

Clarity (Lite)

2.7 vs 2.6

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 **2.7 vs 2.6** 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 (dark brown bold) describes the commands and names of fields in Clarity.

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

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

Administrator (green italics) refers to a value or text inserted into a field.

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 closed in boxes with the appropriate pictogram:



Note - notifies the reader of possibly interesting information.



Caution - warns the user of possibly dangerous or very important information.



Question - marks the problem statement or trouble question.



Solution - marks the response to the question.

1 Preamble

Clarity 2.7 includes these new main features:

- GLP - settings of **Clarity** in **Regulated Enviroment**.
- New control modules **Hitachi LaChrom Elite**, **Gecko-2000**, **Techlab K-7** and **Watrex CTC100**.
- Enhancements in **U-PAD2** and **Net-PAD** drivers.
- Improved **Available Control Modules** dialog.
- New installer.

2 GLP ✓ Full version



For detailed description of **GLP**, see **Clarity in Regulated Environment** manual.

2.1 GLP Options dialog

New **GLP Options** dialog serves for settings of the **Clarity in Regulated Environment** and is accessible from the **Clarity** main window, menu **System - GLP Options...**

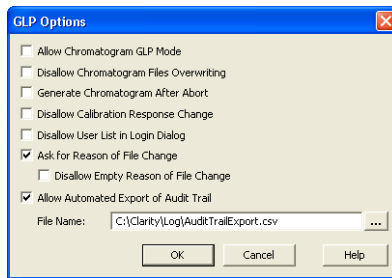


Fig. 1: GLP Options dialog

- The **Allow Chromatogram GLP Mode** checkbox ensures that the settings preventing the possibility of unauthorized modification of chromatograms are correctly set. If checked, both the **Disallow Chromatogram Files Overwriting** and **Generate Chromatogram After Abort** checkboxes are checked.
- The **Generate Chromatogram After Abort** checkbox causes the saving of the chromatogram even in case the analysis is aborted by any reason.
- The **Disallow Calibration Response Change** checkbox prevents from manual change of the **Response** in the **Calibration** window.
- The **Disallow User List in Login Dialog** checkbox prevents from displaying the user list in the **Login Dialog**.
- The **Ask for Reason of File Change** and **Disallow Empty Reason for File Change** checkboxes enable that the system will ask for comment on each file change.
- The **Allow Automated Export of Audit Trail** enables to automatically export **Audit Trail** to the specified file and location. Changes to this export file are then made continuously and the exported file is marked as read-only for as long as the **Clarity** is opened.

2.2 Audit Trail

- New **Method Audit Trail** dialog is now implemented, it is available from the **Method Setup** dialog using the **Audit Trail** button. Changes in the template method are documented in the **Method Audit Trail**.
- **Audit Trail Sequence** now records **START**, **RESUME**, **PAUSE**, **STOP** and **FINISHED** states together with instrument errors.
- The changes in the **Instrument Directories** for **Projects** dialog is recorded in **Audit Trail**.
- New **Backup Operations** checkbox in **Audit Trail Settings** dialog, tab **Other**.
- Changes in the **INITIAL** and the **CURRENT** state in the **Digital Outputs** dialog are recorded in the **Audit Trail**.
- In the **Audit Trail Settings** dialog, all checkboxes are checked in the default installation.



At the update, the previous settings are preserved unless the CLARITY.CFG file has been overwritten.

- In the **Audit Trail Setting - Chromatogram** dialog, new **Instrument Messages** and **Instrument Errors** checkboxes used to control the recording in Audit Trail.
- In the **Audit Trail Chromatogram**, chromatograms measured by sequence now include information about the sequence, vial and injection number.

2.3 User Accounts dialog

- **User Rights** changes are recorded in **Audit Trail**.
- The **Other Users Can** option selection was changed from checkbox to radio buttons.
- New **Post Run Settings** checkbox.
- New options **Projects**, **Import Chromatogram** in **User Access Rights**.
- User columns can be edited (added, edited, deleted) only by users authorized to **Edit Method**.

2.4 Other

- New **GLP Info** tab in **Chromatogram** window displays the serial numbers and additional info of the detectors used for data acquisition.
- The **Clarity Administrator** can unlock the locked **Instrument** window in emergency.
- The **IQ report** was modified to include more information.

- After three wrong password entries the **Clarity** Station must be restarted.

3 Control Modules ✓ full version

New control modules

- **Hitachi LaChrom Elite** (L2100/2130 pump, L2200 autosampler, L2300 Column Oven, L2400 UV Detector) available for testing.
- **Gecko-2000** column oven.
- **Techlab K-7** column oven.
- **Watrex CTC100** column oven.
- **Auxiliary Virtual Digital Input Output Loop.** Handful for virtual connection of **Digital Outputs** and **Inputs** in case of GC without **Digital Outputs** is used on the **Instrument**.
- **HT800L** Autosampler is available for testing.

Updates

- **Spark Holland Alias** sampler now supports LAN communication.
- More control modules now allow to simulate data acquisition in **Clarity DEMO MODE**.
- **Control FC** - the **Fraction Collector (FC GP driver)**:
 - The output signal for *Next Vial (Output 2)* was changed from *Pulse* to *Level Going Up* at the end of the fraction and *Down* at the beginning of the next fraction.
 - The initial **Waste** command is not sent at the start of run.
- **Control LC** - the SCSI board driver for **Shimadzu SPD-M10Avp** detector is no more installed during **Clarity** installation (**Full option**). It has to be installed separately from directory HW_DRIVERS\ASPI2 in the **Clarity Installation CD-ROM** or **Clarity Installation Directory** (C:\CLARITY by default).
- Control-LC - updated drivers for the **Young Lin HPLC System**.
- **Agilent 1100 Column Compartment** - the **Set ON/OFF** button in the **Device Monitor** dialog is now functional correctly.
- In **Agilent 1100 Column Compartment** has been fixed communication problems on **GP-IB** caused by version mismatch of the SICL32.DLL communication library. This library is no more installed by **Clarity**. **Agilent I/O Libraries** must be installed prior to **Clarity** Installation.
- **Softa ELSD** - the detector parameters are now included in reports (**Report Setup** dialog - **Method**, the **Instrument Control** checkbox).

4 Extensions ✓ Full version

4.1 NGA

- New **Natural Gas Analysis** extension for **Gas Calorific Values Calculations** is prepared for testing and new DEMO_NGAProject is available.

4.2 PDA

- In the **Add Chromatogram Signal** dialog the **Replace signal** is not allowed for originally acquired signals.
- Newly the *Detector Name* is included in the **Graph Headers** in the **PDA** window.

4.3 GPC

- The **GPC Calibration** now supports 12 signals.
- New **Use Simplified Computations of M Averages** checkbox in the **GPC Calibration Options** dialog for simplified calculations of *MW* averages, see help or manual of the **GPC Extension**.
- In **Calibration, Broad on Narrow**, where the calibration curve was not constructed, the *K* and **Alpha** values in linked chromatograms is set to zero.
- **Calibration Options** dialog, **Universal Calibration** - the *K* and *Alpha* values are now editable.

5 Hardware

- In **DataApex U-PAD2** and **DataApex Net-PAD Setup** dialogs there is the new **Synchronize Start with Digital Input** checkbox . It enables faster and more accurate synchronization of channels with the start signal. 

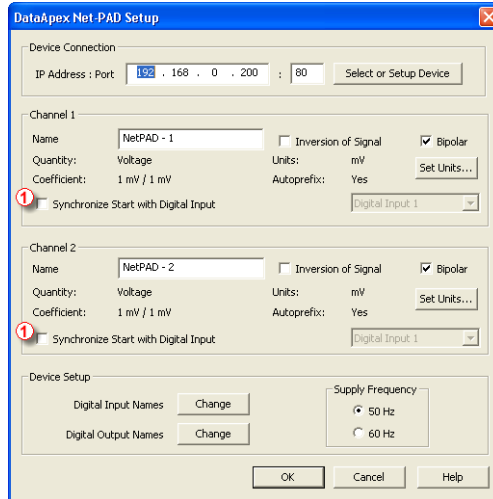


Fig. 2: Synchronize Start with Digital Input in DataApex Net-PAD Setup

- Improved reliability of start run detection on **DataApex A/D Boards**.
- Fixed bug: The custom **Units** in the **INT7** and **INT9 A/D converters** were remembered only until the end of **Clarity** session.
- Improved detection of **HW key** during analysis to prevent the incorrect detection of missing key, resulting in the "**DEMO - Keylock test failed**" mode.

6 General

6.1 System Configuration ✓ Full version

System Configuration dialog was improved for better user usability:

- Certain fields were renamed to more accurate labels: "Start (Dig. Input)" to **Ext. Start Dig. Input** and "Ready (Dig. Output)" to **Ready Dig. Output** ③.
- *Start IN* and *Ready Out* pins are set to a first unused number on the added device by default ①.
- Default signal names are now set according to board type, for example *INT7 - 1* instead of "Detector 1" ②.

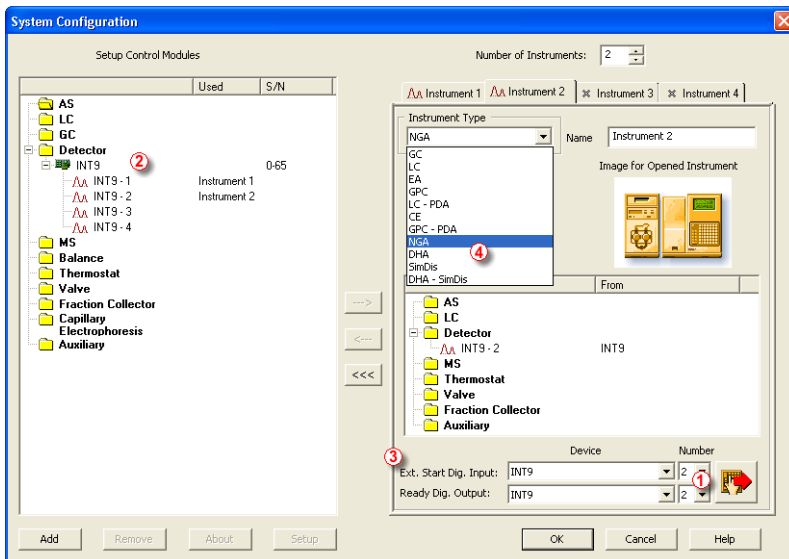


Fig. 3: System Configuration

- **Instrument Type** now includes new instrument types *NGA*, *DHA*, *SimDis* and *DHA - SimDis* ④. Some of the extensions are not yet implemented.

6.1.1 Available Control Modules ✓ Full version

Available Control Modules dialog was improved to display more information and to enable searching and filtering:

- Using the **Filter** ① you can search the control modules or display modules of specified developer, etc.
- In the **Module Info** column ② you can find information about the state of the module or the original developer of the module.
- The **Comment** column ③ includes detailed information about the controlled instruments.

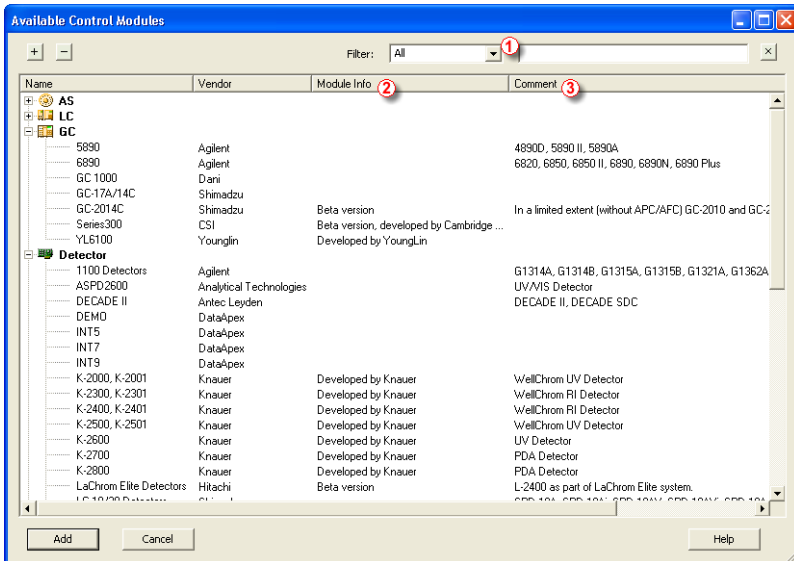


Fig. 4: Available Control Modules

If you search for an instrument which is a part of a system, you can find it in the respective node besides the system in its original node. For example searching the **1100 System** from **Agilent** shows the **1100 Autosamplers**, **1100 Detectors**, etc. Clicking the **1100 Detectors** displays the same **Agilent 1100 Setup** dialog as clicking the **1100 System**. The main benefit of this feature is that you can search for the specific controlled instruments of the system which are listed in the **Comment** column. For example **G1313A** Autosampler is shown in **AS** node as **1100 ALS**.

6.2 Installation

New installer better controls the installation and uninstallation process of **Clarity**:

- During installation the uninstallation of previous version is offered.
- Added options **Uninstall Hardware Drivers** which removes drivers of the following devices from the system: Int5, Int7, Int9, U-PAD, U-PAD2, CB11, CB20, MultiCOM, OptUSB, Rockey, Sentinel Protection and CTC Drivers
- The installation to PROGRAM FILES (C:\PROGRAM FILES\ by default) directory is not allowed in **Windows Vista** because the directory protection does not allow modification of the **Clarity** system files.

6.3 Method

- If the template method opened in the **Instrument** window was changed during a *SINGLE RUN*, after finishing the current run it will be sent to the controlled devices according to the settings in the **Instrument Method Sending** dialog accessible from **System Configuration** dialog.
- Changes in the template method are now documented in the **Method Audit Trail**.
- If a template method is opened on the **Clarity Instrument**, but not sent to the devices, the last sent method will be used for acquisition and stored in the chromatogram.

Method Setup dialog

- The **Apply** button was renamed to **Send Method**. The **OK** button sends the method and close the **Method Setup**. During analysis only the *Run Time (Autostop Time)* is sent to the devices by pressing the **OK** button.
- The buttons **To AS** and **To GC** were removed from certain control modules. Use the **Send Method** button to send the current method to the devices.
- The validity of values is not required when **Cancel** is used to close the window.
- **Integration** tab: the units in the **Integration Table** were displayed incorrectly (*mV* instead of detector units).

6.4 Chromatogram

In the **Chromatogram** window, several improvements were made and bugs were fixed:

- It is possible to add comments to **Chromatogram**. Use the **Comment...** button in the **Single Analysis** dialog and **Chromatogram - Edit...** button in the **Chromatogram** window - **Measurement Conditions** tab.

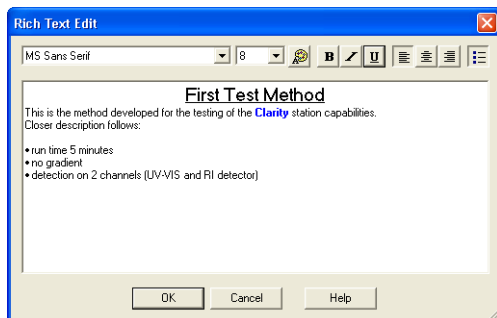


Fig. 5: Rich Text Edit for adding chromatogram comments

- New **Show All Signals** check box in the **Summary Table Options** dialog enables to display in the **Summary Table** also chromatograms without any identified peak.
- The **Set Signal Names** command is now active also for single signal chromatograms.
- In **Results** tab, **Calculation Options** window was added the tooltip displaying the path to currently used calibration file.
- **Operations** in the **Integration table** includes new **ASTM Noise Evaluation** and **δ-Sigma Noise Evaluation** operations.

Improvements of User Columns

- It is possible to add a user column based on the new global variable *Chromatogram Amount*, which give a sum of *Total Amounts* for all signals in chromatogram.
- When the % sign was used as units, it was repeatedly added to column title during each editing.

6.5 Calibration

- Fixed bug in the **Calibration Curve Graph**. The graph is now automatically autoscaled to show all recalibration points.
- The layout of headers in the **Calibration Table** was corrected - use the **Restore Default Columns** to apply changes.

6.6 Sequence

Sequence window

- Changed icon for the **Check Sequence** command.
- During *SINGLE RUN* the acquisition control icons are inactive (explanation given in the tooltip), the actual *Run Time* (of the *SINGLE RUN*) is displayed in the **Status Bar**.

Sequence Table

- Tooltips with the acquired chromatogram filenames are now displayed for measured lines (blue) in the filename column.
- **Run** column is now editable also for already measured lines.
- New variable *%L* for creating file names adds the *Sequence Line Number* (= row number in the **Sequence Table**).
- Fixed bugs when pasting of several values in a row at once caused filling the other columns with default values instead of the values from previous row.

Active Sequence

- State *WAITING* renamed to *WAITING FOR EXTERNAL START*.
- The following situation is logged in **Chromatogram Audit Trail**: In case of settings **External Start** to **Start - Restart** before the analysis is finished, the modified method has no chance to be sent.

Passive Sequence

- State *WAITING FOR READY* is split to *WAITING FOR READY* and *WAITING FOR INJECTION*. When all modules report *READY*, the *READY OUT* signal is changed, eventually the info for the current injection is sent to the sampler and the state is changed to *WAITING FOR INJECTION*.

6.7 Printing

- The table with *Auxiliary Signal* settings is printed.
- **Print report - Chromatogram Graph** in *LANDSCAPE* orientation is printed as last item in the printout.
- **Integration Table** printout now includes measurement units.
- **Chromatogram, PDA or GPC Calibration** tabs: **Height** field settings is automatically adjusted for values lower than the minimum *30 mm* and higher then actual **Page Height**.
- The peaks with colored background are now printed correctly in *Landscape* graph orientation.
- Using pictures of PNG format in **Lab. Header** in **Print** or **Print Preview** now doesn't cause any crashes.
- In the **Chromatogram, PDA** and **GPC Calibration** the **Height** field settings is now automatically adjusted for values lower than the minimum 30 mm and higher then actual Page Height.

6.8 Data Acquisition

- All icons for Acquisition control are now available in toolbars of **Instrument, Data Acquisition, Device Monitor** and **Sequence** windows. Use the **Reset All** command to apply changes.
- The *Use60Hz* parameter in the General section of CLARITY.INI file sets the default frequency when adding the **INT9, U-PAD2, U-PAD** and **Net-Pad** A/D converters to **Clarity System Configuration**.
- The actual zoom now isn't lost if you select signal.

6.8.1 Device Monitor dialog

- The **Device Monitor** dialog has been modified and now also displays the **Digital Outputs**.

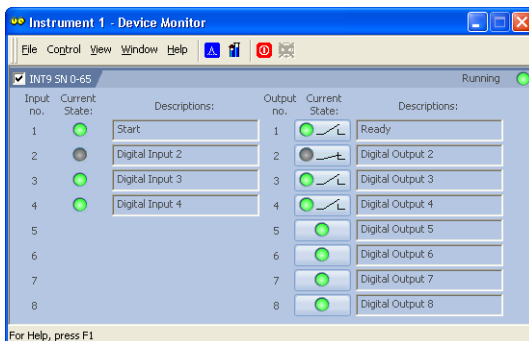


Fig. 6: Device Monitor dialog

6.9 Backup

- **Create Archive** and **Restore Archive** now supports also the Audit Trail file types (*.AUDIT, *.LOG).
- New **Including Common** checkbox enables to include/exclude the files from COMMON directory.
- Now it is possible to uncheck the **Common** checkbox.

7 Miscellaneous

- Improved tooltips indicating reason for disabled button or icon for **Run Acquisition**.
- New command line parameter *changepassword* or *ch* was canceled due to security reasons.
- New command line parameters *seq_export*, *seq_export_utf8*, *seq_import*, *seq_import_append* for export and import of sequence and *seq_save* and *seq_save_as* to be able to save changed sequence from command line.
- The **Always on Top** command was removed from **Clarity**. In combination with modal window it could potentially cause a problematic situation.
- The demo data structure was reorganized, all demo project names start with the DEMO prefix.
- In the **Instrument** window the current user name is displayed in a field in the **Status Bar**.
- Improved import of **AIA Chromatograms** with respect to imported signal range - the used range in **Clarity** is adjusted for the real signal values.
- Fixed bug in the **Instrument** window when clicking the method name in the **Status Table**. It opens the **Open Method** dialog. Even during the analysis, the selected template method is opened in the **Instrument** window. The actually running method name is still displayed here.
- Corrected functionality in file name variables for **%Z - Time Zone Name** and **%D - dd_mm_yyyy**.
- Improved detection of **HW Key** during analysis to prevent the incorrect detection of missing key, resulting in the "**DEMO - Keylock test failed**" mode.
- The buffer for monitoring the signal in the **Data Acquisition** window when the acquisition is not running has been increased to *300 min*.
- The ranges in graphs can be now defined to arbitrary order of magnitude.