

# Clarity (Lite)

5.0 vs 4.0

ENG

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Sections of the manual connected only to the **Clarity Full** version are marked with the  icon.

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To facilitate the orientation in the **5.0 vs 4.0** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

**Instrument** (blue text) marks the name of the window, to which the text refers.

*Open File* (italics) describes the commands and names of fields in **Clarity**, parameters that can be entered into them or a window or dialog name (when you already are in the topic describing the window).

WORK1 (capitals) indicates the name of the file and/or directory.

*ACTIVE* (capital italics) marks the state of the station or its part.

The bold text is sometimes also used for important parts of the text and the name of the **Clarity** station. Moreover, there are text sections written in format other than normal text. These sections are formatted as follows:

---

**Note:** Notifies the reader of possibly interesting information.

---

**Caution:** Warns the user of possibly dangerous or very important information.

---

**█ Marks the problem statement or trouble question.**

**Description:** Presents any closer information on the problem, describes its causes etc.

**Solution:** Marks the response to the question, presents a procedure how to remove it.

# 1 Preamble

This document will guide you through the news and improvements in the **Clarity** Chromatography Station version **5.0**. It describes news developed till version **5.0.5** and the most interesting include:

- Dynamic localization.
- **MS extension** for processing mass spectrometry data.
- Manual control of pumps during gradient run.
- Multiple ISTD.
- Various **Clarity** improvements and bug fixes.
- New and updated control modules.

# 2 Clarity

## 2.1 Dynamic localization

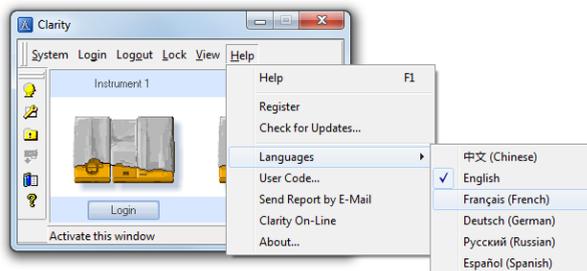
Clarity now supports new feature of dynamic localization. It enables users to switch to English, Chinese, Russian, Spanish, French and German while running Clarity.

There is no need to install language packages separately. You can set the preferred language at the beginning of the installation process or change it later using *Help - Languages* menu command from the main [Clarity](#) window.



*Fig 1: Choosing language during installation*

Switching to a different language was never so easy!



*Fig 2: Switching Clarity into a different language*

After selecting desired language, user is prompted to restart Clarity.

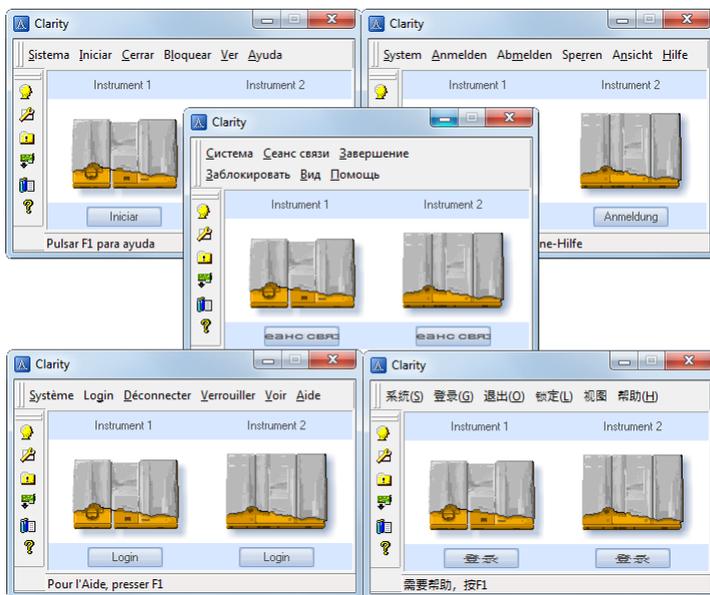


Fig 3: Preview of different Clarity localizations

## 2.2 System configuration ✓ Full version

New implemented instrument types are:

- LC-MS
- GC-MS
- GC-MS-TOF
- GC-MS-PDA
- LC-MS-PDA
- GC-PDA
- CE-PDA

For more details see the chapter **MS Extension** on pg 3.

## 2.3 MS Extension ✓ Full version

New **Mass Spectrometry** extension is intended for data acquisition and evaluation of data measured on selected MS Detectors. See the chapter "**New and updated control modules**" on pg 16.

You can try the **MS Extension** in **Clarity Demo** which can be downloaded from [www.dataapex.com](http://www.dataapex.com) together with the manual. In the **Clarity System Configuration**, there are new **MS** options in the *Instrument Type* drop-down list.

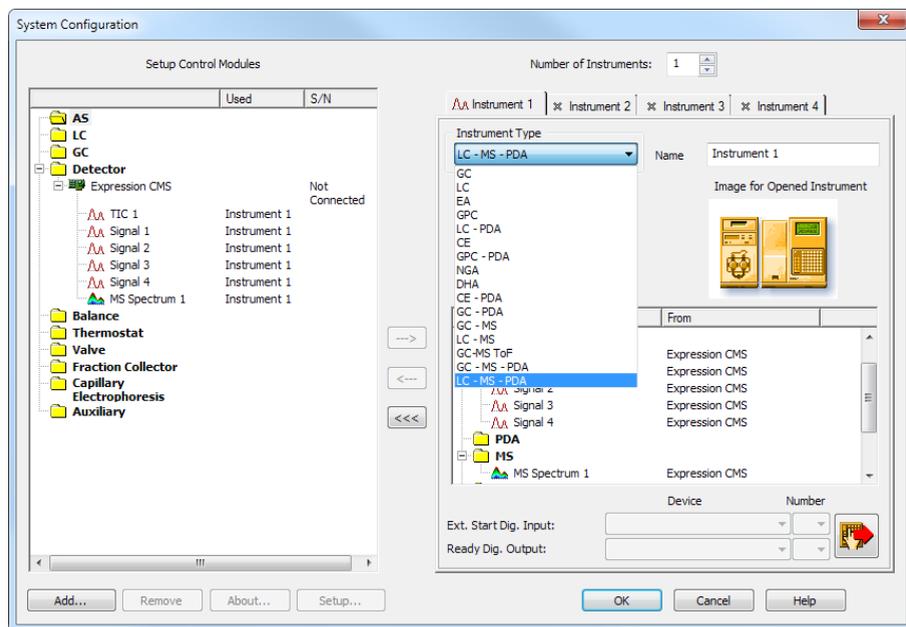


Fig 4: MS Extension in the System configuration

The **MS Extension** brings the following features to the **Clarity** station:

- **MS Chromatogram window** - standard **Clarity** Chromatogram window was modified to display the spectral information. The graph pane now holds one more graph showing the spectrum at any given time or at a time span, which is noted in the top-right corner in the legend area.

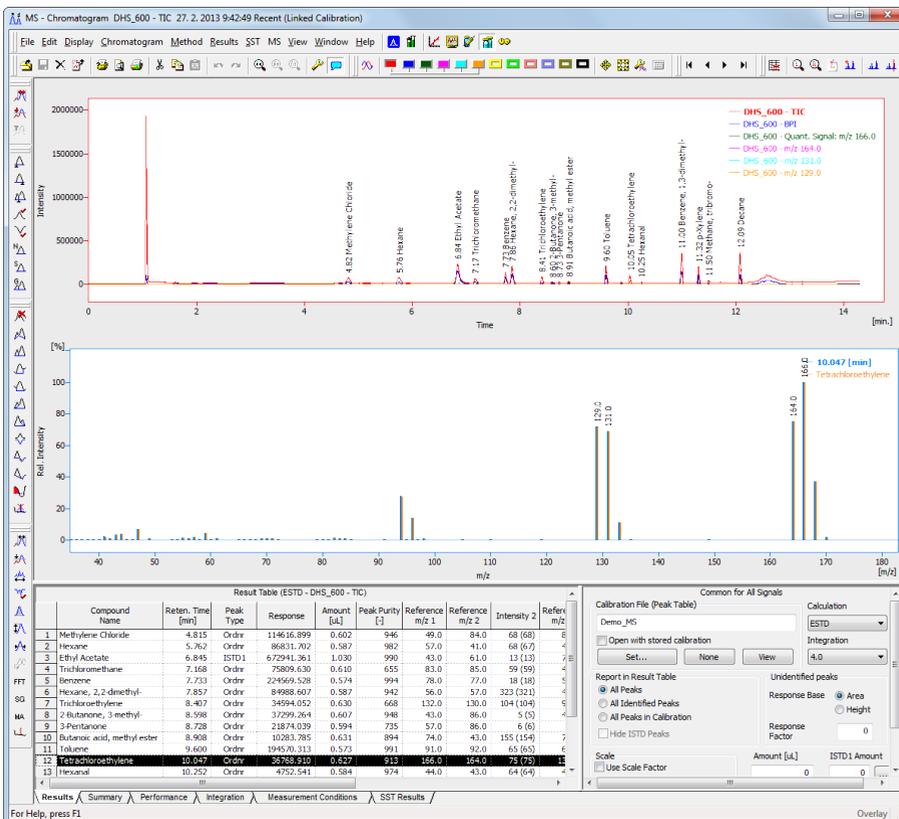


Fig 5: Chromatogram window with MS extension

- **MS Method** - MS method allows the user to select the extracted signals on which the compounds will be identified and quantified. Each compound may use different reference signals, so that more than one compound may be identified in any part of the chromatogram.
- **Library search** - **Clarity MS Extension** allows the user to use spectral libraries for peak identification and/or compound confirmation.
- **NIST Libraries** - **Clarity** uses the **NIST Library** format for storing spectra, and works flawlessly with commercial **NIST Libraries** or those created by the user.

- **Automatic Compound Search - Clarity** allows to search any selected signal automatically for the presence of spectra that are defined in the spectral library.

The following standard **Clarity** features will also help the user to make the best of the **MS** analysis in **Clarity**:

- **User calculations** - the user can define custom calculations in the **Result Table** and **Summary Table**. With the use of the integrated editor you can create your own columns from the original ones and use individual mathematical functions.
- **Reports** - user selectable report sections, WYSIWYG formatting of Graphs and Tables, and the possibility to report the spectral information for any peak in the chromatogram.
- **Batch** - automatic batch processing, display, export or print of any number of chromatograms.
- **Summary Result Table** - displays and prints selected results from all simultaneously displayed chromatograms.

## 2.4 PDA enhancements

Possibility to use **multiple spectral detectors** on Clarity instrument (**DAD+FLD** combination etc.)

- Newly in the **PDA Chromatogram** window there is option to change between multiple spectral detectors. This option is accessible via the *Spectrum - Select Spectral Data* command from the menu. Choice of the detectors of course depends on the detectors used. **Fig 6** on pg 7. shows option to view Spectral data from different spectral detectors. Note this option serves only for displaying different spectra (DAD or FLD).

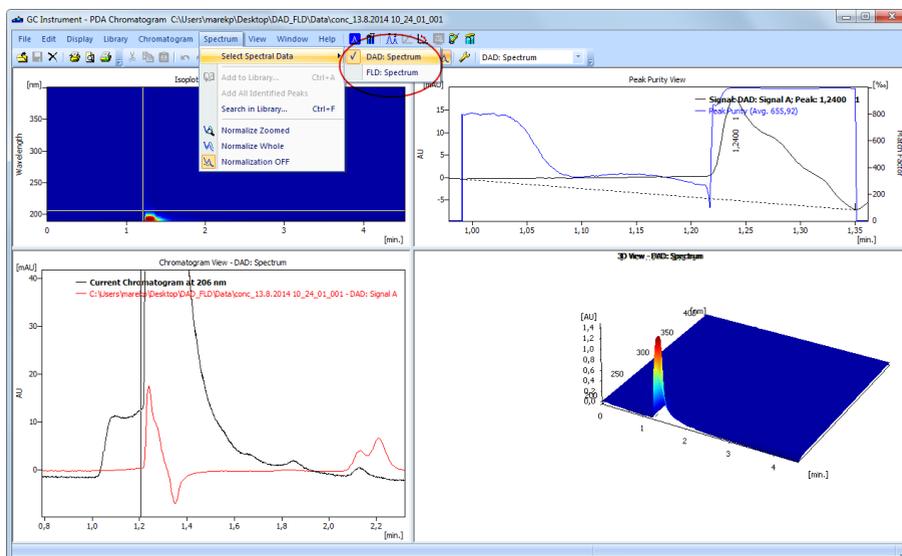


Fig 6: PDA Chromatogram window - Selecting Spectral Data

- Option for multiple spectral detectors has been implemented in the method setup. **Chromatogram** window copies the settings from the method setup and displays them under the *Measurement Conditions* tab - *PDA Method* tab. Selection of the appropriate detector is done via the drop down list as displayed by **Fig 7** on pg 8. Note that chosen spectrum is used in the method and for further calculations.

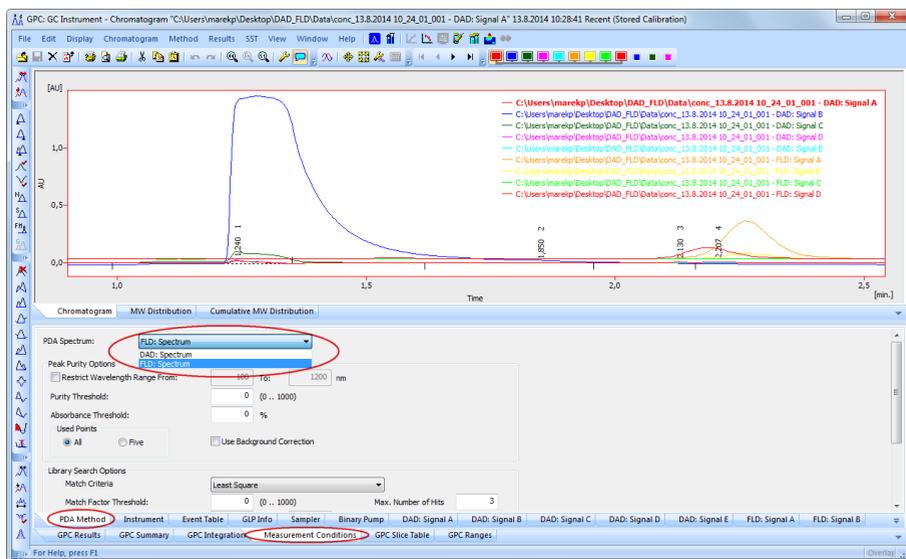


Fig 7: Chromatogram window - Selecting PDA Spectrum

## 2.5 Other enhancements in extensions

### Extension GPC:

- NormHT calculation can now be based on the MW distribution graph (previous Clarity versions, default) or on the chromatographic peak (new, to be comparable to other GPC software's).
- The Method Setup, GPC Advanced tab has been removed.

### Extension CE:

- Calculation of Apparent Mobility and Effective Mobility is now available in the Method Setup - Performance tab.

### Extension SST:

- Double click in the SST table will activate the respective chromatogram in graph pane.

## 2.6 Calibration

- Command View in the **Chromatogram** window will now open both the active chromatogram and the linked calibration in the **Calibration** window. Before that, clicking the View button opened only the calibration but left the previously opened chromatogram which in some cases could have been misleading.

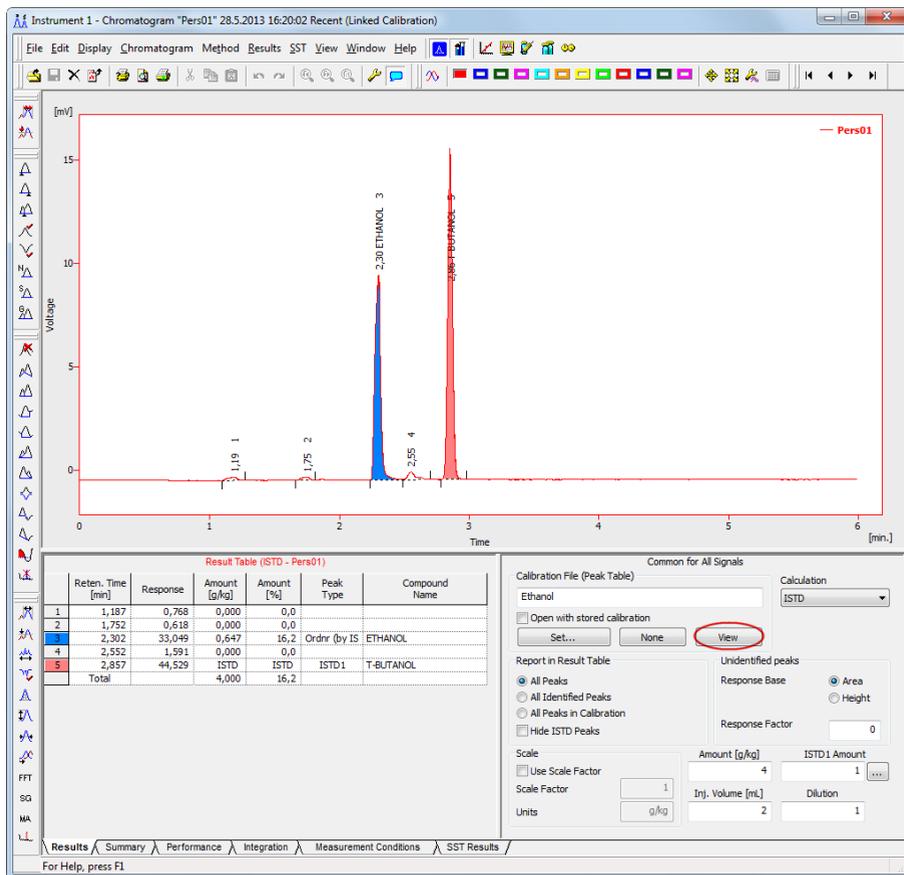


Fig 8: Chromatogram window with the linked calibration

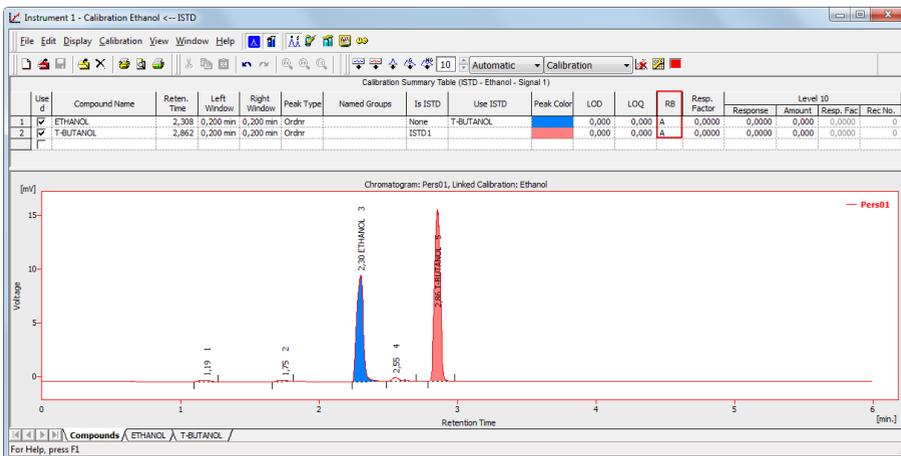


Fig 9: Calibration window with the active chromatogram

- Defined **Named Groups** in the **Calibration** will be displayed in the **Chromatogram** - in the **Result table** below the **Total Row**. One compound can be present in several named groups. Not supported in the **Chromatogram** - Summary table. For more details see **Fig 10** on pg 10.

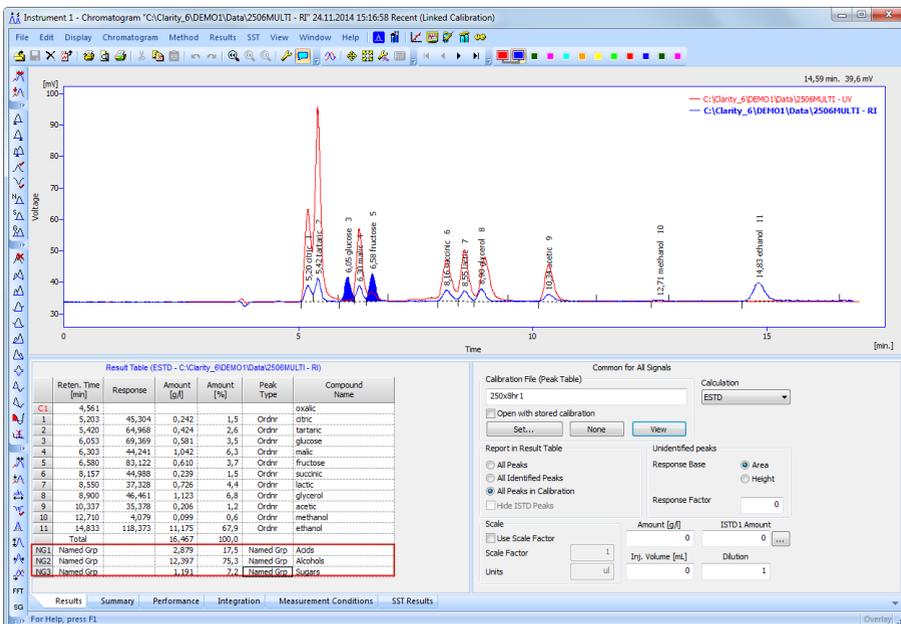


Fig 10: Chromatogram with named groups defined in the Calibration

- **Calibration:** New response base: **Area Percent** - for special calculations in clinical diagnosis. Calibration using this option is based on the area percentage of peaks. Only peaks used in calibration are summed into the whole (100%), thus it is required to add them all into calibration, even when user does not need to calculate their results.
- This option is accessible from two points. The first one is located in the **Calibration** window - table compounds under **RB** column (**Fig 9** on pg 10.) - P would stand for **Area Percent**. The second one is located in the **Calibration** window - specific compound tab (e.g. Ethanol) - **Response base - Area Percent**. **Calibration** window with **Area Percent** is seen in **Fig 11** on pg 11.

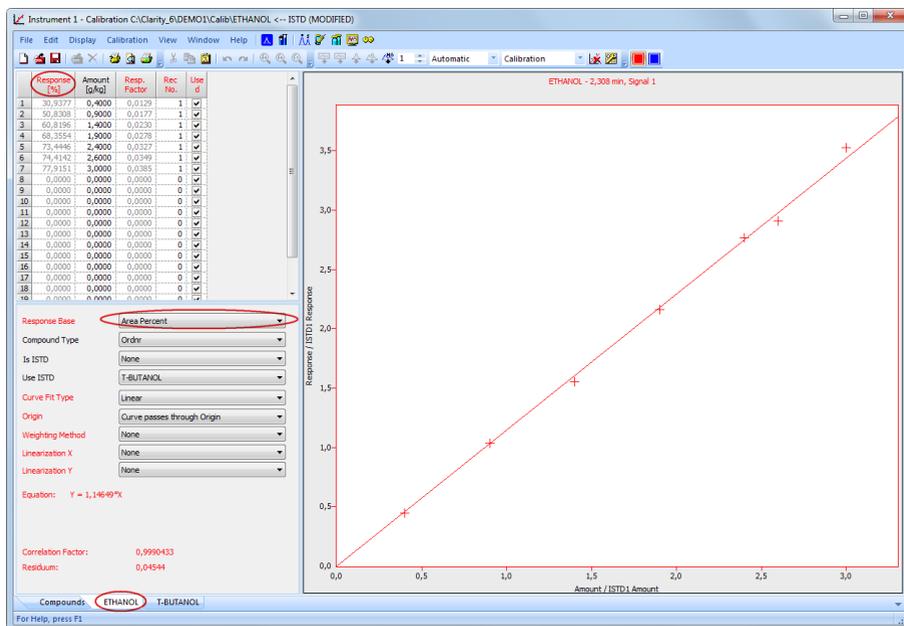


Fig 11: Calibration window - cut of Area Percent

## 2.7 Sequence table

Newly in the sequence table, *Run*, *Std.* and *Lvl.* columns are editable for measured rows. Modified settings will be applied during batch reprocess. Notice that aforementioned columns are not dimmed as the others as demonstrated by **Fig 12** on pg 12.



## 2.8 Manual control of pumps during gradient run

Manual control of pumps during gradient run for preparative chromatography now includes 2 new buttons:

- Hold (Resume)
- Manual Flow

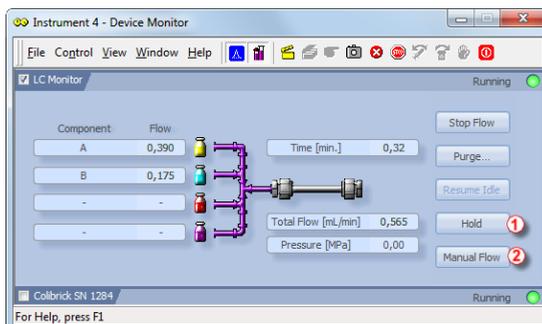


Fig 13: Device Monitor window - current status

- **Hold** ① button in **Fig 13** on pg 13. will keep the current gradient conditions until pressing *Resume* again. Note that the *Hold* button does not affect acquisition.
- **Manual Flow** ② button in **Fig 13** on pg 13. allows editing of the gradient table during running acquisition by opening the **LC Control Manual Flow** window as seen in **Fig 14** on pg 13.

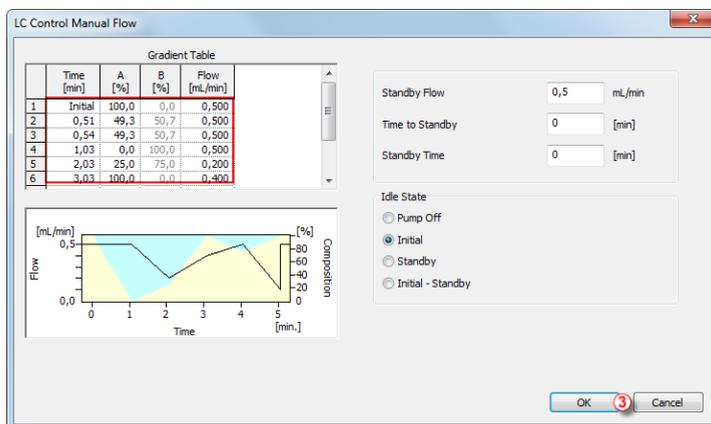


Fig 14: LC Control Manual Flow window - Gradient Table

After clicking the *OK* button ③, changes made to the gradient table will be applied for the rest of the run. Supported only for selected pumps.

Note that buttons *Hold* and *Manual Flow* affect only the performance of the *Gradient Table* - it will not affect the running analysis itself. The performed gradient will be stored in the measured chromatogram. Succeeding analyses are performed by the original *Gradient Table* - unless the altered *Gradient Table* is *Saved as* in the **template method**.

## 2.9 Various improvements in Clarity

- Newly, the number of available signals in chromatogram has been **increased** from 12 to 32.
- Installation Options (Typical, Custom, Full) selected during installation are remembered during updates or reinstallations.
- Wait dialog is now displayed during lengthy operations.
- Added a new command *Reorder Monitors* in the [Device Monitor](#). Allows to change the order of the individual panes and thus improves the overall organisation of the [Device Monitor](#).
- Create Label option Active Chromatogram renamed to Active Signal.
- Detector delay is now enabled also on the first signal.
- Command line parameters: new parameter "printPDF".
- Some errors were not correctly recorded in Daily Audit Trail.
- All command line parameters received are now recorded in Audit Trail.

### Clarity2Go enhancements:

- Added support for proxy server setting in **Clarity2Go** Configuration / Advanced dialog.
- Enhancements in the security of **Clarity2Go** - option to set password to restrict access to view the status of running analysis.

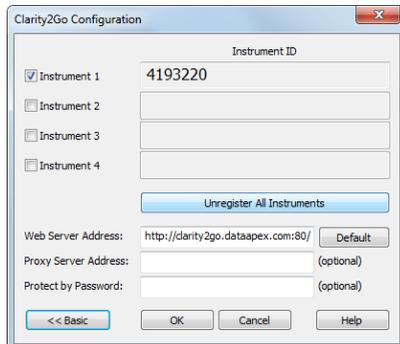


Fig 15: Clarity2Go Configuration dialog

## 3 New and updated control modules

This section contains new and updated control modules introduced to Clarity.

### 3.1 Advion

**New:**

- Advion Expression **CMS MS** detector released.

### 3.2 Agilent

**New:**

- Agilent ICF Control module is now available, some devices are still in testing state (consult the D004 datasheet to see which are testing/released).

**Updated:**

- Agilent 1100/1200 LC systems - dual spectral data (DAD+FLD) acquisition is now supported.
- Agilent 7890 implemented check for no data from detectors (problem on computers with multiple LAN boards).

### 3.3 Antec

**Updated:**

- Antec Decade Elite - Find button in the Setup dialog to detect available instruments on network.

### 3.4 CTC

**Updated:**

- CTC-PAL GC\_Inj and HS\_Inj cycles were updated. Older methods using those cycles need to be recreated.
- CTC-PAL - improved behavior in Headspace mode: number of locked rows in sequence limited to six, error message when the sampler aborts performing sequence. Checkbox Overlap Samples renamed to Headspace.
- CTC-PAL - support for state recording by commdrv.ini on Com port.

### 3.5 Dani

**New:**

- Dani Master MS-TOF detector driver available for testing.

**Updated:**

- Dani Master TOF detector driver updated to version 1.0.2.0.
- Dani Master GC driver updated to version 1.5.3.0.
- Dani Master DHS driver updated to version 1.0.8.0.
- Dani Master SHS driver updated to version 1.0.10.0.
- Dani Master GC now includes new USB driver.

### 3.6 Eksigent

**New:**

- Eksigent - UltraLC 100/110 - HPLC System has been released.

### 3.7 Knauer

**New:**

- Control modules for Knauer Pump P-1, DAD detector DAD6.1L and Thermostat CT2.1. have been released.
- Control module for Knauer Pump P6.1L has been released.
- Detector PLATINblue PDA-1, Detektor CM2.1S, Thermostat T-1, IFU 2.1 Interface box and UVD2.1L control modules have been released.

**Updated:**

- Knauer Smartline, Azura and PlatinBlue drivers updated to version 5.0.3.4102.
- Knauer control module drivers updated to version 5.0.1.4095.

### 3.8 Kontron

**New:**

- Kontron AS460/465 autosampler control module is now available for testing.

### 3.9 Markes

**New:**

- Markes BenchTOF MS detector control module available in testing state.

### 3.10 Rigol

**New:**

- Rigol L-3000 HPLC driver (version 1.0.0.28) is now available for testing.

**Updated:**

- Rigol L-3320 AS driver updated to version 1.0.0.21.
- Rigol L-3300 driver updated to version 1.0.0.24.

### 3.11 Schambeck

**New:**

- Schambeck control modules S 9425 HPLC Pump, S 6250 AS, S 4245 UV-VIS detector have been released.

### 3.12 Sedere

**New:**

- Sedex LC detector control module has been released.
- Sedere ELSD detectors - new model Sedex-FP added.

### 3.13 Spark

**New:**

- Spark Holland Symbiosis control module (Alias, ACE, HPD) has been released.
- Spark Alias - commands for tray movements are moved from Service dialog to the Device Monitor.
- Spark Alias - sequence check for available injection volume set to 1 micro liter minimum.

### 3.14 SSI

**New:**

- Mighty-Mini - pump is now available for testing.

### 3.15 Sykam

**New:**

- Sykam control modules S1125/S1130/S1132 HPLC pump have been released.

- Sykam control modules S5250/S5300 AS have been released.
- Sykam control modules S3245/S3250 UV-VIS detector have been released.

**Updated:**

- Sykam S-1130/1132 pump driver updated to version 1.0.6.0.
- Sykam S3250 driver updated to version 1.0.5.2.

### 3.16 Watrex

**New:**

- Mighty-Mini - pump is now available for testing.

### 3.17 YL Instruments

**New:**

- Control module for YL Instruments RI 2012 refractometric detector has been released.
- Control modules for YL instruments YL3000A has been released.

**Updated:**

- YL instruments YL 6500 GC driver updated to version 1.0.1.5.

### 3.18 Other control modules

- Fraction Collectors - maximum acceptable time value in fraction table increased from 999 to 9999 minutes.
- Advantec Fraction Collector CHF122SC control module is available.
- ASI Pumps 500, 501 and 520 control modules are available.
- Ecom drivers ECD2000, ECP2000 and ECO2000 updated to version 1.2.0.0.
- Interlab Omega multiwavelength control module available in testing state.

## 3.19 UNI-Ruby ✓ Full version



### **New and improved scripts available for testing:**

- Chromophor Chromopeak 2010 pump - control by UNI-Ruby released.
- Techlab Minipump 1 control driver by UNI-Ruby script available.
- LabAlliance/SSI pumps by UNI-Ruby (now including also Prep 300, UHP, VersaGrad UHP, HF 300) have been released.
- Rheodyne LabPro Valve Actuator by UNI-Ruby module has been released.
- Waters Fraction Collector II by UNI-Ruby has been released.
- Flom pumps (301M, AI-12 Series) control by UNI-Ruby has been released.
- Control module Schambeck RI 2012 refractive index detector by UNI-Ruby script in testing state.
- Teledyne Isco Foxy Jr. by UNI-RUBY script available for Testing.

### **Enhancements in UNI-Ruby:**

- UNI-Ruby - new items: Maximum Pressure Limit, Maximum Flow in Configuration and Setup for selected models.
- UNI-Ruby - module info added to section headers in report.
- Improved help for UNI-Ruby control modules.

## 4 Technical Support

DataApex offers different ways of technical support. The most common ways our DataApex **Support Team** helps to troubleshoot users problems is via email, telephone, references to **FAQ** and **Clarity Guide** which are located on DataApex website to help.

### 4.1 TeamViewer QuickSupport

To improve customer satisfaction and technical support response time, new **TeamViewer QuickSupport** support is available.

**TeamViewer QuickSupport** is using internet connection to remotely connect to your **Clarity** station and perform the diagnostics. This function is located in *Windows Start menu- All programs - Clarity group - TeamViewer QuickSupport*.

Upon starting the **TeamViewer QuickSupport**, user is presented with a disclaimer describing that the **TeamViewer** session will enable DataApex **Technical Support** to remotely access his/her computer and perform diagnostics and help to resolve the problem. User is notified that at any time during the session there is the option to interrupt the connection.



Fig 16: TeamViewer QuickSupport window

Before using the **TeamViewer QuickSupport** application, user is advised to contact the DataApex **Technical Support** first for troubleshooting via this option.

This function serves as a last option while troubleshooting a problem.