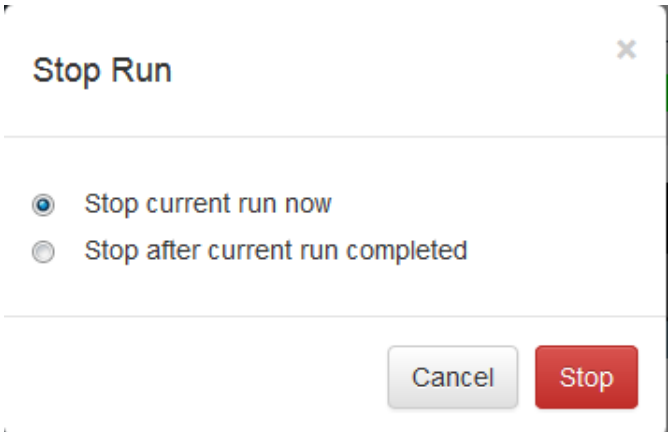
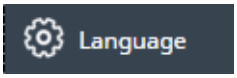


Figure 15 Stop run options

Change Language

1 Tap or click 

to display the language selection box for the UI.

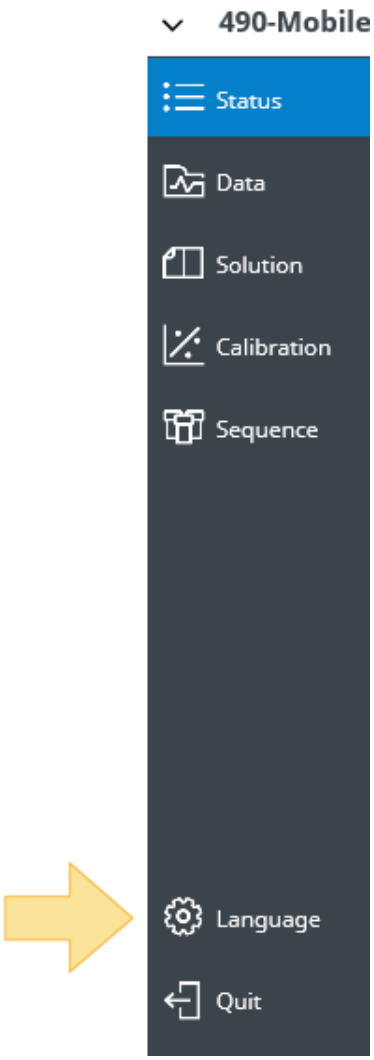


Figure 16 Navigation pane language selection

2 Select your language and click **Yes**.

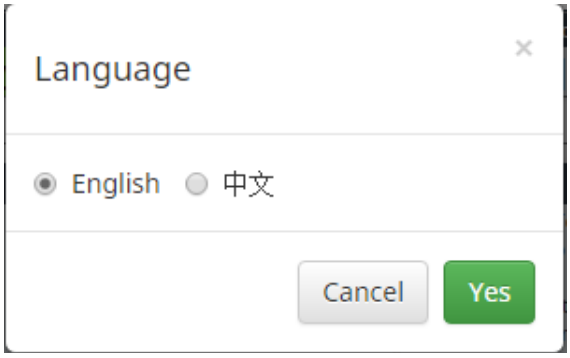
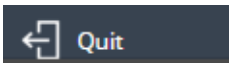


Figure 17 Language options

Quit

1 Tap or click 

to quit the Mobile UI and return to the legacy main page.

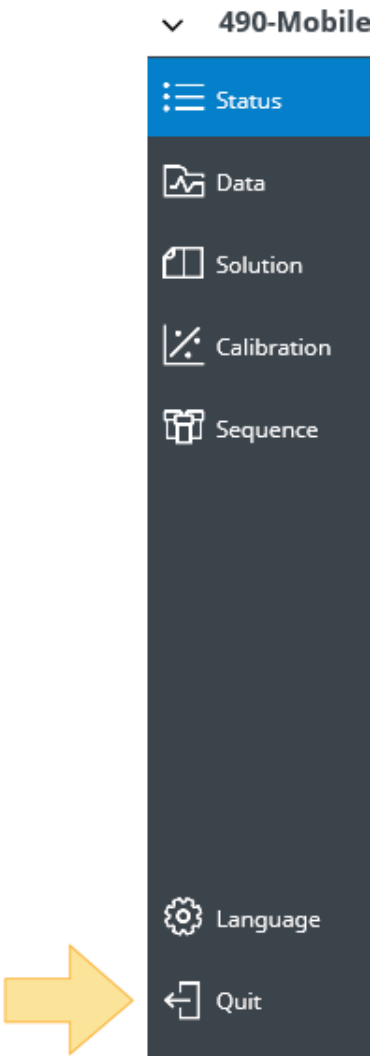


Figure 18 Navigation pane quit selection

2 Confirm your selection in the dialog box.

Figure 19 Quit confirmation dialog box

2 Monitors

Monitors are shown at the top of the UI and include:

- "Solution Monitor"
- "Micro GC State"
- "Run Type"
- "Alarm"
- "Run No."
- "Countdown Timer"

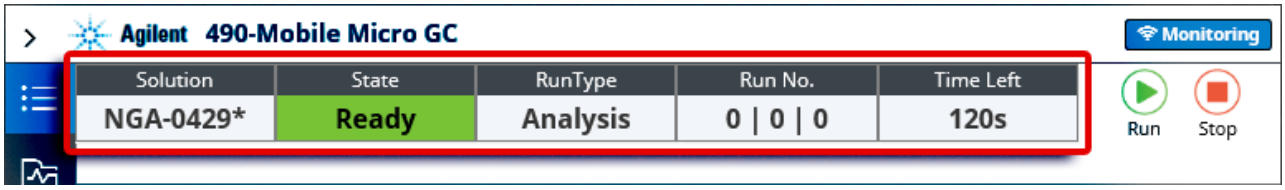


Figure 20 Monitors

Solution Monitor

The current solution name is displayed in the **Solution** monitor.

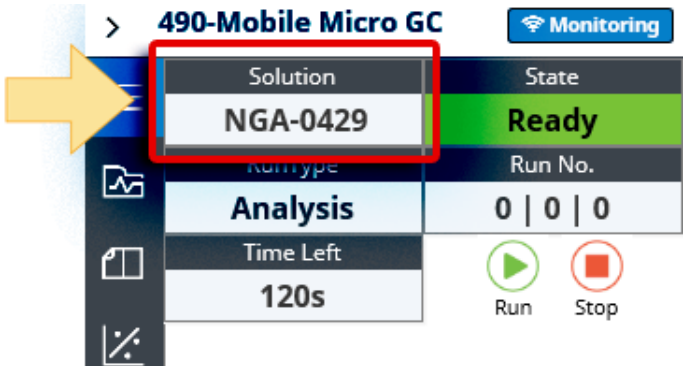


Figure 21 Solution monitor

An asterisk indicates there are unsaved changes to a method or application.

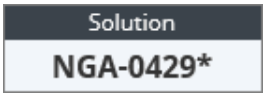


Figure 22 Unsaved changes asterisk

Reloading the original, unedited solution, will remove the asterisk.

Micro GC State

The Micro GC **State** monitor indicates the current Micro GC state.

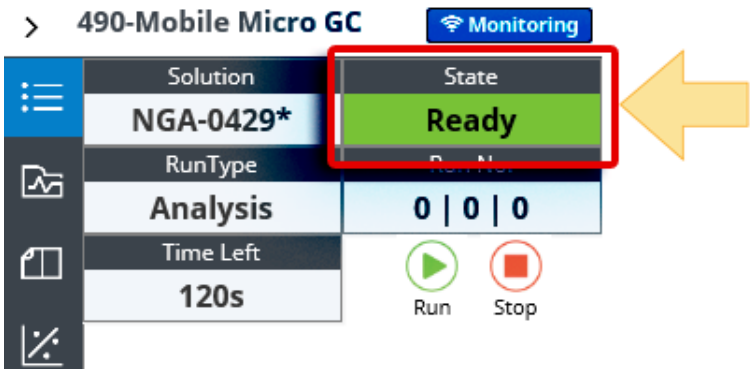


Figure 23 State monitor

Micro GC states include the following:

Figure 24 Micro GC states

When the state is **Error**, tap or click the label to display the corresponding error code and descriptions.

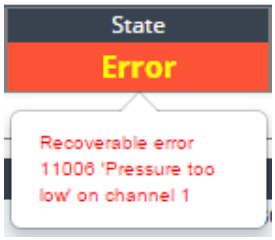


Figure 25 Error state

Run Type

The **Run Type** monitor displays the current run type. Run types include:

- Analysis
- Calibration
- Verification
- Blank

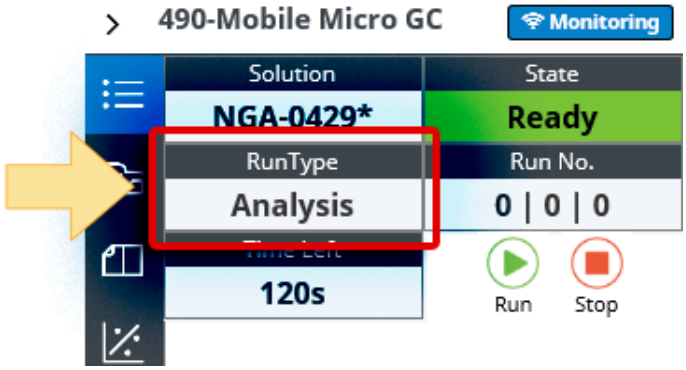


Figure 26 RunType monitor

Alarm

An alarm notification displays once the alarm is triggered, if the alarm table is enabled. See the “Enable Alarm Table” on page 28 for more information.

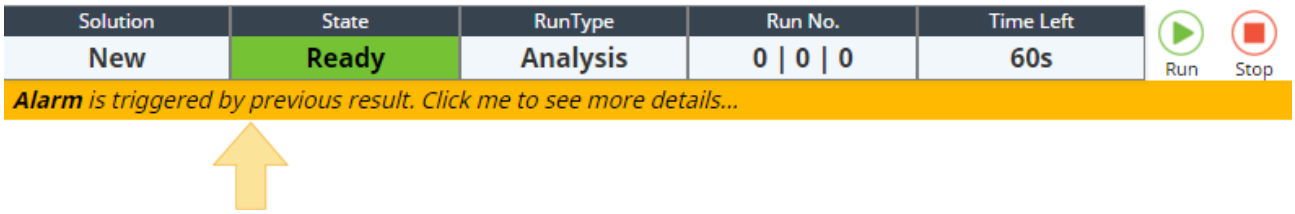


Figure 27 Alarm notification

1 Tap or click the alarm notification to view which alarms have been triggered.

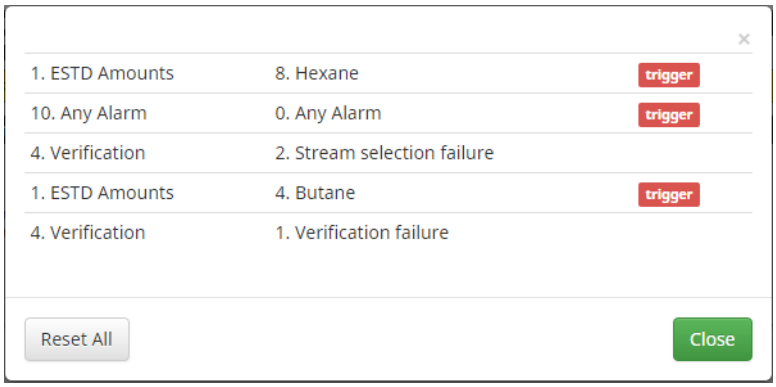


Figure 28 Alarms triggered

The alarm status will clear after next run if the result has no alarm triggered.

2 To manually clear the alarms, tap or click **Reset All**.

Enable Alarm Table

The alarm table is configured from the PROstation for 490 Mobile. For information on setting alarms, see the PROstation for 490-Mobile manual.

To enable alarms in PROstation for 490-Mobile:

1 From the **Application** menu, select **Alarms**. The alarms table opens.

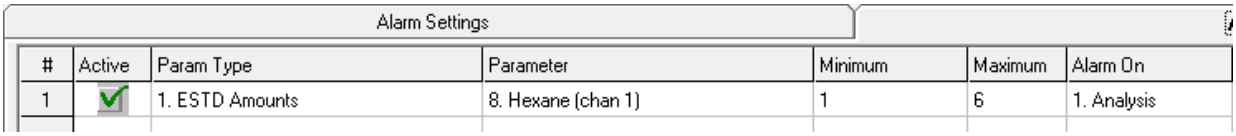


Figure 29 Alarm table

2 From the **Alarm Settings** tab, select **Alarm table enabled**.

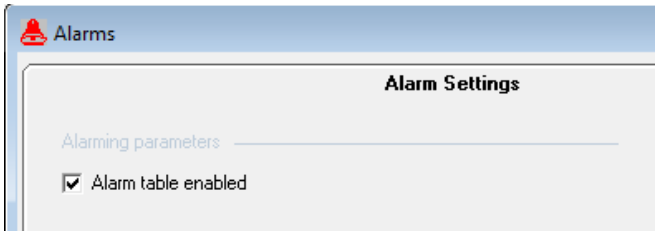


Figure 30 Alarm settings

Alarm notifications configured in the alarm table will now display in the Mobile UI when triggered.

Run No.

The **Run No.** monitor displays the sequence repeat, sequence Line #, and line repeat values.

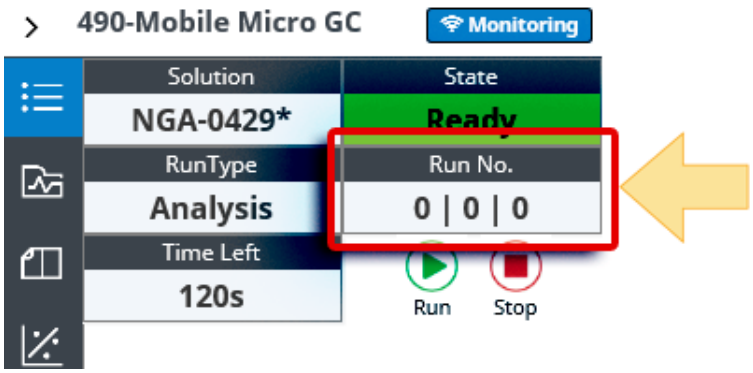


Figure 31 Run No. monitor

Tap or click the monitor to view tool tips.

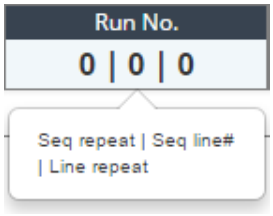


Figure 32 Run No. designations

If the sequence is in **Continuous mode**, the **Seq Repeat** indicator displays an infinity symbol.

Figure 33 Continuous mode

Countdown Timer

When a run is in progress, the Countdown Timer monitor displays the seconds remaining in the run.

When the current run is completed, the monitor displays the total time in seconds of the next run.

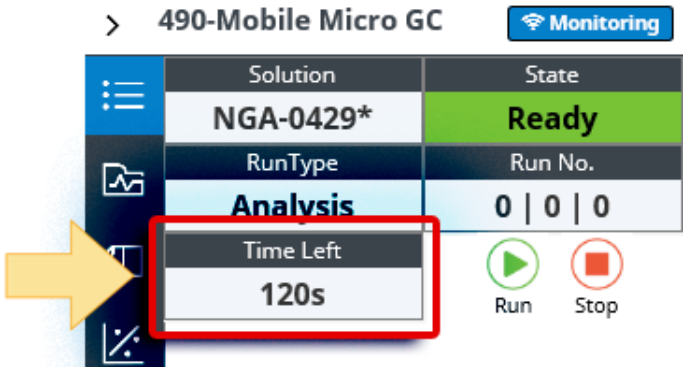


Figure 34 Time Left monitor

3 Workspaces

Status

1 Select **Status** from the navigation pane to display the configuration of each channel and the Micro GC.

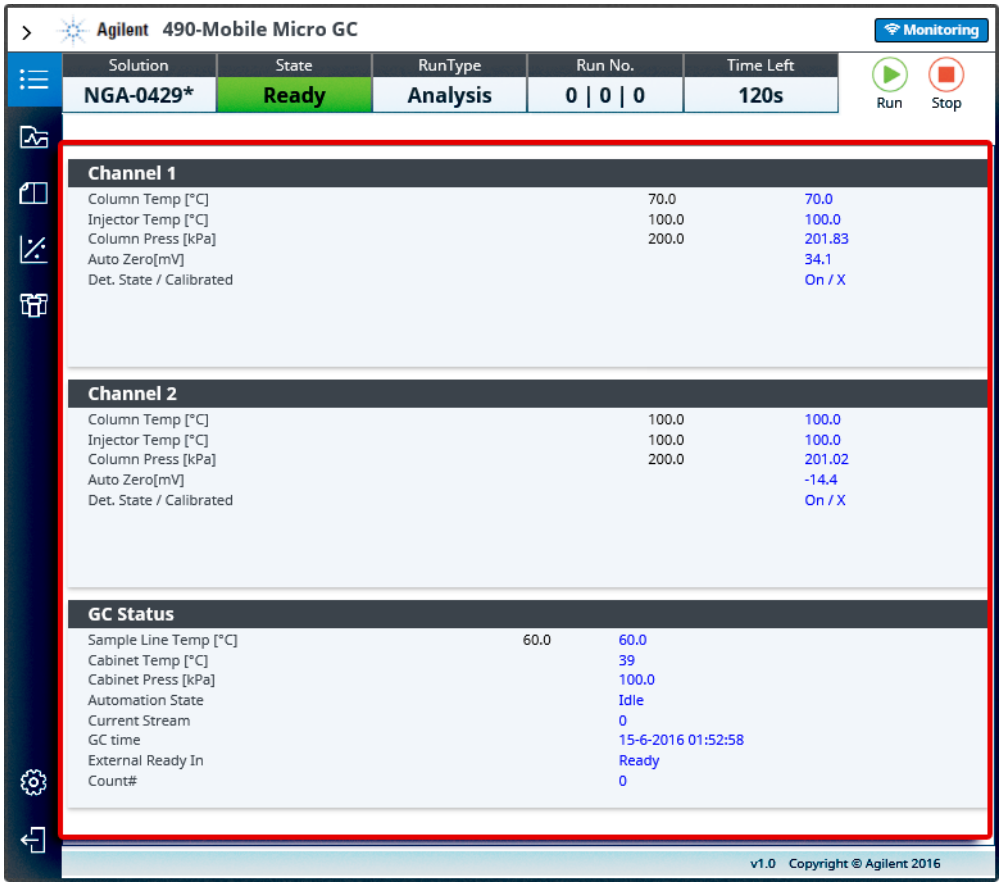


Figure 35 Channel configuration in workspace

2 Tap or click a panel to toggle between status and configuration info.

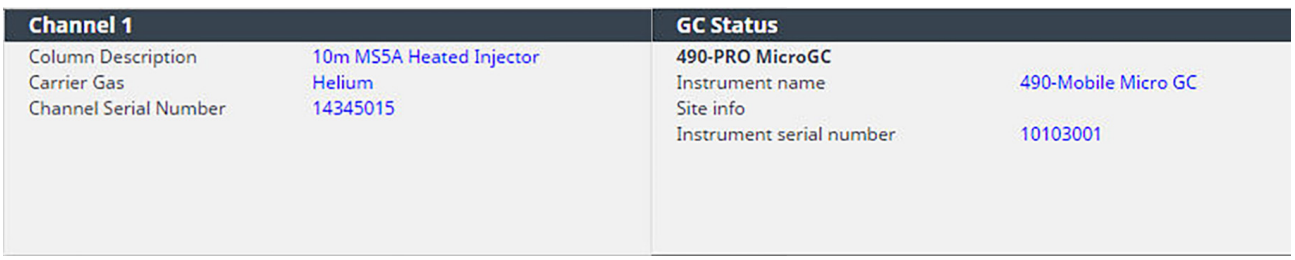


Figure 36 Channel status and configuration

3 Disabled channels are dimmed.

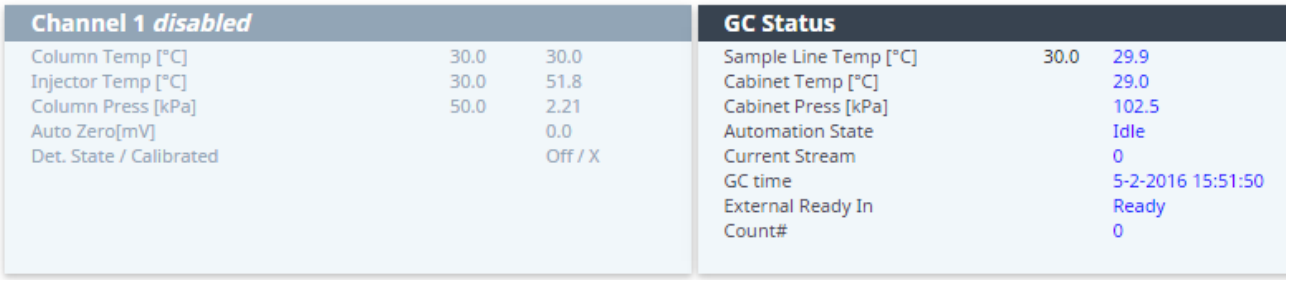


Figure 37 Disabled channel (left)

Data Workspace

To view the last data and report:

Select **Data** from the navigation pane to display the chromatogram of the last data and report saved to the Micro GC from the Data workspace.

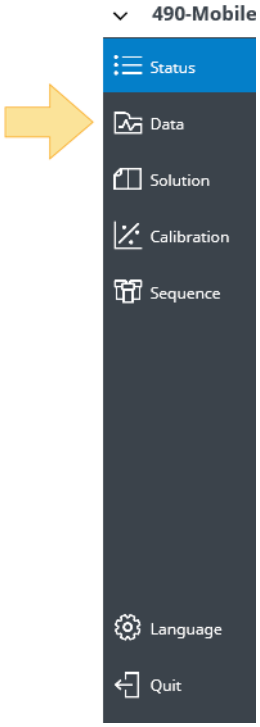


Figure 38 Select Data from the navigation pane

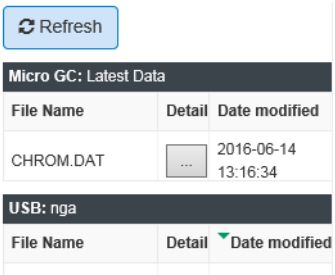


Figure 39 Data list

To view historical data

1. Plug a USB mass storage device into the Micro GC.
2. Configure the USB mass storage in PROstation. See “Configure USB Storage” on page 37.
3. From the **Data** workspace, select a chromatogram and application report to view from the “Data List” on page 36.

Data List

In the “Data Workspace” on page 34, the data list displays the available chromatogram and application report data.

For a Micro GC without a USB storage device attached, only the single Micro GC data is shown.

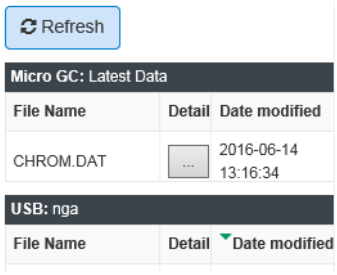


Figure 40 Data list

For a Micro GC with a USB storage device, after each run, data will also be saved the USB device and shown in the data list. You must have a correctly configured USB mass storage in PROstation for 490-Mobile. See “Configure USB Storage” on page 37.

Data can be sorted based on **File Name** or modified date. By default, the latest data is shown on top.

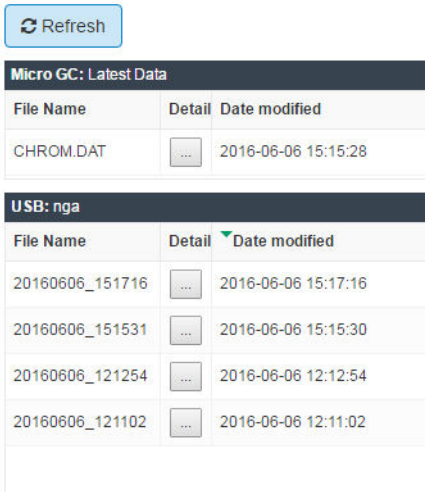


Figure 41 USB data files

You can select a chromatogram and application report to view from the data list, see “View Chromatogram and Report” on page 39.

Configure USB Storage

To use a USB mass storage device with the Micro GC, you must configure it in PROstation for 490-Mobile.

1 From the **Automation** menu in PROstation, select **USB Storage**.

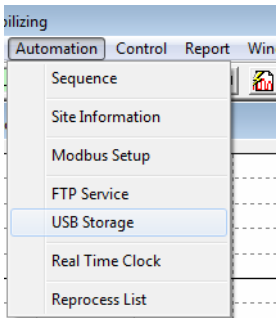


Figure 42 USB storage

2 Enter parameters for the USB mass storage device.

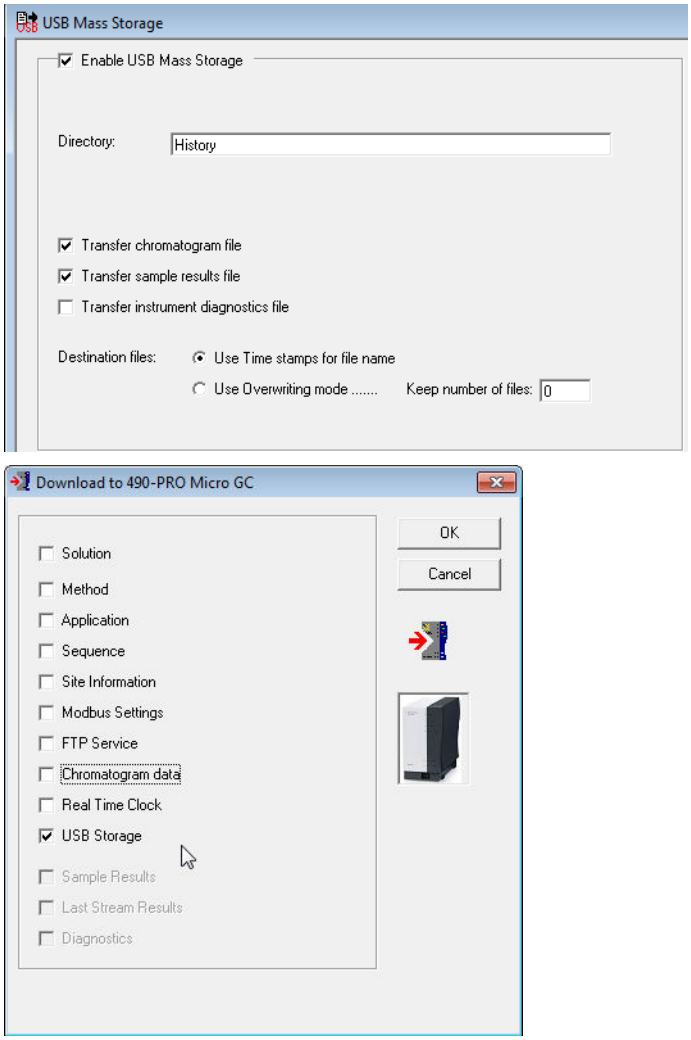


Figure 43 Downloading to Micro GC

After each run, the data will be saved to the USB device. You can access the list, see “Data List” on page 36, of the stored data from the Mobile UI.

View Chromatogram and Report

1 In the “Data Workspace” on page 34, tap or click ... in the Details column to display the details of the chromatogram and the application report for that row.

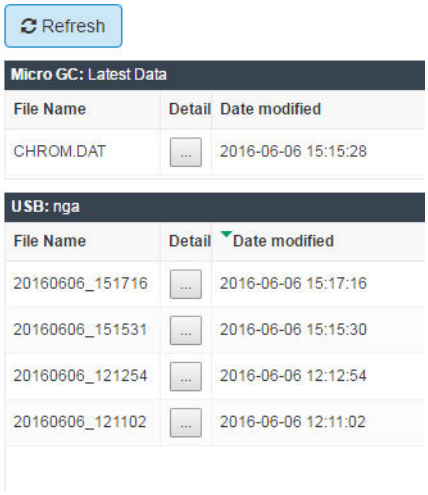


Figure 44 Click details

Chromatograms are displayed by channel.

2 Click a channel button to switch among channels.

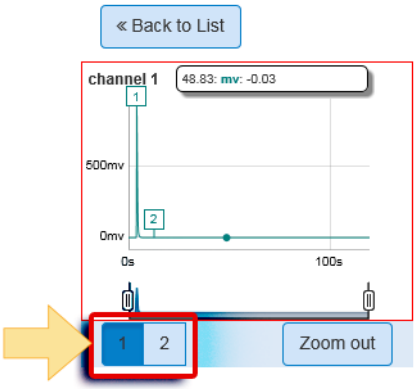


Figure 45 Channel selection

3 Adjust the X-axis by sliding the bar handlers to zoom in and out. The Y-axis will adjust automatically based on the signal.

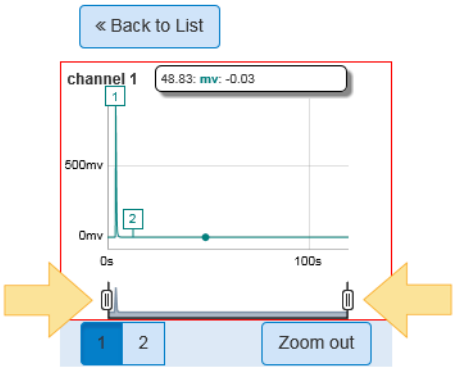


Figure 46 Zoom bar handlers

4 Tap or click Zoom out to view the entire chromatogram.

5 Scroll to see the remaining content of the report.

Sampling Comp Analog In #3 :	0.00000
Sampling Comp Analog In #4 :	0.00000
Sampling Comp Analog In #5 :	0.00000
Sampling Comp Analog In #6 :	0.00000
Ambient pressure :	103
Ambient temperature :	29

#	Component	Chan#	Retention	Area	Height	ESTD	Norm.ESTD%	RF	Rw
1	Propane	1	10.5	704.9	100000.0	6.0000	14.63	0.008512	1
2	Hexane	1	27.1	1379.4	200000.0	15.0000	36.59	0.01087	1
3	Helium	1	46.5	2850.0	400000.0	20.0000	48.78	0.007018	1
Totals				16773.017		41.0000	100.0000		

Calculation Method: ISO 6976	Dry	Saturated	Unit
Water Mole :	0.00	0.60	[%]
Molar Mass :	39.9339	39.8024	[kg/kmol]
Relative Density, Ideal :	1.3788	1.3743	[-]
Relative Density, Real :	1.4063	1.4019	[-]
Gas Density, Ideal :	1.7816	1.7768	[kg/m3]
Gas Density, Real :	1.8182	1.8137	[kg/m3]
Compress Zmix :	0.9799	0.9797	[-]
Superior Heating Value (Volume Ideal) :	82.96	82.46	[MJ/m3]
Superior Heating Value (Volume Real) :	84.66	84.17	[MJ/m3]
Superior Heating Value (Mass) :	0.00	0.00	[MJ/kg]
Superior Heating Value (Molar) :	0.00	0.00	[kg/mol]
Inferior Heating Value (Volume Ideal) :	76.78	76.32	[MJ/m3]
Inferior Heating Value (Volume Real) :	78.36	77.90	[MJ/m3]
Inferior Heating Value (Mass) :	0.00	0.00	[MJ/kg]
Inferior Heating Value (Molar) :	0.00	0.00	[kg/mol]
Wobbe Index (Real) :	71.39	71.09	[MJ/m3]
Wobbe Index inferior :	66.08	65.79	[MJ/m3]

Figure 47 Data report

Tap or click « Back to List or "**Back to List**" to view the "Data List" on page 36.

Solution

A solution is comprised of a method and its application. It contains both instrument control and data analysis information.

1 Select **Solution** to review or “Load a Solution” on page 45 from the solution workspace.

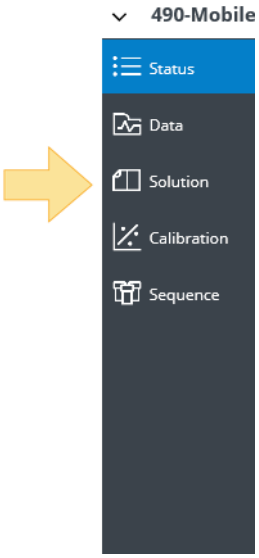


Figure 48 Select Solution from navigation pane

A solution is created and saved in the Micro GC by PROstation for 490-Mobile. A maximum of 9 solutions (from 1 to 9) can be stored on an instrument. (0 is reserved for the current active solution).

The example below shows there are 3 solutions downloaded into 1, 2, and 5 of this Micro GC.

Figure 49 Solutions

2 Tap or click any solution item to review the details.

« Back to List | Load into GC

NGA-0429

Configuration

Channel	Description	Carrier Gas
1	40cm HSA Heated Injector, for NatGas	Helium
2	8m 5CB Heated Injector	Helium

Control Method

Sampling time	0
Sample line temp	60
Stabilizing time	5

Channel 1	
Column temp	70
Inject temp	100
Pressure mode	static
Pressure	200000
Inject time	40 ms
Run time	120
Sensitivity	ultrahigh
Invert Sig.	false

Channel 2	
Column temp	100
Inject temp	100
Pressure mode	static
Pressure	200000
Inject time	40 ms

Figure 50 Solution details

Set and Download Method Properties

Set method properties and download a method to the Micro GC.

1 From the **Method** menu in PROstation for 490-Mobile, select **Properties**.

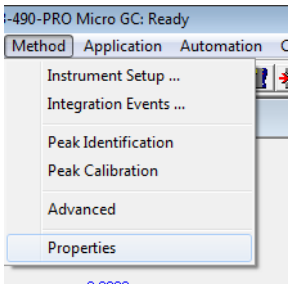


Figure 51 Method properties menu

2 Select desired method properties.

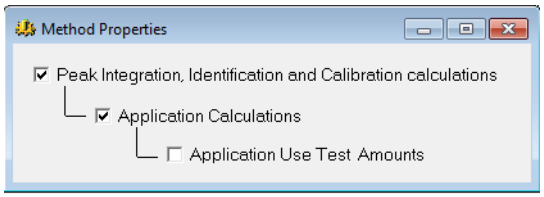


Figure 52 Select method properties

3 Select **Method** to download the method settings.

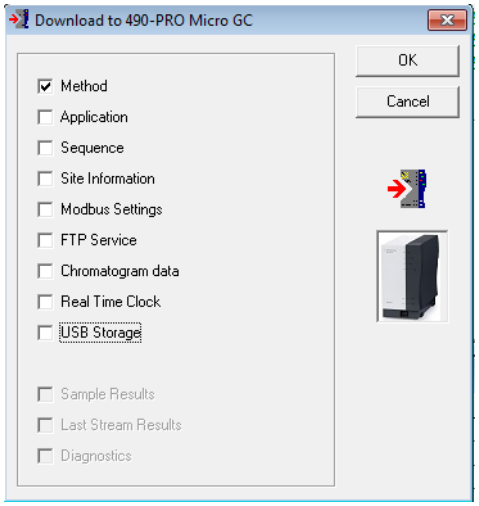


Figure 53 Download method settings

Load a Solution

1 Select **Solution** from the "Navigation Pane".

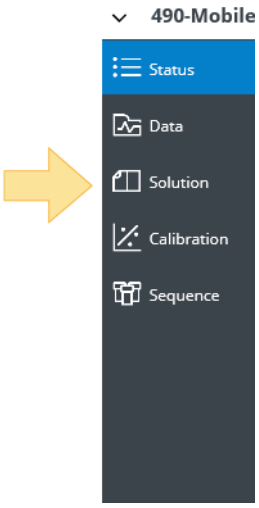


Figure 54 Select Solution from the navigation pane

2 Tap or click any solution item to review the details. The below image shows there are 3 solutions downloaded into 1, 2, and 5 of the Micro GC.

Figure 55 Solutions

The solutions you selected is displayed.

3 Tap or click **Load into GC** to make this the active solution.

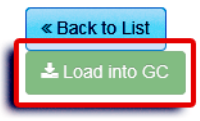


Figure 56 Load into GC

4 When prompted, click **Yes** at the confirmation dialog.

Figure 57 Confirmation dialog

The solution is loaded into the Micro GC.

5 Once the solution is loaded by the instrument, you can verify the solution name in the "Solution Monitor" on page 24.

6 If the Micro GC configuration is changed after a solution is stored (by changing in carrier gas or replacing the channel with another PN), the configuration mismatch will produce an error. A solution cannot load when the system detects an error.

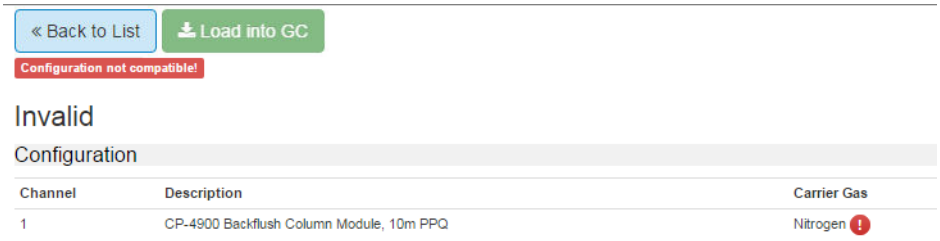


Figure 58 Invalid solution error

Calibration

You can view and edit calibration info in the **Calibration** workspace.

1 Select **Calibration** from the navigation pane to display the calibration workspace.

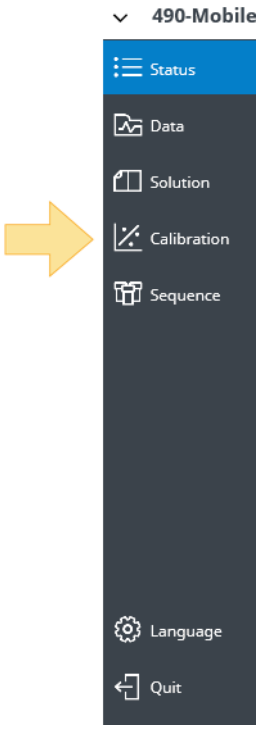


Figure 59 Select Calibration from navigation pane

2 Click **Upload** to refresh the table with latest data from the instrument.

3 With the Mobile UI, the only change you can make is the level 1 calibration amount.

4 Click **Download** to download the data to the instrument. If you have made changes to the calibration, a warning message will display:

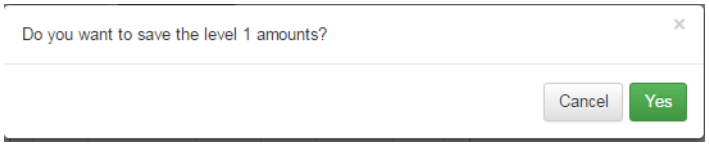


Figure 60 Confirmation dialog

The **Run** button starts a calibration run.

Change level 1 amount settings

You can change the level 1 amount settings before starting the calibration run. Change the level 1 amount by clicking each row to edit it.

NOTE You cannot add or remove any component from this table.

Figure 61 Level 1 settings

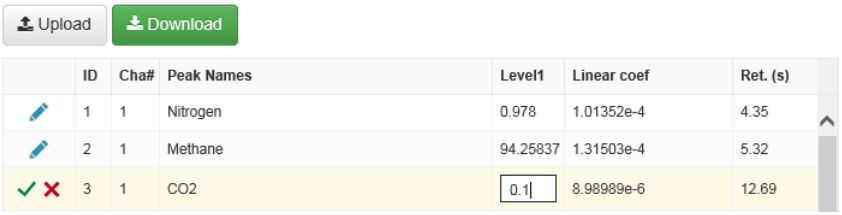


Figure 62 Changing Level 1 settings

After downloading to the instrument, you can upload again to check if the **Level 1** amount is updated. Note that the linear coefficient of calibration curve should not change because no calibration run has been executed.

After completing a calibration run, the linear coefficient should be updated according to your **Level 1** setting and the peak detection result.

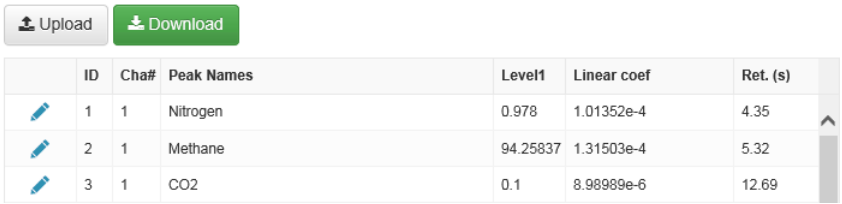


Figure 63 Updated level 1 settings

Sequence

The **Sequence** workspace displays the current sequence table. It is the same sequence as that of PROstation for 490-Mobile.

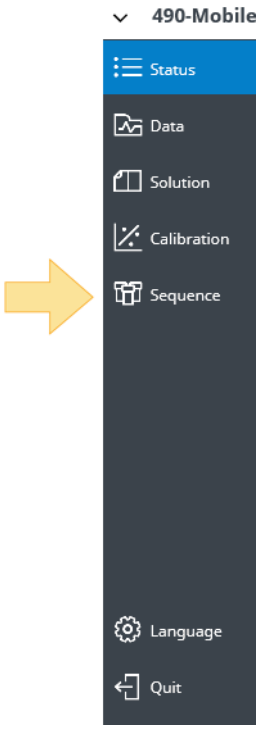


Figure 64 Select Sequence from the navigation pane

If stream selector is configured, you can modify the sequence table by inserting, deleting, and editing.

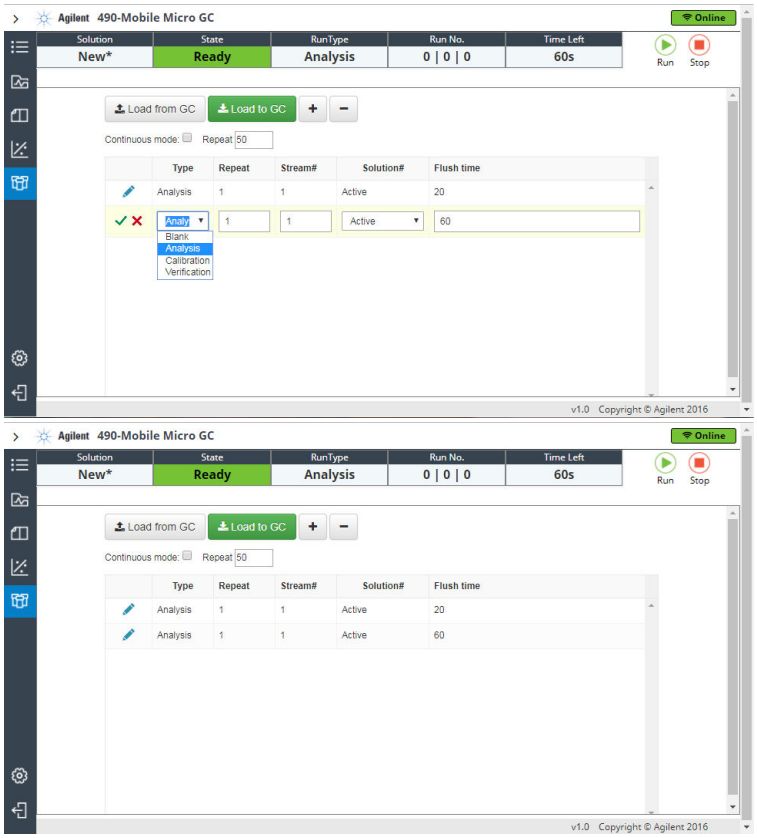


Figure 65 Sequence settings

Use the **Load from GC** and **Load to GC** buttons to get and save data from/to instrument. When **Load to GC** is clicked, you will be asked if you want to apply the changes.

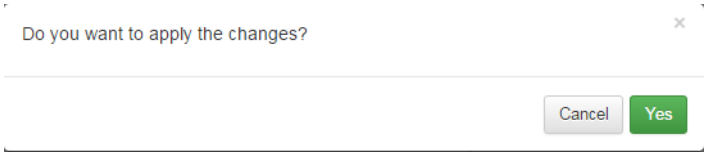


Figure 66 Confirmation dialog

If no stream selector is configured, the sequence table is hidden.

Figure 67 No stream selector notification

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