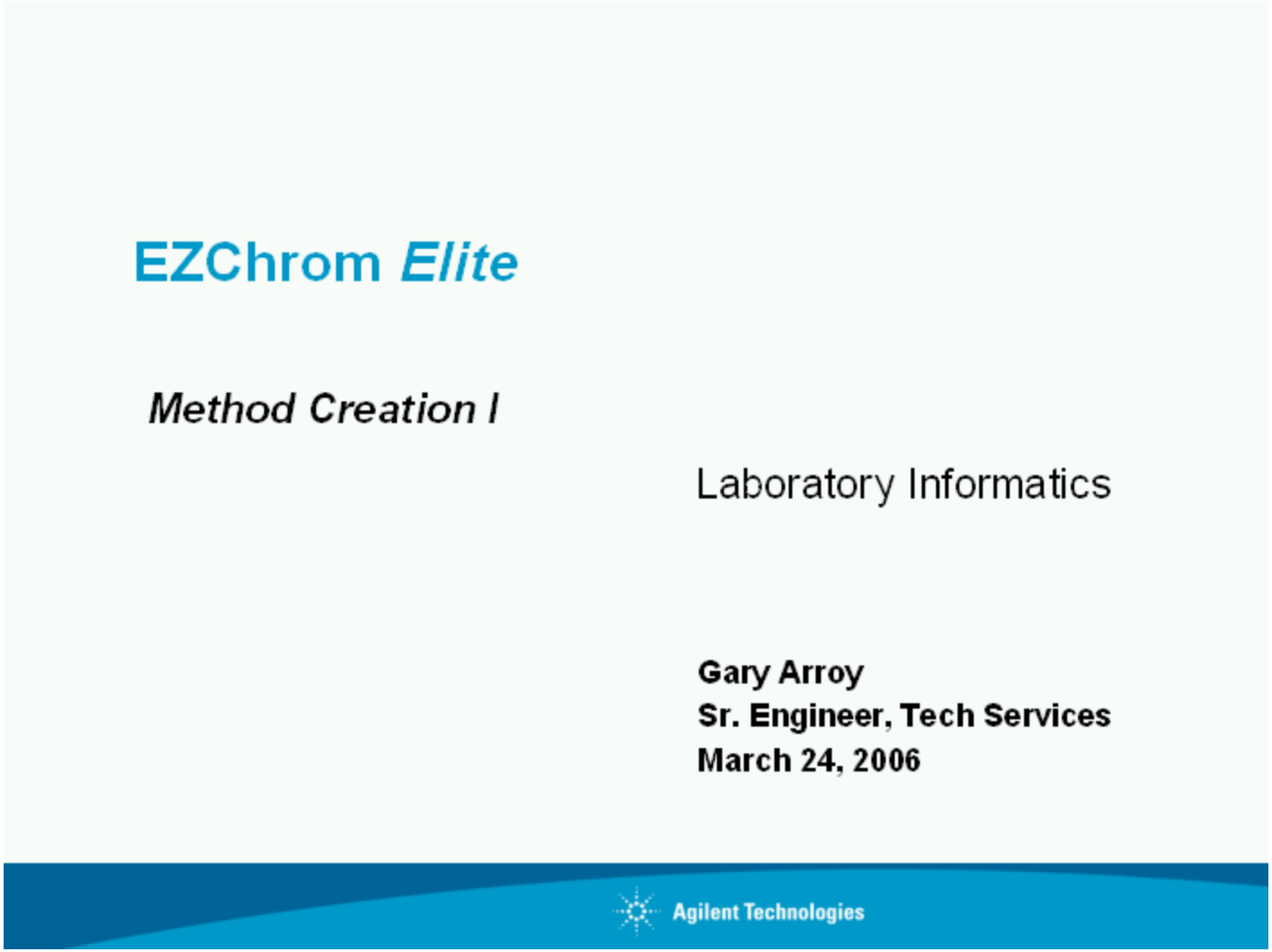

EZChrom Elite
Method Creation I
Laboratory Informatics
Gary Arroy
Sr. Engineer, Tech Services
March 24, 2006
Agilent Technologies

Slide 1

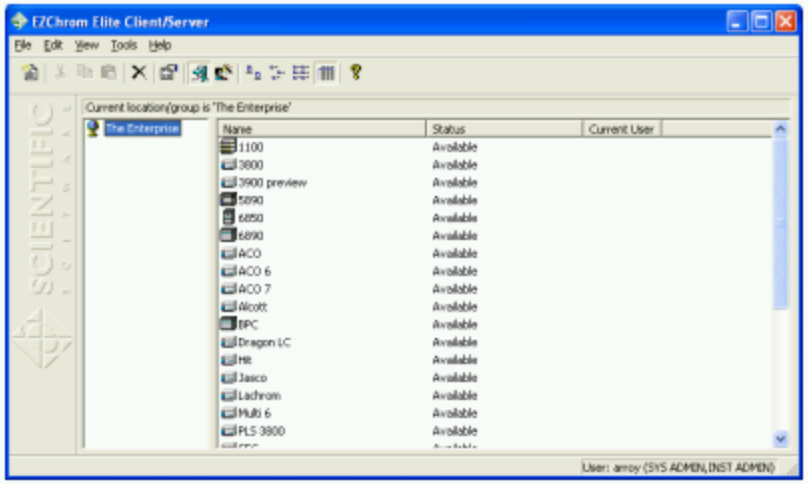
Method Creation I

Main Menu

The Main Menu is the first screen that appears when you start the Data System. From this window, you can view the entire data system "Enterprise" including any locations and instruments that have been configured on the system.

The Main menu is where the locations and instruments are configured and accessed via the icons.

There are many different types along with a generic analog/digital instrument type.



Agilent Technologies

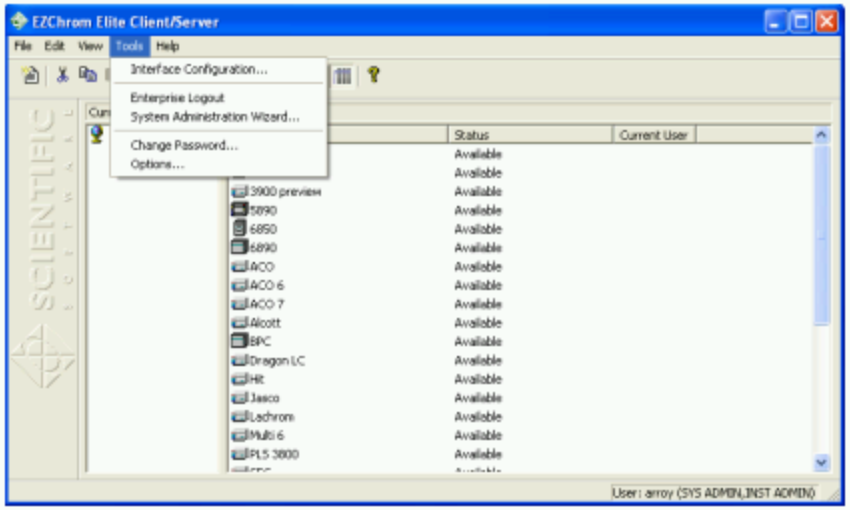
Slide 2

Method Creation I

Method Creation I

Interface Configuration

Interface Configuration involves configuring the hardware boards used for data acquisition or control of external devices such as LC pumps. You must configure the data acquisition interface board before you can acquire data using the data system.



Agilent Technologies

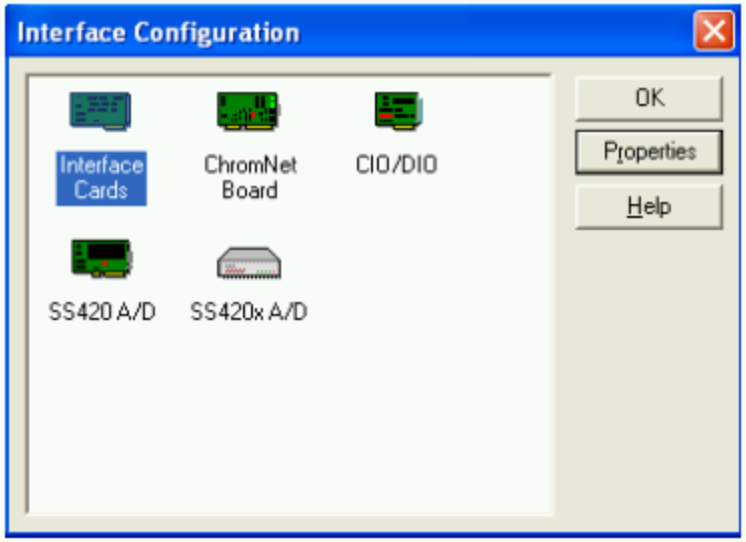
Slide 3

Method Creation I

Method Creation I

Interface Configuration

It is only necessary to perform Interface Configuration on EZServers or Stand-alone data systems where the interface board is actually installed. Clients with no instruments attached do not need to perform this operation.



Agilent Technologies

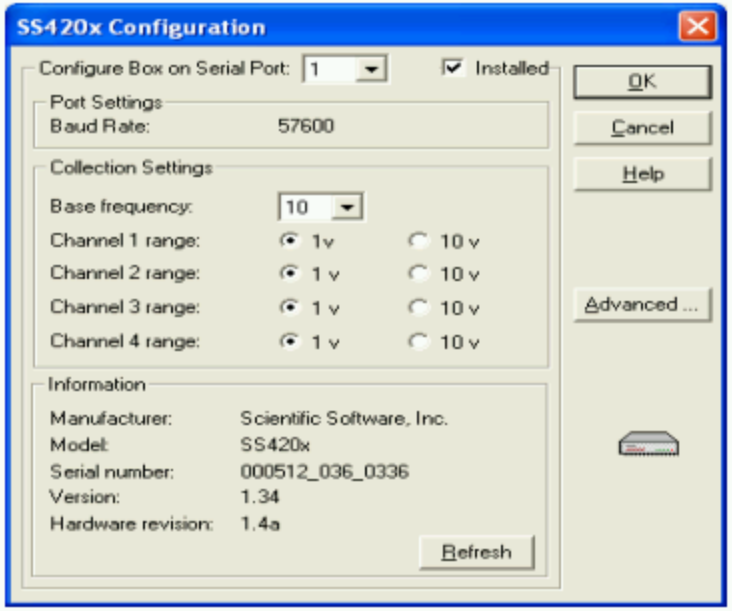
Slide 4

Method Creation I

Method Creation I

SS420x Configuration

From the SS420x configuration dialog, select the **Installed** box to enable the configuration of the interface, and select the Serial port to which the SS420x is connected. Then proceed to select the appropriate settings for the interface.



Method Creation I

Method Creation I

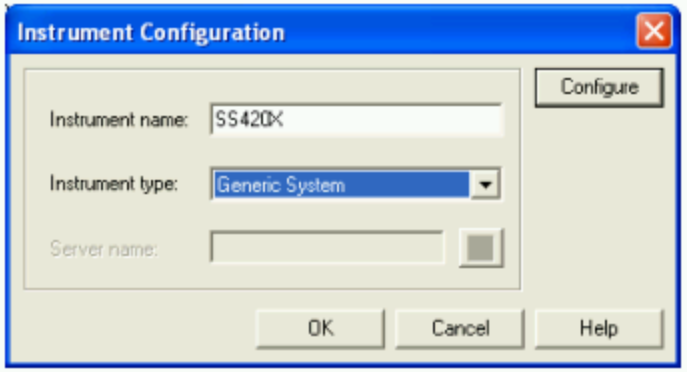
Instrument Configuration

Enter an identification name for the instrument in the **Instrument Name** field.

Select the **Instrument Type** from the drop-down list. For chromatography instruments not listed, select **Generic**.

Select the **Server name**, if applicable. This is the name of the EZServer where the instrument is attached.

Click on **Configure** to complete the instrument configuration by defining detectors and external events for the instrument.



Agilent Technologies

Slide 6

Method Creation I

Method Creation I

Generic System Configuration

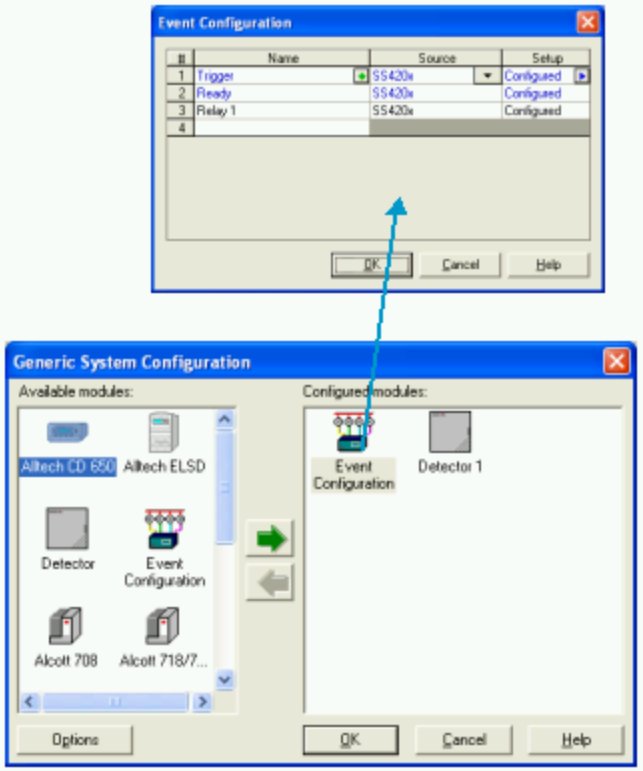
Event Configuration

Name

Source

Setup

Notes: The external events tab in Instrument Setup will not be available unless you have configured your instrument with one or more external events.



Agilent Technologies

Slide 7

Method Creation I

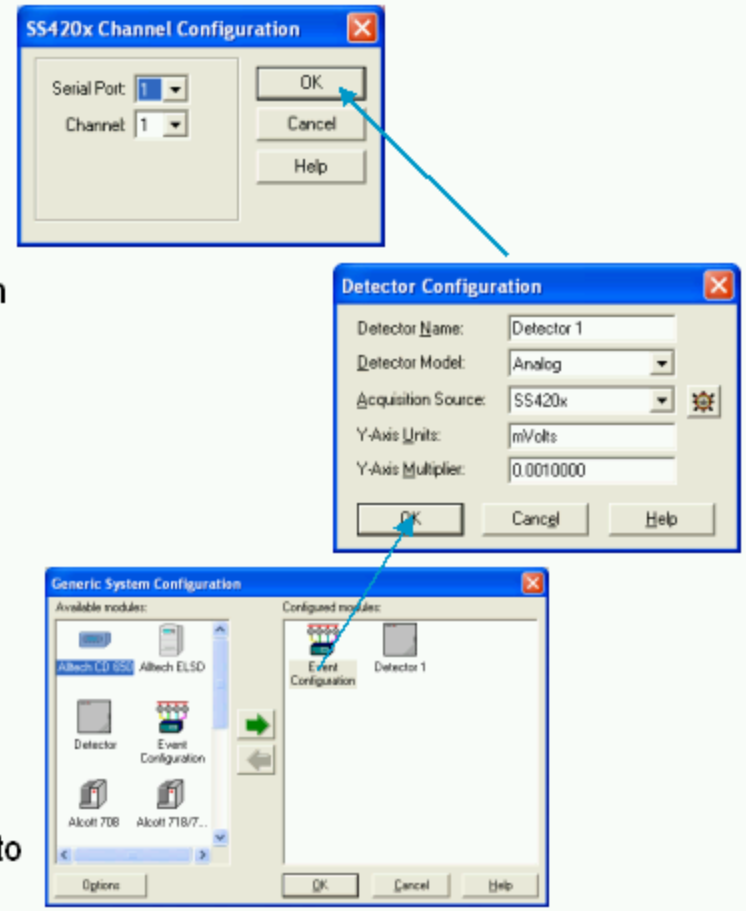
Method Creation I

Detector Configuration

For EACH detector in the Configured Modules window, double click the icon and complete the configuration dialog for every channel of the detector. You must also complete the Acquisition Source configuration by clicking the adjacent button before leaving the Detector Configuration dialog.

SS420x Channel Configuration

For the detector selected, set the correct Serial Port, and Channel to be used. These should match the way your detector is physically connected to the SS420x interface



Agilent Technologies

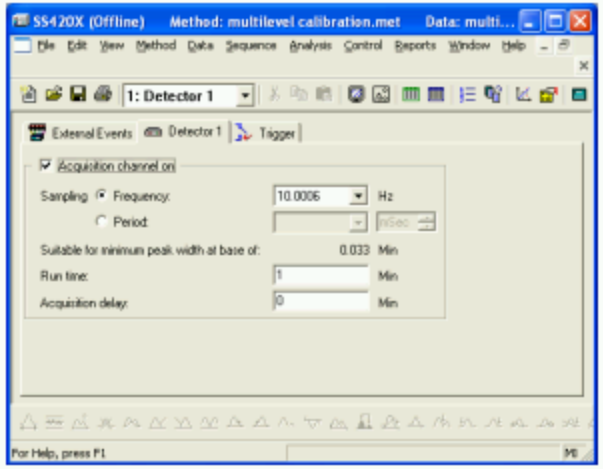
Slide 8

Method Creation I

Method Creation I

Instrument Setup

The instrument setup portion of your method tells how you want to acquire the data coming from your chromatograph. This information is entered in the **Instrument Setup** dialog. If you have installed one of the instrument control options and are using one of those configured instruments, the instrument setup will contain parameters that are specific for the control of the selected instrument.



Sampling

This is the rate at which data will be sampled by the system. You can choose how you want to specify the sampling rate. When you select a sampling rate, a prompt will appear indicating the narrowest peak width for which this sampling rate will be adequate.

Frequency

This selection is in Hz (samples per second). This is the selection for most chromatography applications. Click on the down-arrow to get a list of the frequencies available for the configuration of your system.

Run Time

Acquisition Delay

Agilent Technologies

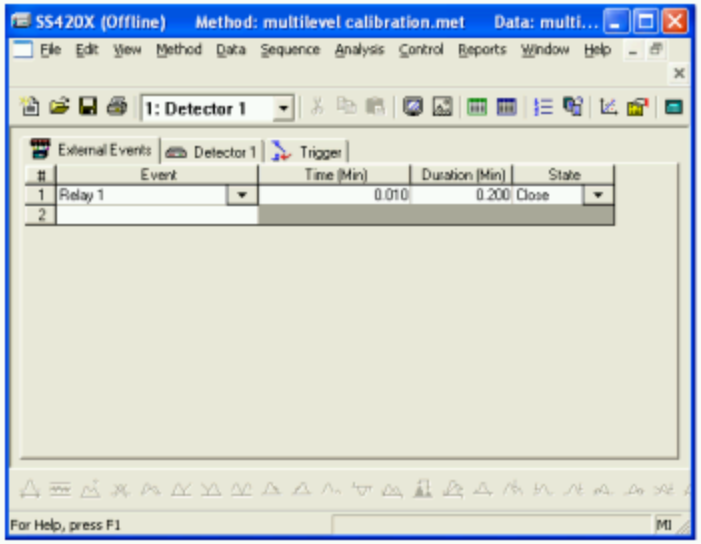
Slide 9

Method Creation I

Method Creation I

External Events

Once you have configured external events for your instrument, you can program the events for your method using the External Events tab in Method/Instrument Setup. Note that this tab will not appear on your menu unless you have configured external events for your instrument. When you select this tab, a spreadsheet appears where you can select the events and designate when and how they activate during the run.



Agilent Technologies

Slide 10

Method Creation I

Method Creation I

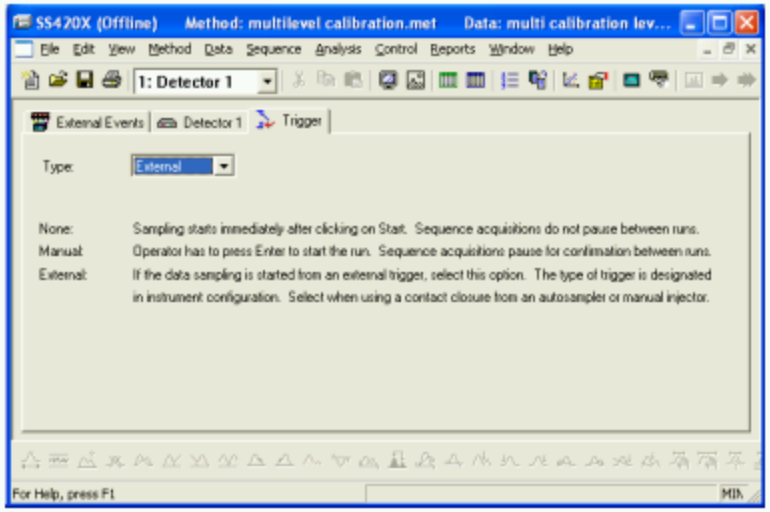
Trigger
Select the Trigger tab to select the type of trigger for the instrument

Trigger Type
Determines how the data sampling is started.

None
Sampling starts immediately after clicking on Start. Sequence acquisitions do not pause between runs.

Manual
Operator has to press **Enter** to start the run. Sequence acquisitions pause for confirmation between runs.

External
If the data sampling is started from an external trigger, select this option. The type of trigger is designated when the instrument is configured.



Agilent Technologies

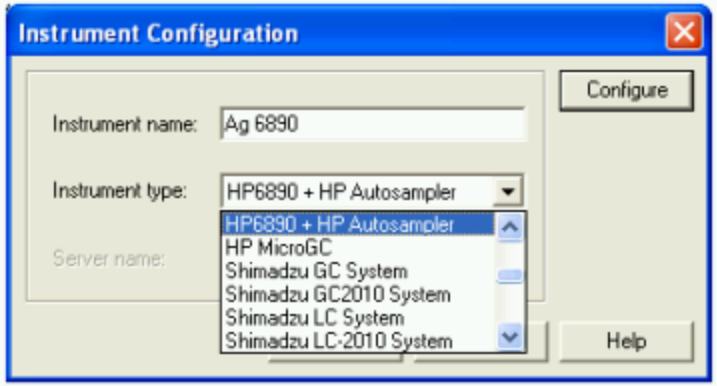
Slide 11

Method Creation I

Method Creation I

Configuring Digital Instruments

A wide variety of digital instruments can be controlled using the optional control software. Each of these instruments has a unique set of configuration dialogs



Agilent Technologies

Slide 12

Method Creation I

Method Creation I

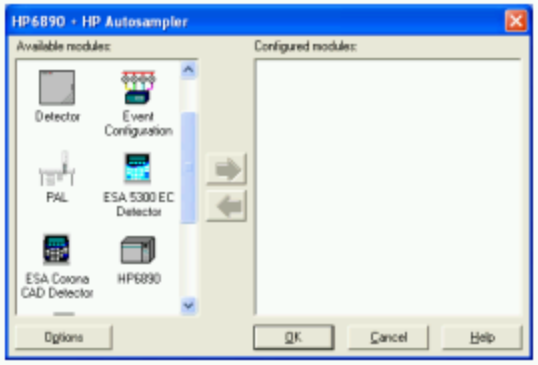
Configuring the Agilent 6890

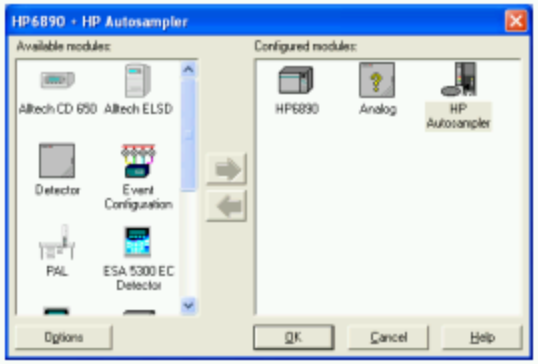
When you click the **Configure** command, the following dialog will appear.

There will be various icons displayed in the **Available Modules** box on the left. Add modules to be configured by double-clicking on each one, or by clicking once on the icon, followed by the Green arrow.

You must then configure each module (detector, instrument, or event configuration) separately. To access each module's configuration, double-click on the icon in the **Configured modules** window.

The **Analysis Options** button is used to initiate any optional analysis software for this instrument





Agilent Technologies

Slide 13

Method Creation I

Method Creation I

Agilent 6890 Detector Configuration

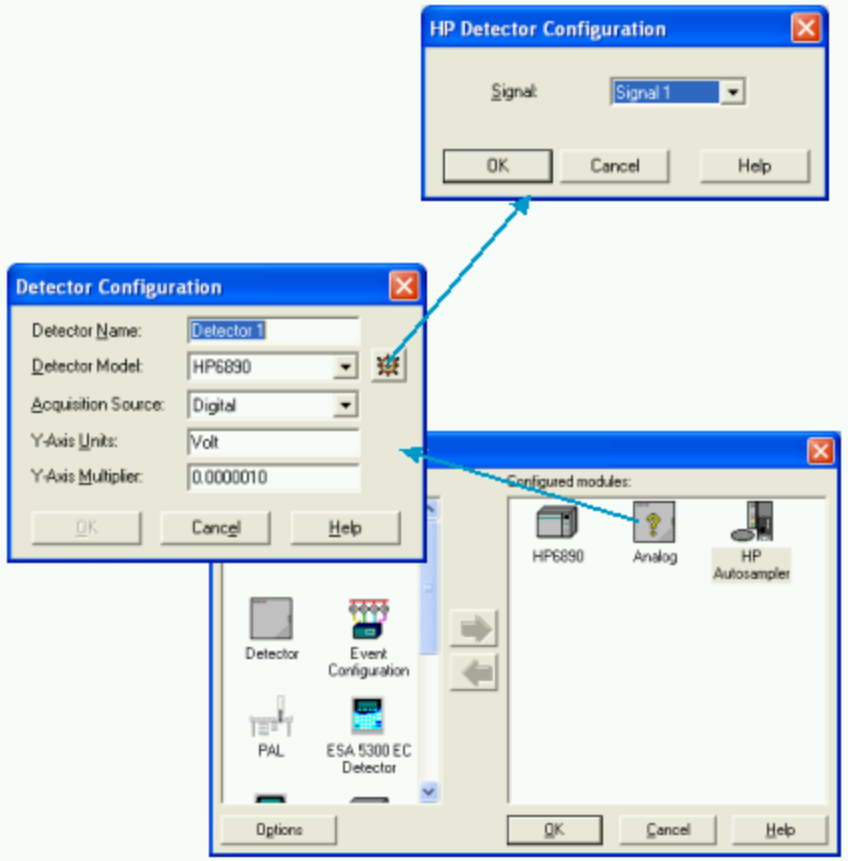
For EACH detector in the Configured Modules window, double click the icon and complete the configuration dialog for every detector channel. You must also complete the Acquisition Source configuration by clicking the adjacent button before leaving the Detector Configuration dialog.

Acquisition Source

Y-Axis Units

Y-Axis Multiplier

Y-Axis Label Y-Axis Multiplier

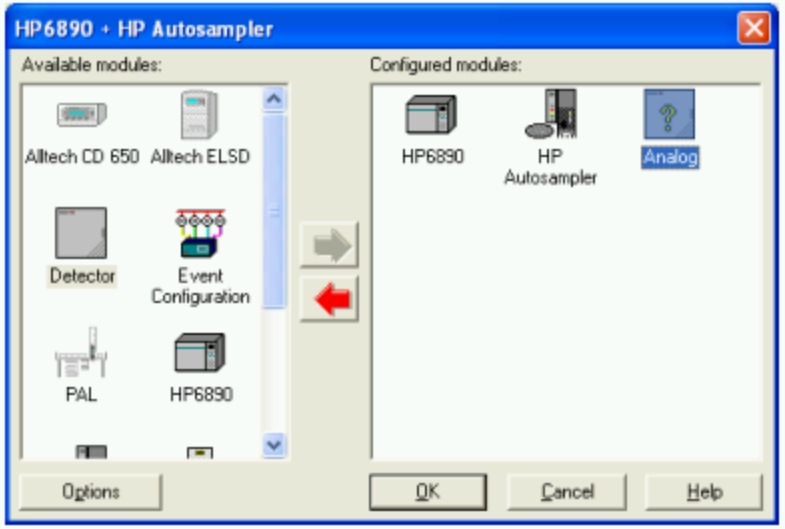


Method Creation I

Method Creation I

The digital instrument, in this case a 6890 GC, can be configured for RS232, GPIB or LAN communication.

An Autosampler can also be configured along with a detector signal source.



Agilent Technologies

Slide 15

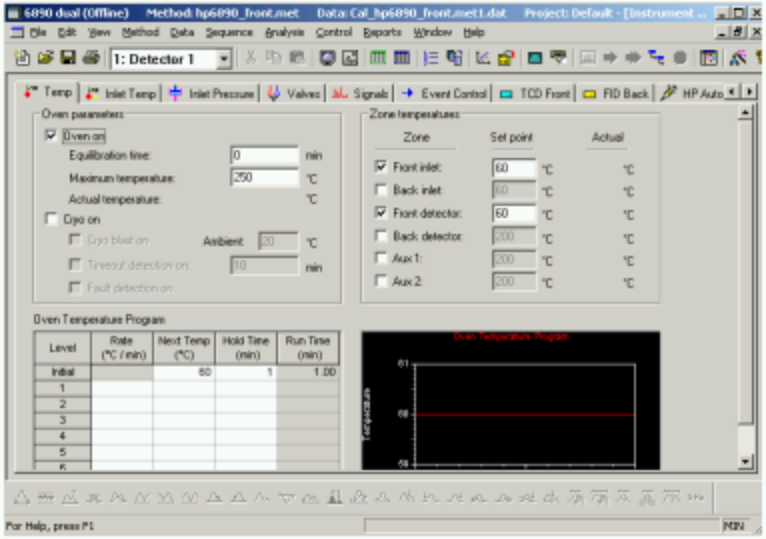
Method Creation I

Method Creation I

Instrument Setup

The instrument setup portion of your method tells how you want to acquire the data coming from your chromatograph. This information is entered in the **Instrument Setup** dialog.

If you have installed one of the instrument control options and are using one of those configured instruments, the instrument setup will contain parameters that are specific for the control of the selected instrument.

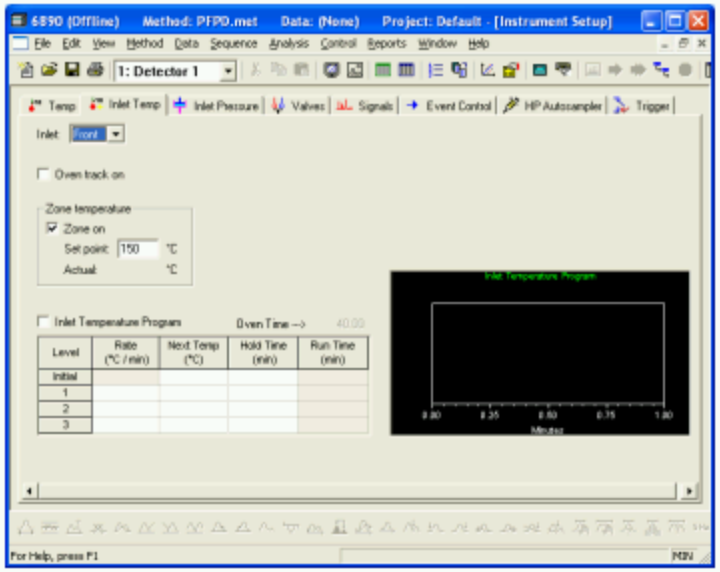


Method Creation I

Method Creation I

Agilent 6890 Inlet Temperature Setup

This tab is used to enter inlet temperatures and (if desired) an inlet temperature program.



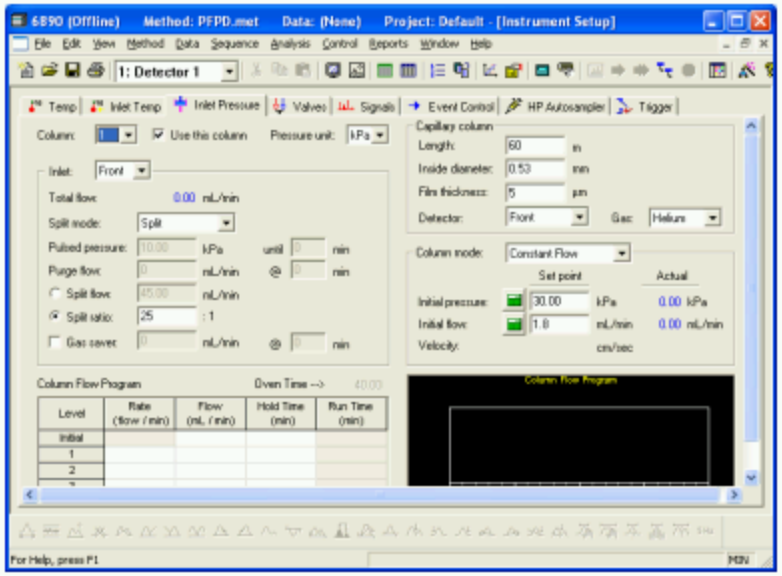
Agilent Technologies

Slide 17

Method Creation I

Method Creation I

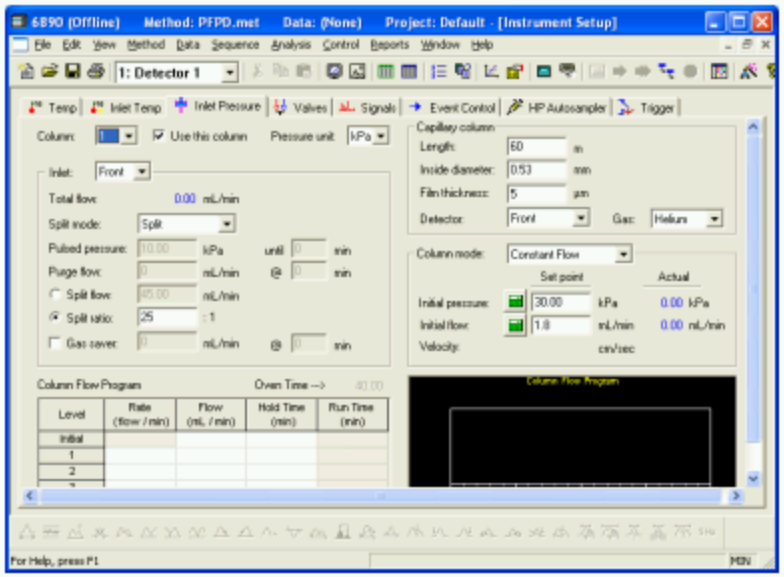
- Column
- Pressure Units
- Total flow
- Split/Splitless inlet
- Split mode
- Pulsed pressure
- Purge flow



Method Creation I

Method Creation I

- **Split flow**
- **Gas saver**
- **Capillary Column**
- **Detector**
- **Gas**
- **Inlet Control Logic**



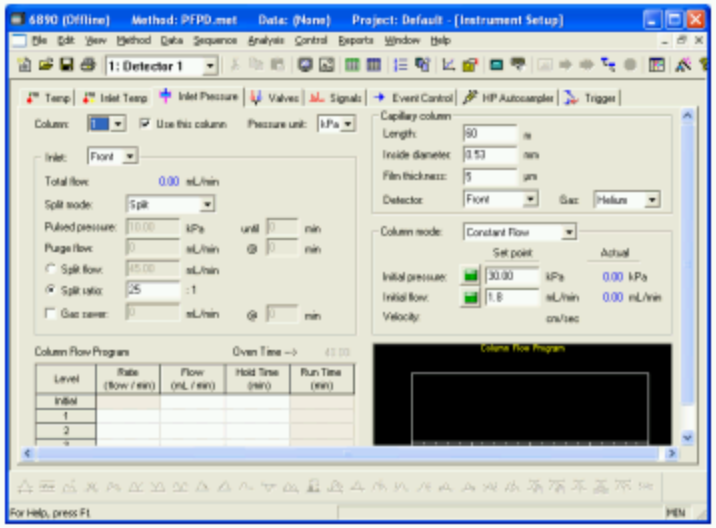
Agilent Technologies

Slide 19

Method Creation I

Method Creation I

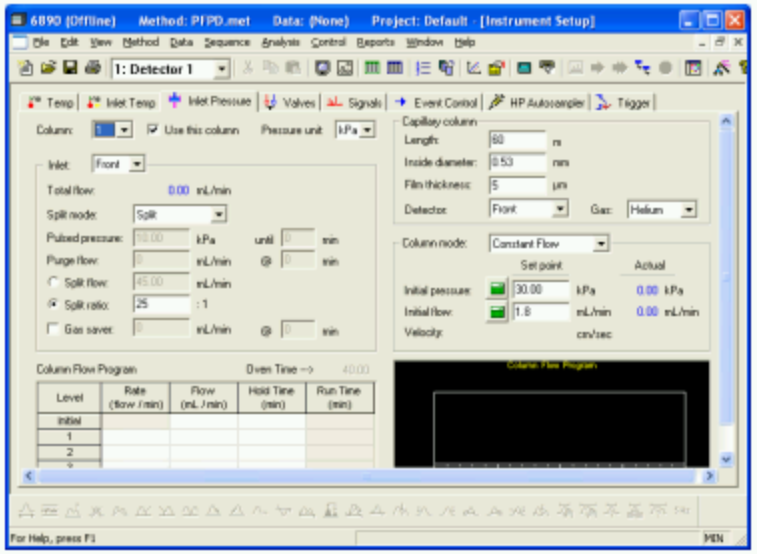
- Column Mode
- Constant Flow,
  Constant Pressure
- Ramped Flow.
- Ramped Pressure.
- Initial Pressure
- Initial Flow



Method Creation I

Method Creation I

- Velocity
- Split/splitless
- Purge/packed
- Defined column (used for capillary)
- Undefined column (used for packed)
- Cool On-column
- Column Pressure/Flow Program



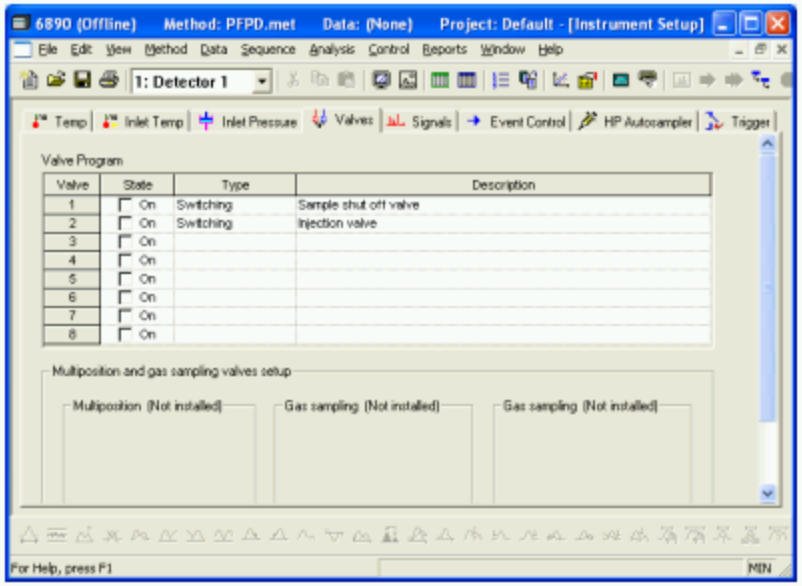
Method Creation I

Method Creation I

Agilent 6890 Valve Setup

This tab is used to set up control for HP 6890 valves and relays. Assign the Valve number for each valve by turning the State **On**, selecting the valve type, and then complete the setup for the valve. Switching valves do not require valve setup. All valves and events can be time programmed from the **Event Control** tab.

- **State**
- **Type**
- **Valve setup**
  - **Multiposition valve**
- **BCD**
- **Invert BCD**
- **Gas sampling valve**
- **Loop volume**
- **Load time**
- **Inject time**
- **Inlet**



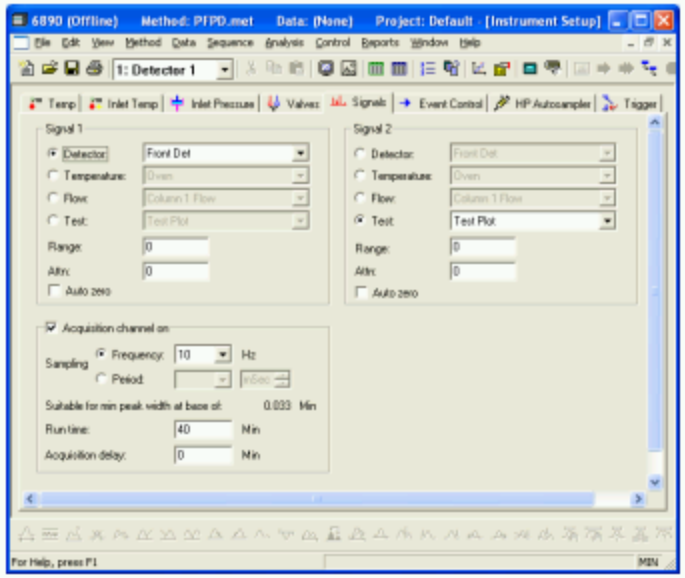
Method Creation I

Method Creation I

Agilent 6890 Signal Setup

There are four types of digital signals that can be sent to the data system from the Agilent 6890 (detector, temperature, flow, and test signals). Two of these can be monitored at one time.

- **Detector**
- **Temperature**
- **Flow**
- **Test**
- **Range**
- **Attenuation**
- **Auto Zero**
- **Sampling**
- **Frequency**
- **Run Time**
- **Acquisition Delay**

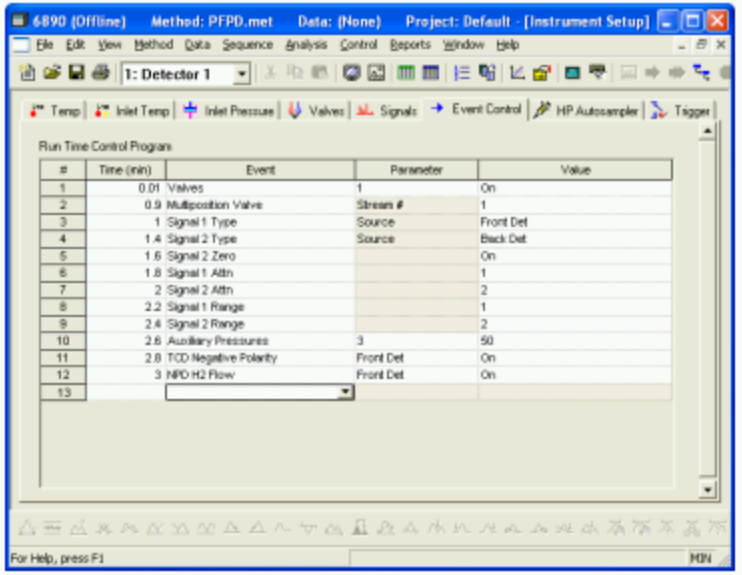


Method Creation I

Method Creation I

Agilent 6890 Event Control Setup

Up to 25 Agilent 6890 events can be executed at specified times during a run. Each event may have parameters and values associated with it.



Method Creation I

Method Creation I

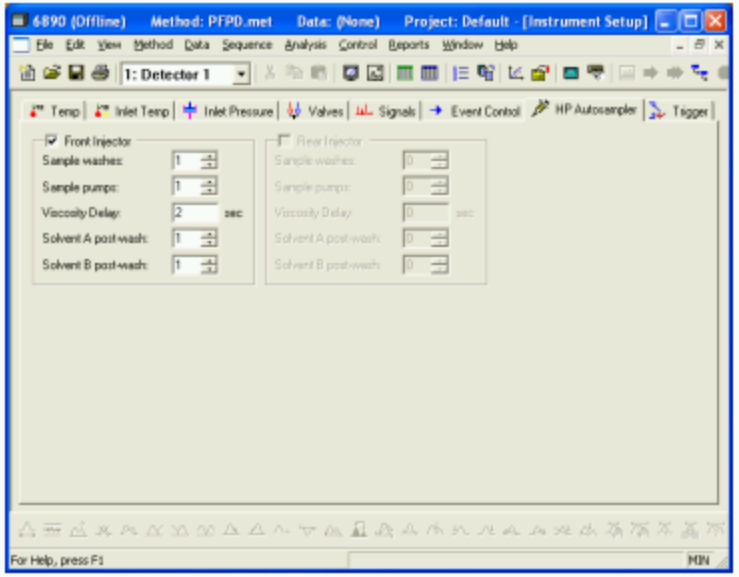
Instrument Setup HP Autosampler

This tab is used to set parameters for use of the HP autosampler.

Front/Rear Injector

.

Note: If you have both injectors selected (dual tower configuration), each run of the sequence will cause two injections to be executed. The injection for the front injector will be from vial number x, the vial designated in the sequence table. The rear injector will inject from vial number x + 50.



- **Sample Washes**
- **Sample Pumps**
- **Viscosity Delay**
- **Solvent A post-wash**
- **Solvent B post-wash**
- **Solvent A pre-wash**
- **Solvent B pre-wash**
- **Injection Dwell**
- **Sampling Depth**
- **Slow Plunger**

Agilent Technologies

Slide 25

Method Creation I

Method Creation I

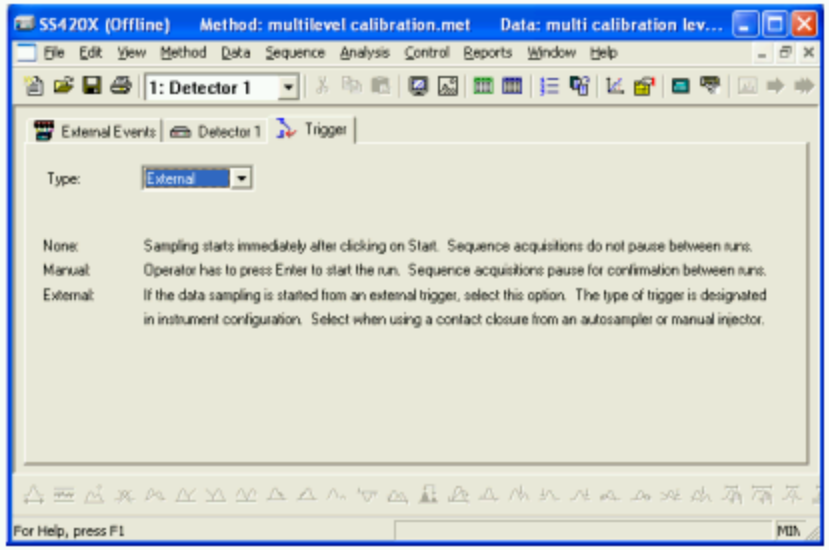
Trigger
Select the Trigger tab to select the type of trigger for the instrument

Trigger Type
Determines how the data sampling is started.

None: Sampling starts immediately after clicking on Start. Sequence acquisitions do not pause between runs.

Manual: Operator has to press **Enter** to start the run. Sequence acquisitions pause for confirmation between runs.

External: If the data sampling is started from an external trigger, select this option. The type of trigger is designated when the instrument is configured.



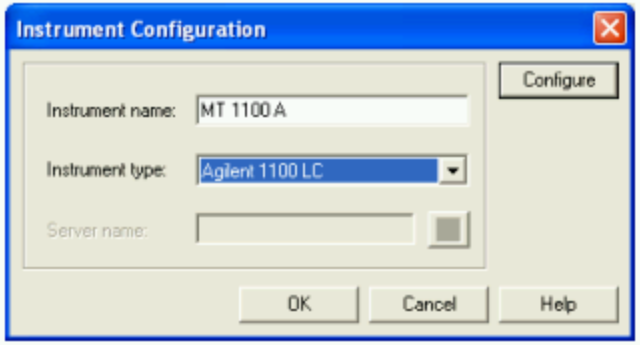
Agilent Technologies Slide 26

Method Creation I

Method Creation I

Configuring an 1100 Digital Instrument

A wide variety of digital instruments can be controlled using the optional control software. Each of these instruments has a unique set of configuration dialogs.



Agilent Technologies

Slide 27

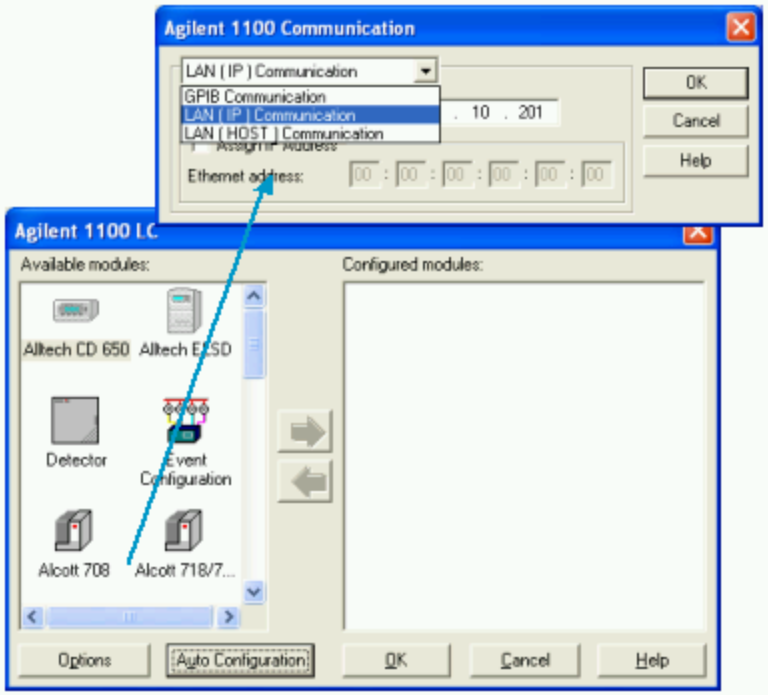
Method Creation I

Method Creation I

Auto Configuration

Select the type of communication for the instrument from the drop down list. Then complete the dialog as required: GPIB Communication, LAN (IP) Communication, or LAN (Host) Communication.

All modules configured for this instrument use the same communications settings. Therefore, once you have completed this dialog, you do not have to configure the communications for each module individually. When you click OK, the system will auto configure.



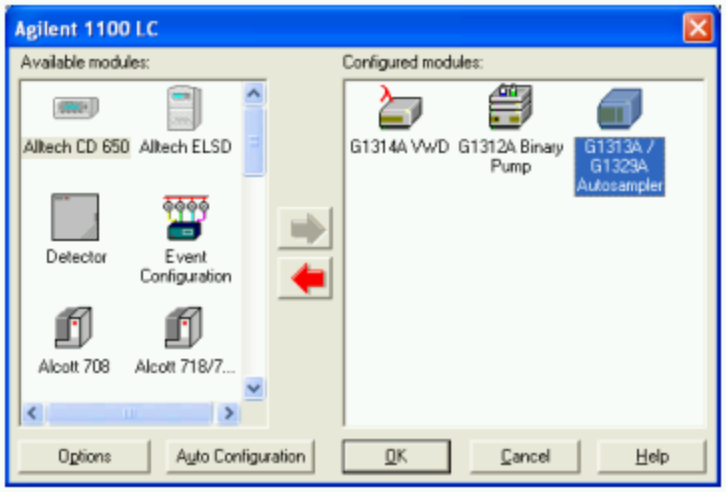
Method Creation I

Method Creation I

Auto Configuration

When Auto Configuration has completed, all detected modules will be set up in the "configured modules" window of the system configuration for this instrument. In addition, serial numbers and firmware revisions of these modules will be set. Serial numbers and firmware revisions for existing modules will be updated if necessary.

Note: Modules no longer present will not be automatically deleted. The user must do this manually.



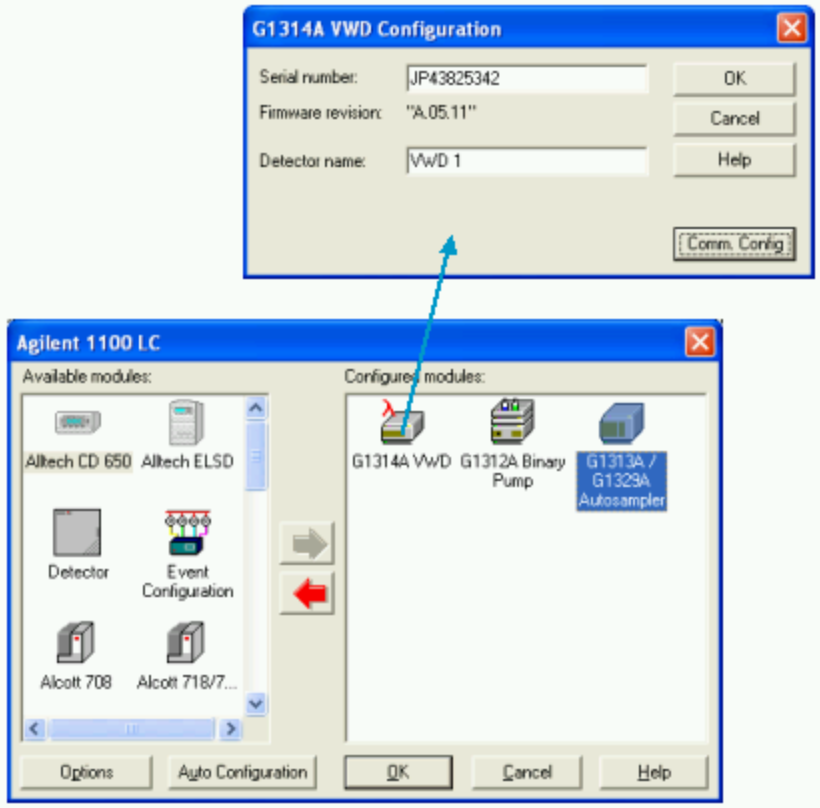
Method Creation I

Method Creation I

HP 1100 VWD Configuration

Once autoconfigured, the 10 digit serial number and the communication configuration for each module should have been defined automatically.

Firmware must be ROM 3.18 or higher for Elite to communicate properly on all modules.



Method Creation I

Method Creation I

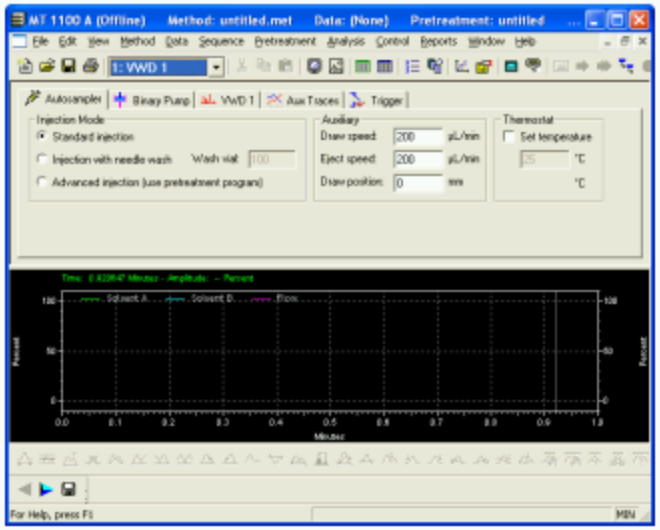
Autosampler Tab

- **Injection Mode**
- **Standard injection**
- **Injection with needle wash**

- **Advanced injection program**
- **Auxiliary**
- **Draw Speed**
- **Eject Speed**
- **Draw Position**

Thermostat
This section only appears if the HP1100 System is configured with a Thermostatted Autosampler.

Set Temperature
This check box allows for the turning on or off of the temperature control of the autosampler. If checked, the autosampler will be temperature controlled. If not checked temperature control will be turned off.
The text box is for entering the temperature that the autosampler will maintain.



Method Creation I

Method Creation I

Binary Pump Tab

Time Settings

Pressure
Enter a minimum pressure for the pump. If the pressure goes below this value, the pump stops.

Solvents

Binary Pump Program

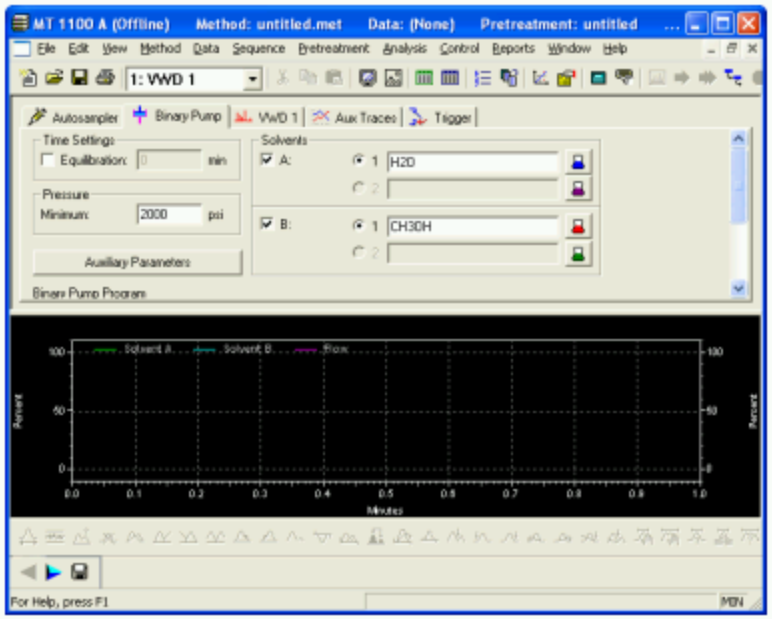
Solvent A,B (%)

Flow (ml/min)

Max Press

Current Flow

Current Pressure



Method Creation I

Method Creation I

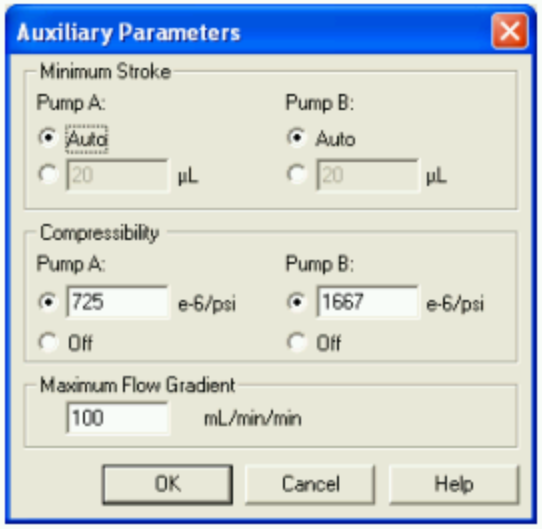
Auxiliary Parameters Binary Pump

This button brings up a dialog where auxiliary settings are entered.

Minimum Stroke
For Pump A and B, enter a value in ul for minimum pump stroke, or select Auto.

Compressibility
For Pump A and B, enter a default value for compressibility, or select Auto. Select Off if you do not want to compensate for compressibility.

Maximum Flow Gradient
You can set a limit on the rate of change of the solvent flow to protect your analytical column.
Limits: 0.1 to 100 ml/min/min. The default value is 100 ml/min/min.

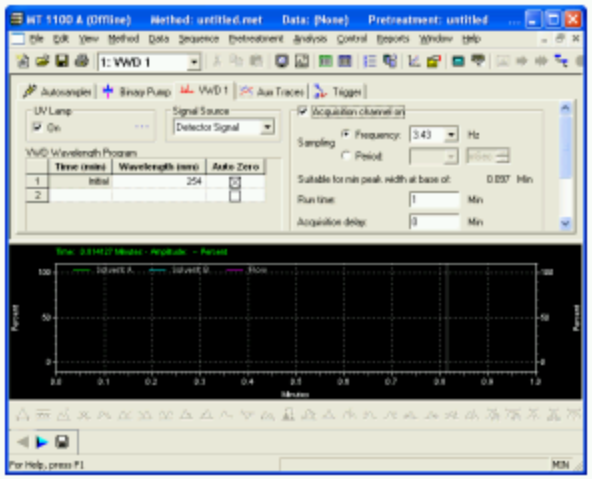


Agilent Technologies

Slide 33

Method Creation I

Method Creation I



VWD Tab

If you have a Variable Wavelength Detector configured on the instrument, this tab will be available for you to set up the operation of the detector.

UV Lamp
Select the check box to turn the lamp on.

Signal Source
Select the source for the signal. Default is the detector signal. You may also choose a pre-defined test chromatogram. It is processed through the ADC like normal signals from the diodes and can be used to check the ADC and the data handling system. The signal is available at the analog output and on the HPIB.

VWD Wavelength Program
Enter a program for the variable wavelength detector. The wavelength value in the first line is the Initial value. Select the check box if you want to auto zero the detector when each programmed change is made.

VW Special Setpoints
Margin of negative absorbance
Enter a value if desired in the box. This field modifies the detector's signal handling to increase the margin for negative absorbance. Limits are 100 to 4000 mAU.

Polarity
Click the radio button for the signal polarity.

Acquisition Parameters
Enter parameters for acquisition of the signal.

Agilent Technologies

Slide 34

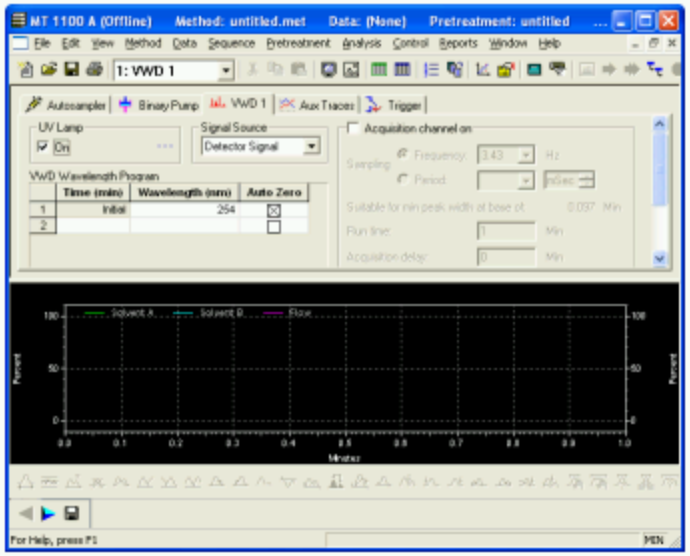
Method Creation I

Method Creation I

Sampling
This is the rate at which data will be sampled by the system. You can choose how you want to specify the sampling rate. When you select a sampling rate, a prompt will appear indicating the narrowest peak width for which this sampling rate will be adequate. **It is recommended that you use the Graphical Events Programming to determine the optimum sampling rate for your chromatography.**

Frequency
This selection is in Hz (samples per second). This is the selection for most chromatography applications. Click on the down-arrow to get a list of the frequencies available for the configuration of your system.

Period
When you select this type of sampling, you must select the number of seconds (or milliseconds) between data points. Enter the value, then select whether the period is in milliseconds (mSec) or Seconds.



Agilent Technologies

Slide 35

Method Creation I

Method Creation I

Run Time
Run Time determines the length of time data will be sampled.
Acquisition Delay

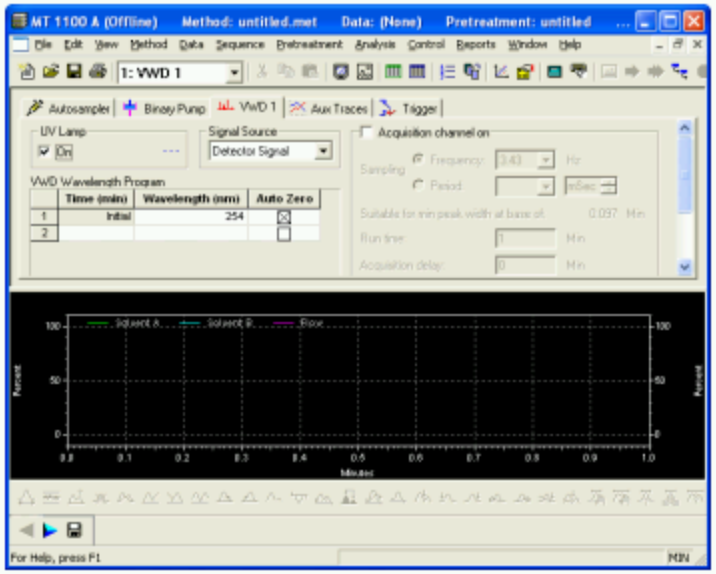
Acquisition Delay is the interval between the start of run (Trigger) and the time when sampling starts for this channel.

Analog Output
Enter the settings for the analog output of the detector.

Range
Select the voltage range for the detector.

Attenuation
Select the desired attenuation for the signal.

Zero offset (%)



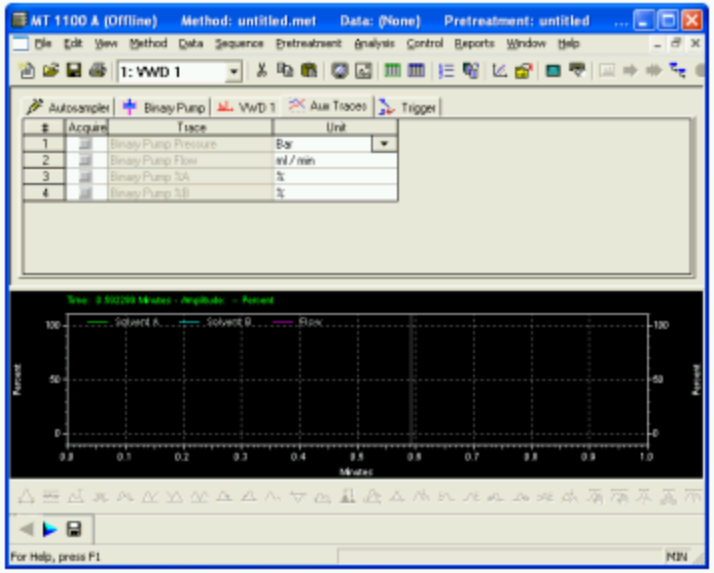
Method Creation I

Method Creation I

Aux Traces Tab

This tab is used to acquire traces of instrument status parameters during normal data acquisition. Many instruments have the ability to report continuous monitoring data on status parameters such as flow rate and oven temperature. When this option is enabled, this tab appears, allowing you to designate which status parameters you wish to monitor during the run.

The actual entries in this list will vary depending on the instrument configuration. Changes to the aux. traces for the Agilent 1100 Column Comp, RI detector, Isocratic pump, Binary pump and Quaternary pump are logged in the audit trail.



Method Creation I

Method Creation I

Trigger
Select the Trigger tab to select the type of trigger for the instrument.

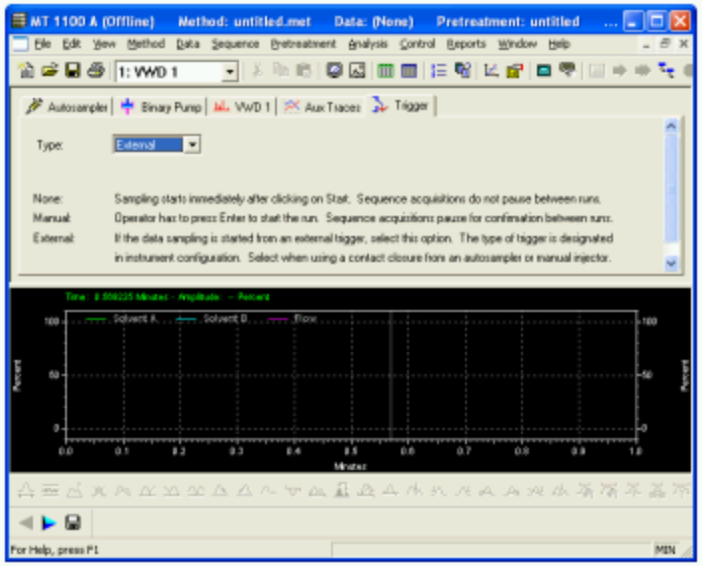
Trigger Type
Determines how the data sampling is started.

None: Sampling starts immediately after clicking on Start. Sequence acquisitions do not pause between runs.

Manual: Operator has to press **Enter** to start the run. Sequence acquisitions pause for confirmation between runs.

External: If the data sampling is started from an external trigger, select this option. The type of trigger is designated when the instrument is configured.

When you have completed the acquisition parameters, click the **X** box in the upper right corner of the dialog box to exit the dialog.



Method Creation I

Slide 39


Wrap-up E-Seminar Questions
Thank you for attending Agilent e-Seminars.
Our e-Seminar schedule is expanding every week. Please check our website frequently at
www.agilent.com/chem/education
Or register for
Stay current with e-notes
to receive regular updates
Agilent Technologies
Slide 40

Slide 40