

OpenLAB CDS ChemStation Edition C.01.05

Tips and Tricks for GC Users

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ChemStation Edition



Problem / Solution

Problem

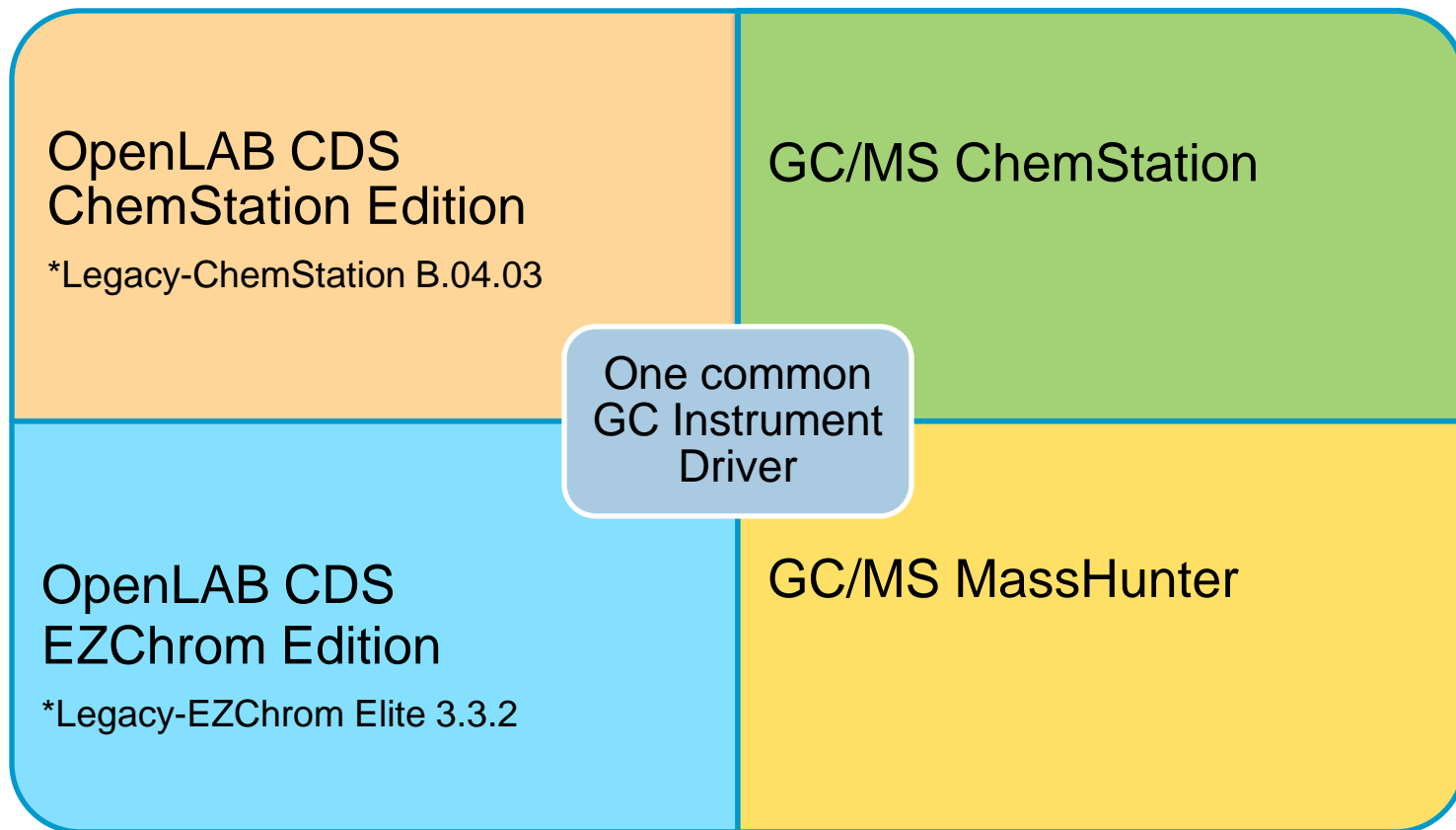
I need to be able to switch quickly between different Agilent data systems.

Solution

Enhanced drivers provide a standard layout for all Agilent Data Systems.

GC Instrument Driver

Support for 7890, 7820, 6850, and 6890 GC with enhanced Drivers to provide a standard layout for all Agilent Data Systems.



Problem / Solution

Problem

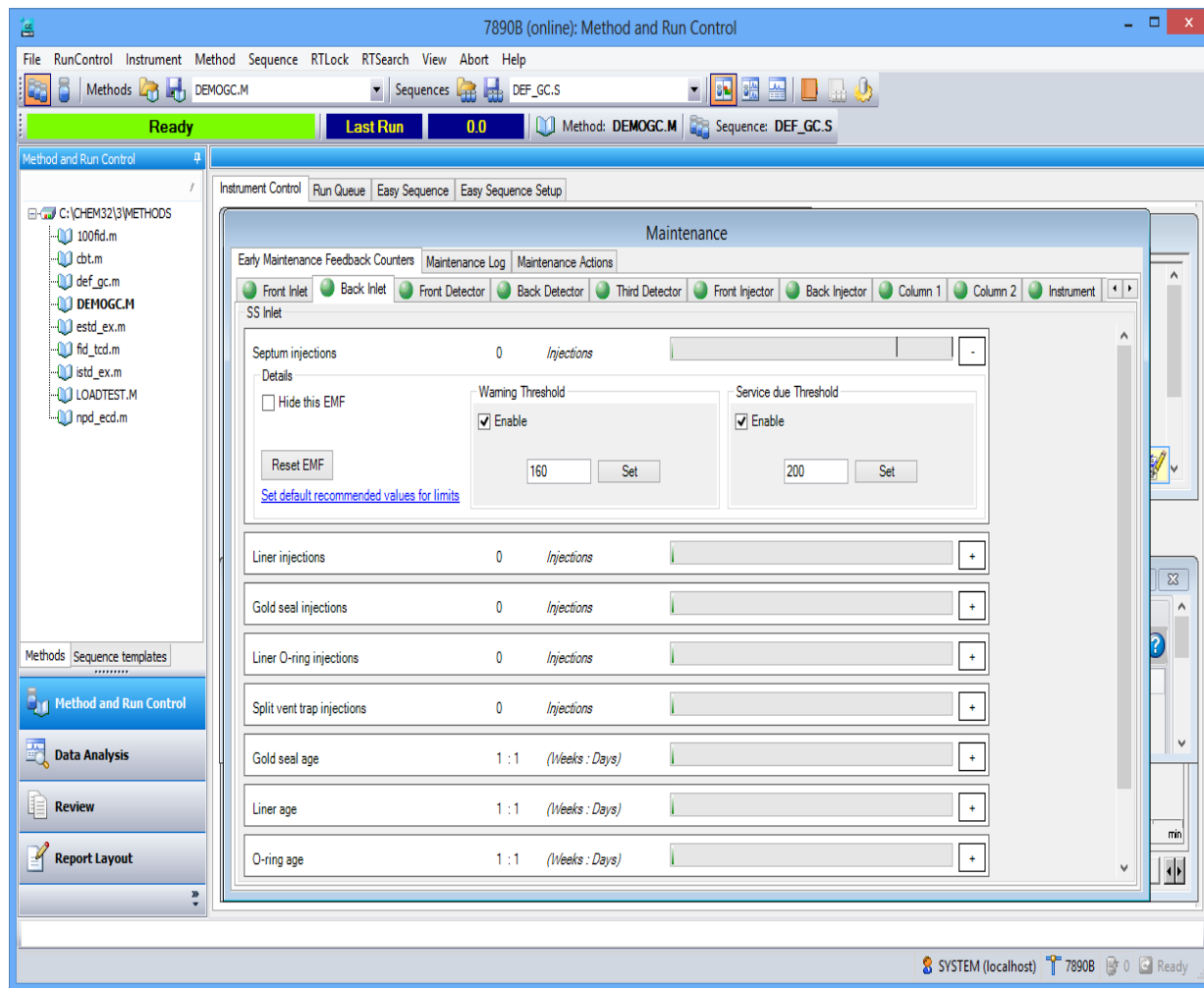
- How can I optimize my maintenance schedule and reduce unplanned downtime?
- The lab personnel including myself forgets when the instrument maintenance was last performed.

Solution

Agilent Early Maintenance Feedback

Agilent Early Maintenance Feedback

- Set-up the counters within the Agilent Data System
- Based on the configuration of the GC
- User-defined early maintenance feedback counters
- Notification of the Warning and Service Due



Problem / Solution

Problem

I want to optimized my maintenance schedule, but I'm not sure where to set the EMF maintenance counters

Solution

Agilent Early Maintenance Feedback

Agilent Early Maintenance Feedback

- Some EMF counters have default limits; however the maintenance required will be depended on the type of sample analyzed.

Another way to set them up:

- When you perform maintenance look at the settings of the counters.
- Set the warning limits to the amount.
- Check the counters next time when performing maintenance and adjust the limits.

Maintenance

Early Maintenance Feedback Counters Maintenance Log Maintenance Actions

Front Inlet Back Inlet Front Detector Back Detector Third Detector Front Injector Back Injector Column 1 Column 2 Instrument

SS Inlet

Septum injections 0 Injections

Details

☐ Hide this EMF

Reset EMF

[Set default recommended values for limits](#)

Warning Threshold

☒ Enable

160 Set

Service due Threshold

☒ Enable

200 Set

Liner injections 0 Injections

Gold seal injections 0 Injections

Liner O-ring injections 0 Injections

Split vent trap injections 0 Injections

Gold seal age 1 : 1 (Weeks : Days)

Liner age 1 : 1 (Weeks : Days)

O-ring age 1 : 1 (Weeks : Days)

Problem / Solution

Problem

I need to control cost in my laboratory with increasing cost for energy and helium.

Solution

Resource Conservation using the “Sleep/Wake” mode

Resource Conservation: Sleep/Wake Mode

- Schedule the time of the Wake and Sleep Methods either as “custom”, “7 days a week” or “Sat/Sun”
- Manually put the instrument to sleep by clicking on “Sleep” on the “Instrument” menu
- Instrument will still go to Sleep or Wake mode even if the data system is not connected for any reason.

The image displays the Agilent 7890B Configuration: Instrument 3 window and the Agilent OpenLAB Control Panel. The configuration window shows the 'Resource Conservation' tab with options to set wake and sleep times. The OpenLAB Control Panel shows a list of instruments, with '7890 GC Kiwi' highlighted. A '7890 GC Kiwi (online): Method and Run Control' window is also visible, showing the 'Sleep Mode' button highlighted in red. An 'Instrument Actuals' window shows the instrument's status, including 'GC Mode: Asleep' and 'GC Ready State: Ready', both highlighted in red.

Agilent 7890B Configuration: Instrument 3

Connection Configuration **Resource Conservation**

Reduce gas and power consumption by setting gas saver and instrument schedule options

Instrument Schedule
Select a schedule that best matches how you use this instrument:

Same schedule M-F, off on Sat & Sun Synchronize Clocks

Weekdays

Wake Time: 4:00 AM Sleep Time: 5:00 PM

Wake Method: Edit Wake Method Sleep Method: Edit Sleep Method

☐ Wake to last active method before sleep
☐ Perform a conditioning run before Waking Edit Conditioning Method

Agilent OpenLAB Control Panel

Management

Create Edit Delete Refresh Instruments and Locations Edit Notifications Edit Columns Properties

Navigation

Instruments

Status	Name	Location	Application	Type
	7890	Instruments	ChemStation	Agilent 7890 GC System
	7890 -1	Instruments		
	7890 GC Kiwi	Instruments		

7890 GC Kiwi (online): Method and Run Control

File RunControl Instrument Method Sequence RTLock RTSearch View Abort Help

Methods DEMO_GC.M Sequences DEF_GC.S

Sleep Mode Last Run 0.0 Method: DEMO_GC.M Sequence: DEF_GC.S

Method and Run Control

Instrument Control Run Queue Easy Sequence Easy Sequence Setup

Maintenance

Instrument Actuals

Agilent 7890B at IP Address: 130.30.251.180
Serial Number: US12293020
Firmware Revision: B.02.00.064
Software Driver Version: 5.01 [036]

9:18:15 AM
Instrument Clock: 10/22/2012 9:17 AM
GC Connection State: Online

GC RunState: Idle
ALS Run State: Idle

**GC Mode: Asleep
GC Ready State: Ready**

Problem / Solution

Problem

I missed putting a vial in the autosampler or miscounted.

Solution

ALS Error-Retry, Abort or Skip

Handling of ALS Errors

ALS Inlets Columns **Oven** Detectors Events Signals Configuration Readiness Calculators!

Front Injector Tray / Other

Barcode reading, heating and mixing

☐ Enable barcode heater

Heat Temperature: Actual 50 °C 29 °C

Heat time: 1 min

☐ Enable barcode mixer

Mix cycles: 2

Mix time: 10 sec

Mix speed: 1000 rpm

Sample Overlap

☐ Enable Sample Overlap

☒ After the previous injection is completed

☐ Prepare sample 0 min before end of GC run

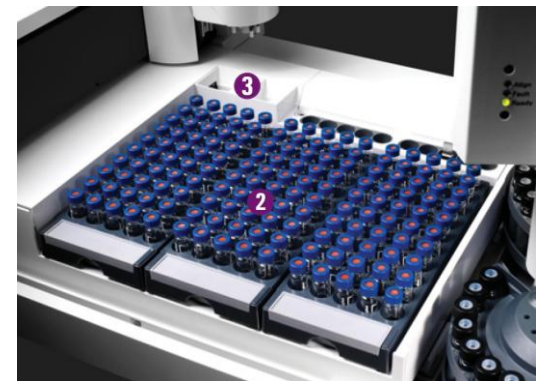
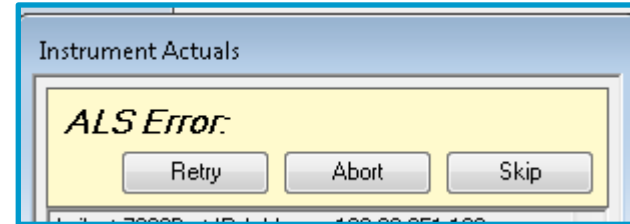
☐ Prepare sample 0 min after end of GC run

ALS Errors: **Pause for user interaction**

Pause for user interaction

Skip to the next sample

Abort the sequence



Problem / Solution

Problem

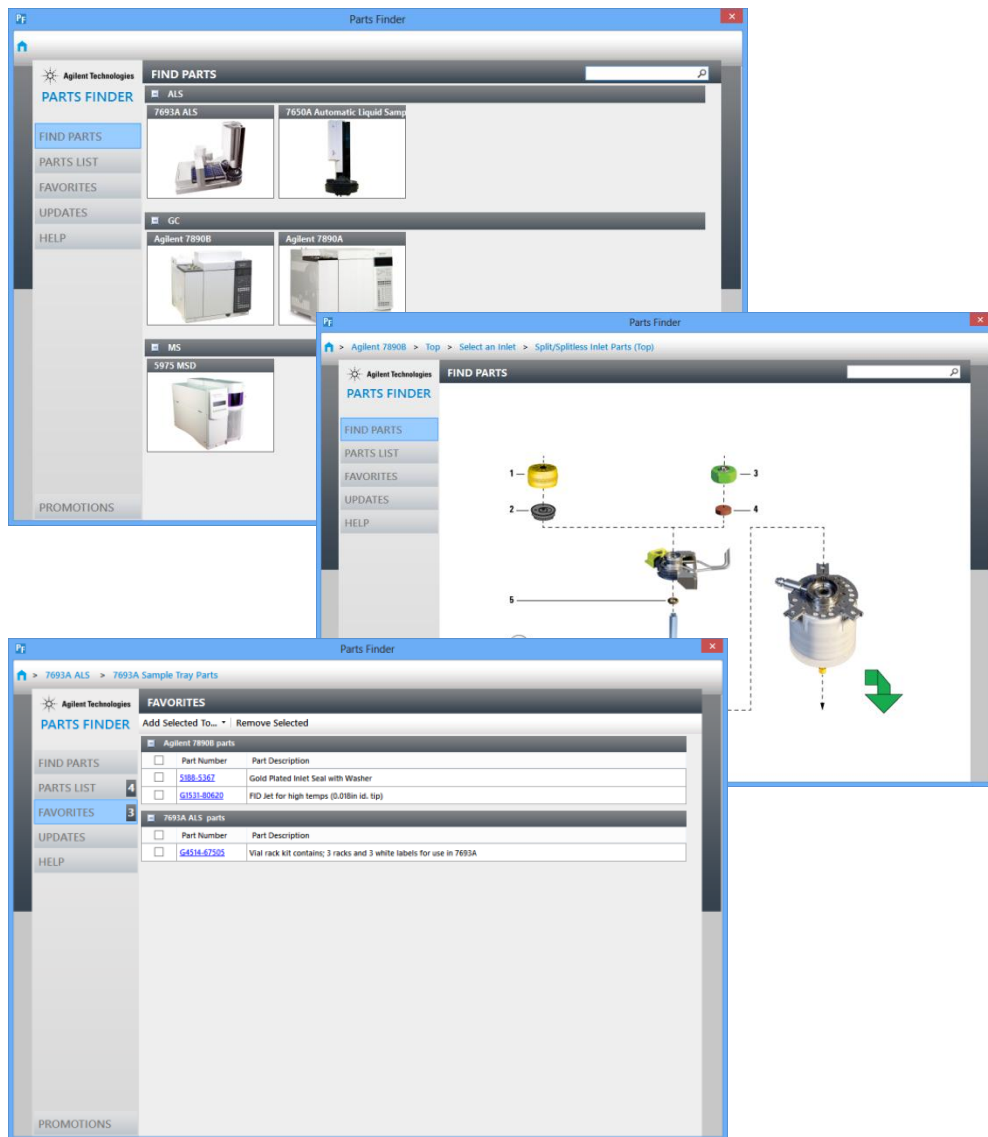
I need to replace a part for the instrument. I need to find the correct part number quickly and re-order the part.

Solution

Agilent Parts Finder Tool

Agilent Parts Finder

- Quickly locate the part number and add to the parts list or favorites
- Print the parts list or save it to a file
- Links to the Agilent.com store for quick ordering through the Agilent website.
- Update file with up-to-date parts and part numbers available via the Agilent website for download.



Problem / Solution

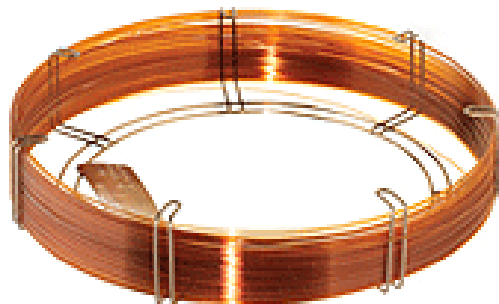
Problem

I need to be able to keep track of columns, liners, and syringes installed in the GC

Solution

Agilent barcode scanning input and updated consumables inventory

Barcode Scanning Input



Columns



Liners



GC Column Catalog

Favorite	Part Number	Description	Length, m	Diameter, µm	Film Thick, µm	Phase Ratio	Min Temp, °C	Max Temp, °C	Max Prog Temp, °C	Flow Factor	Comments	Time Stamp
<input type="checkbox"/>	19091A-012	ULTRA 1	25	320	0.17	469.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-012E	Ultra 1	25	320	0.17	469.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-012LTH	Ultra 1	25	320	0.17	469.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-015	ULTRA 1	30	320	0.17	469.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-015E	Ultra 1	30	320	0.17	469.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-015L	ULTRA 1	12	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-015E	Ultra 1	12	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-10.0LTH	Ultra 1	12	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-102	ULTRA 1	25	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-102E	Ultra 1	25	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-102LTH	Ultra 1	25	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-105	ULTRA 1	30	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-105E	Ultra 1	30	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-108	Ultra 1	17	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091A-108LTH	Ultra 1	17	200	0.33	150.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091B-005E	Ultra 2	50	200	0.11	453.8	-60	325	350	7endh		10/25/12 13:10:37
<input type="checkbox"/>	19091B-012	ULTRA 2	25	320			-60	325	350	7endh		10/25/12 13:10:37

Inventory and full Agilent catalog

Periodic updates available



*Also syringes

Barcode in the columns, liners, and syringes right into the Agilent data system method



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OpenLAB CDS A.01.05 for GC Users
January 2013

Problem / Solution

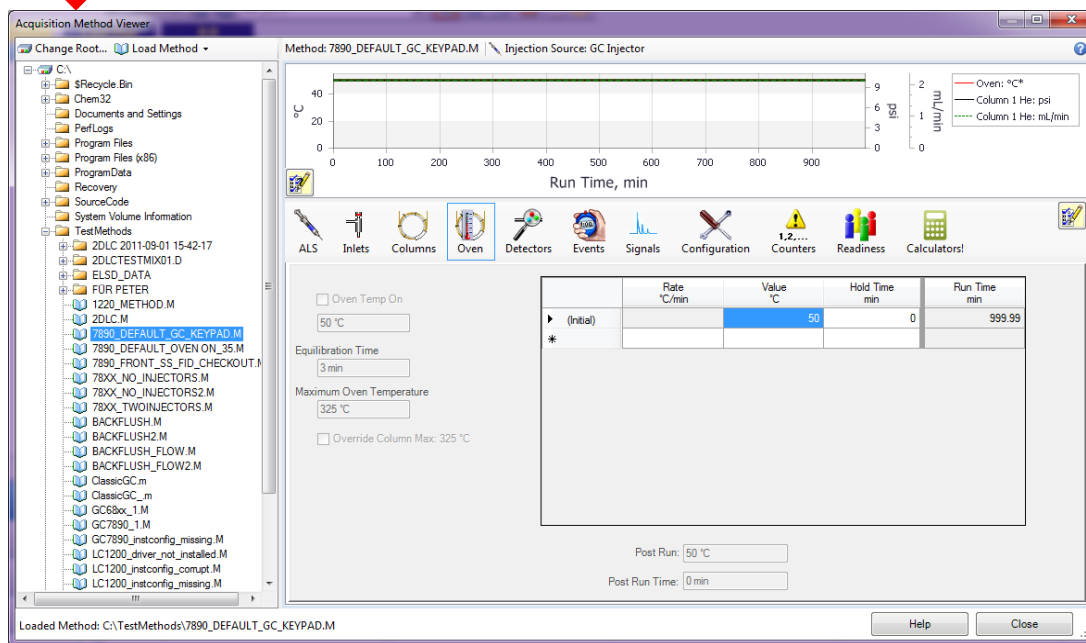
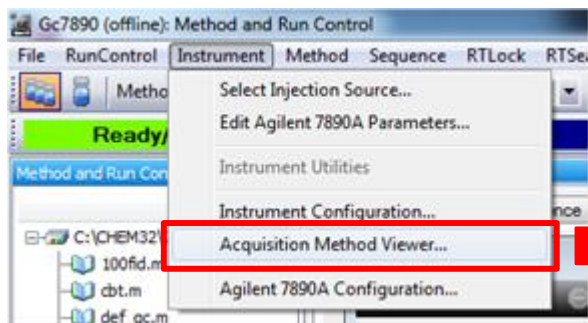
Problem

I need to review the Acquisition Method without downloading it to the instrument. I don't want to trigger Method Resolution.

Solution

The Acquisition Method Viewer provides a way to view the Acquisition Method.

Acquisition Method Viewer



Problem / Solution

Problem

I want to start OpenLAB CDS ChemStation without downloading a CDS method to the instrument.

Solution

Method Load Options at software launch

Method Download

- Upon instrument startup, users are given a choice:
 - download the ChemStation method to the instrument
 - upload the instrument method to ChemStation
 - create a new method from instrument method
- A differences viewer highlights the differences between the
- ChemStation method and the instrument method.

The image shows two overlapping software windows from Agilent 7890A.

The top window, titled "Method Differences Viewer", compares the "Agilent 7890A Method" with the "Instrument Method". It lists modules with differences and provides details for the "GC_TEST.M" method.

Module	Status	Details
Agilent 7890A Method	Changed	Column #1 (Initial) changed: 100 °C -> 70 °C.
Agilent 7890A Method	Changed	Column #1 Flow changed: 1.8786 mL/min -> 2.1627 mL/min.
Agilent 7890A Method	Changed	Column #1 Holdup Time changed: 1.4406 min -> 1.3608 min.
Agilent 7890A Method	Changed	Column #2 (Initial) changed: 100 °C -> 70 °C.
Agilent 7890A Method	Changed	Column #2 Flow changed: 1.6556 mL/min -> 1.9174 mL/min.

The "Method Details" section shows parameters for "GC_TEST.M" (100 °C for 60 min) and the "Instrument Method" (70 °C for 60 min). Key differences include Injection Volume (0.2 µL vs 2 µL) and Injection Repetitions (2 vs 1).

The bottom window, titled "Loading Method 'GC_TEST.M'", presents three options:

- Download to instrument**: Loads the last selected method to the instrument. The instrument settings will be overwritten.
- Upload from instrument**: Loads the method settings from the instrument into the last selected method. The last selected method will be marked as modified.
- New method from instrument**: Loads the method settings from the instrument into a newly created ChemStation method.

A red arrow points from the "Download to instrument" option to the "Method Differences Viewer" window.

Single Sample Workflow (1/2)

- The Navigation Table now shows the acquisition method as well as the data analysis method.
- A fly-over indicates the path to the data analysis method.

GC DA-only (offline): Data Analysis

File Method Sequence Recalculate Graphics Integration Calibration Report Batch View Abort Help

Signals Methods BENZINE.M (master)

Data Analysis

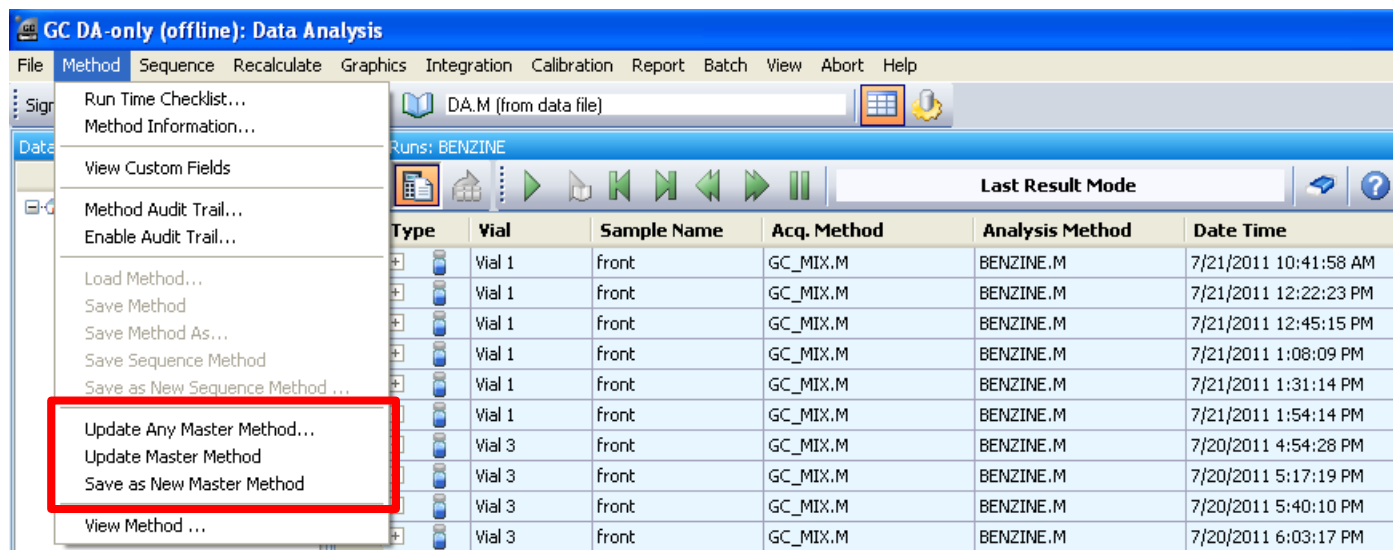
Single Runs: BENZINE

Recalculate Mode

Overlay	Type	Vial	Sample Name	Acq. Method	Analysis Method	Date Time
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	BENZINE.M	7/21/2011 10:41:58 AM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	BENZINE.M	7/21/2011 12:22:23 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	BENZINE.M	7/21/2011 12:45:15 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	BENZINE.M	7/21/2011 12:45:09 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	C:\Chem32\2\METHODS\BENZINE.M	7/21/2011 12:45:14 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 1	front	GC_MIX.M	BENZINE.M	7/21/2011 1:54:14 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 3	front	GC_MIX.M	BENZINE.M	7/20/2011 4:54:28 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 3	front	GC_MIX.M	BENZINE.M	7/20/2011 5:17:19 PM
<input type="checkbox"/>	<input type="checkbox"/>	Vial 3	front	GC_MIX.M	BENZINE.M	7/20/2011 5:40:10 PM

Single Sample Workflow (2/2)

- In the Last Result Mode it is now possible to save the data analysis parameters last used (from DA.M) to a master method.
- Update any master method with the data analysis parameters last used (from DA.M).
- Update the corresponding master method with the data analysis parameters last used (from DA.M).
- Combine the data analysis parameters last used (from DA.M) with acquisition parameters from any master method and save as a new master method.



For more explanation on the DA.M, please refer to the Tips and Tricks for C.01.03



Problem / Solution

Problem

I want to add another sample to be analyzed without writing a sequence file.

Solution

Single Sample Method Queue

Single Sample Queue

The screenshot displays the Agilent 7890 (online) Method and Run Control interface. A red arrow points from the 'Run Method' option in the 'RunControl' menu to the 'Run Queue' window.

RunControl Menu:

- Run Method (F5)
- Queue Method...
- Sample Info...
- Run Sequence (F6)
- Queue Sequence...
- Pause Sequence
- Resume Sequence
- Queue Planner...
- Stop Run/Inject/Sequence (F8)

Run Queue Window:

Active Queue: Data System Accepting Sequences

Sequences in the Active Queue: 1

Name	Time entered into Queue	Estimated Completion Time	Status
Sample 2	12/13/2012 1:49:12 PM		Running

Run	Location	Name	Method	Start Time	Status
1	Vial 1	Sample 2	DEMO_01.M	12/13/2012 1:...	Running

History Queue

Show Sequences that executed in the last 1 day

Name	Time completed	Status
Sample 2	12/12/2012 7:05:08 PM	Completed
DEMO_01	12/12/2012 7:00:49 PM	Completed
Sample 2	12/12/2012 6:50:46 PM	Completed

Run	Location	Name	Method	Start Time	Status
1	Vial 1	Sample 2	DEMO_01.M	12/12/2012 6:...	Complete
Sample 1				12/12/2012 6:47:28 PM	Completed
no Sample Name				12/12/2012 6:40:51 PM	Completed
Sample 1				12/12/2012 6:36:57 PM	Completed

Problem / Solution

Problem

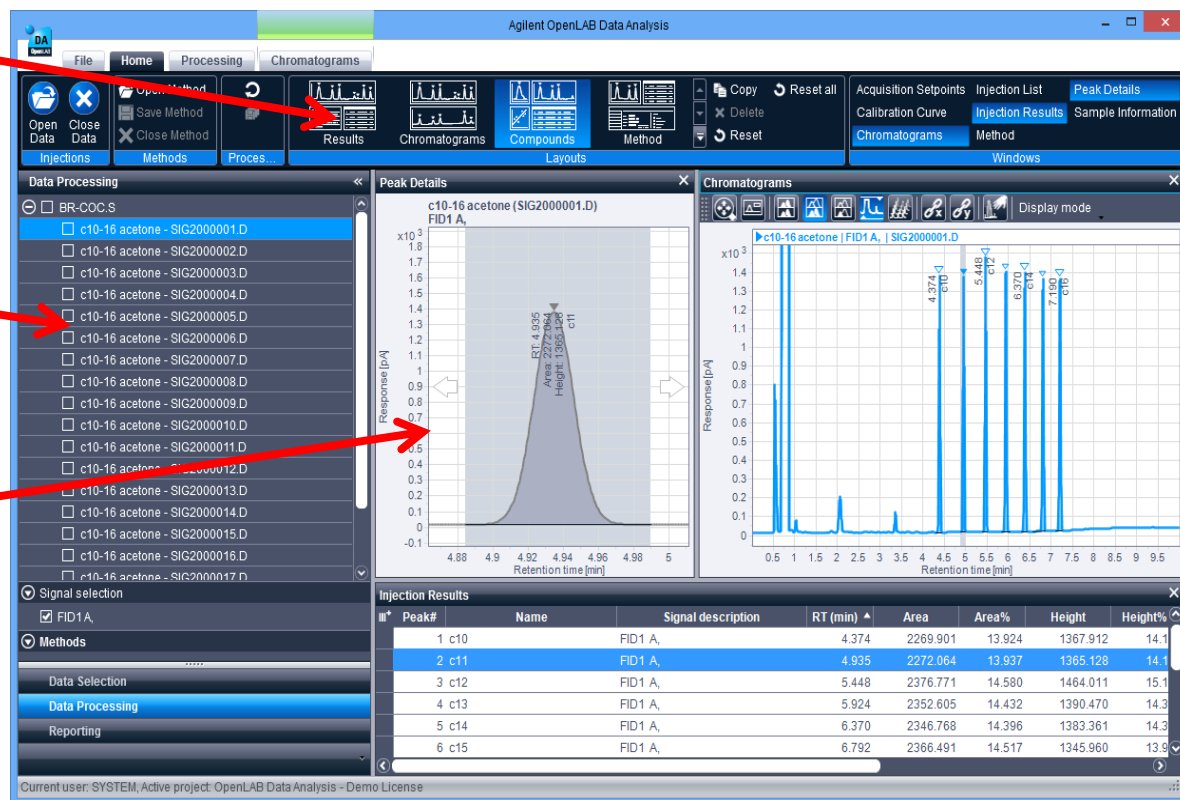
- I need to get the final data/report before the shipment can go out.
- I need to process more samples in a day.

Solution

OpenLAB Data Analysis Package

OpenLAB Data Analysis

- Customized layouts: User selects which windows and items they want to view. They are persisted even if the software is closed.
- Use “up” and “down” arrows to review all the samples in the result set in a few minutes.
- Peak detail: View each peak in the sample in a zoom-in.
- 40 times faster than previous versions of MT ChemStation.



Problem / Solution

Problem

- I need to get the final report before the shipment can go out.
- I need to process more samples in a day and get the reports.

Solution

OpenLAB CDS Intelligent Reporting

OpenLAB CDS: Intelligent Reporting

The screenshot displays the OpenLAB CDS software interface. On the left, a 'Report Items' pane lists various report components that can be dragged and dropped into a report template. The main area shows a preview of a 'Sequence Summary Report' for 'DAD1: A, 254.4 Ref=500.20 (DemoData 1.D)'. The report includes three chromatograms (N/A, N/A, N/A) and a table of results for 'Sample 1' through 'Sample 6'. The table columns are 'Sample Name', 'Tramadol Wt', 'Tablet Wt', '% Target', and 'Pass/Fail'. The report also includes a 'Description' and 'Acq. Date'.

Report Items:

- Chromatograms
 - 2 Page Chromatogram
 - Multi Signal Plot Overlay
 - Multi Signal Plot Separated
 - Parameterized Chromatogram
 - Single Signal Plot
 - System Suitability Plot
- Tables
- Peaks and Compounds
- System Suitability
- Matrices
- Sequences
- Samples
- Calibration Curves
- Spectra
- Fields
- Special Objects
 - Text
 - Image
 - Live System Values
 - Signatures
- Charts
 - Area Stability per Compound
 - Calibration Accuracy
 - Compounds per Injection
 - Max Peaks
 - Retentiontime Stability of all Comp
 - Retentiontime Stability per Compound
 - Simple Chart
- Method Information
 - Instrument Modules
 - Method Information Basic

Sequence Summary Report
Creation Date: 8/11/2010 11:13:11 AM

Sequence Summary Report
Creation Date: 6/9/2010 8:55:42 PM

Sequence: LIR-2007-1 2009-10-15 10-23-32
Description: First Sequence for Agilent OL Reporting
Acq. Date: 2/27/2007 11:43:47 AM
Acquired by: R. Honsberg

Sample Name	Tramadol Wt	Tablet Wt	% Target	Pass/Fail
Sample 1	1007.385	1110	100.7	Pass
Sample 1	1007.929	1110	100.8	Pass
Sample 2	1008.274	1120	100.8	Pass
Sample 2	1009.424	1120	100.9	Pass
Sample 3	1011.853	1003	101.2	Fail
Sample 3	1014.773	1003	101.5	Fail
Sample 4	1010.703	1205	101.1	Fail
Sample 4	1012.401	1205	101.2	Fail
Sample 5	1008.512	1170	100.9	Pass
Sample 5	1007.758	1170	100.8	Pass
Sample 6	1012.742	1111	101.3	Fail
Sample 6	1015.278	1111	101.5	Fail

New custom reporting application – embedded into OpenLAB CDS

Easily include graphics such as your company logo

Embedded custom calculation functionality to calculate final results – here %label claim

Intelligent Reporting: Including limit checks into report
Decision-based result representation (pass/fail)

Intuitive report template generation with drag & drop and interactive report preview functionality

Pre-configured report items (tables, graphics, matrices) make it easy to generate custom reports

All current reporting options in ChemStation and EZChrom remain available



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OpenLAB CDS A.01.05 for GC Users
January 2013

Problem / Solution

Problem

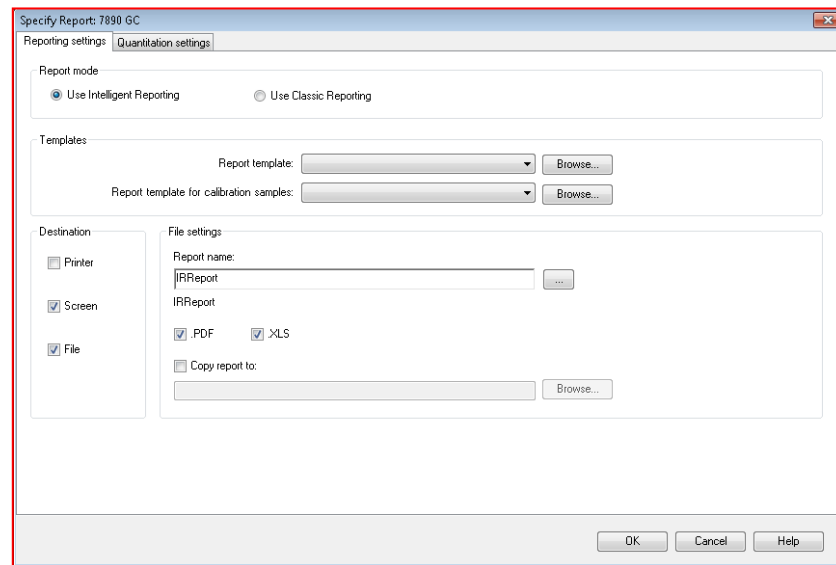
- I need to be able to easily create reports with statistical calculations.
- I want to highlight results that need a reviewer's attention.

Solution

OpenLAB CDS Intelligent Reporting

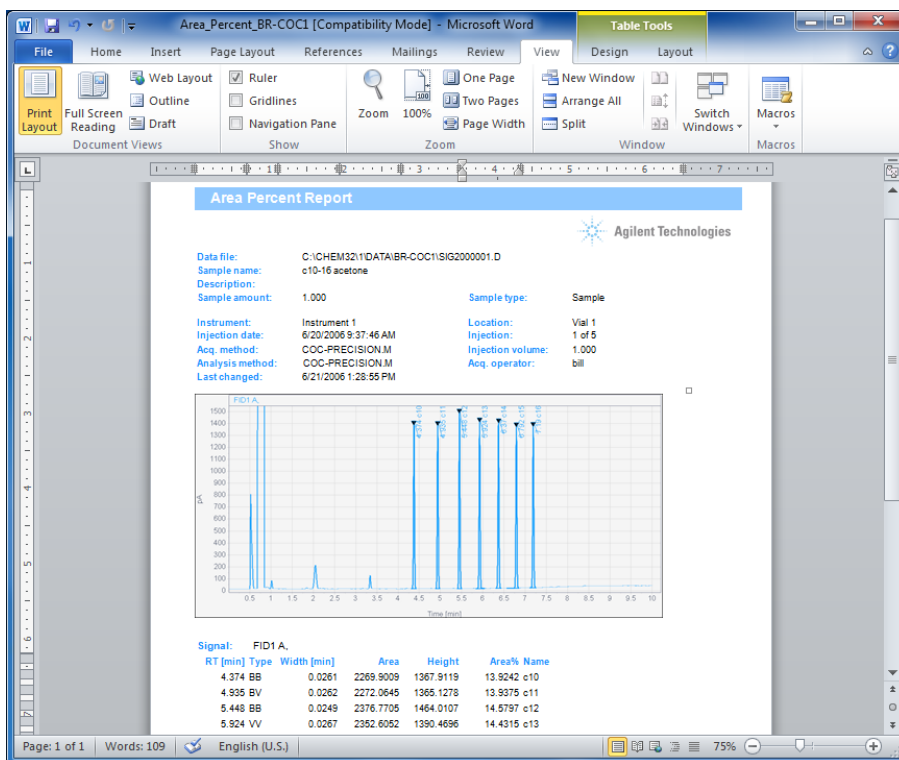
OpenLAB CDS: Intelligent Reporting

- Intuitive Customized Reports
- Calculations
 - Statistical Calculations (Sum, RSD, Average)
 - Custom Calculations
- Set limits to flag data
- Report output formats *.pdf, *.xls, *.doc and *.txt.
- Save a copy of the single injection report to another location



Export report as DOC and TXT (ChemStation Edition only)

- Export report as Word (*.doc) and Text (*.txt) (ChemStation Edition only)
- Word format can be used to include reports in SOP's or other publications
- Text format allows easy transfer of results into other systems
- Manual or automatic export



Problem / Solution

Problem

I want to easily adjust multipliers when creating the report.

Solution

OpenLAB CDS Intelligent Reporting: User-entered parameters

Intelligent Reporting: Report parameters

- Create/Edit report parameters as part of report properties
- Allow user to enter values during rendering
- Use of report parameters in expression editor (calculations, sorting, filtering etc.) allows to user to interact with the report content and change the behavior without changing the template

Report Properties

Report

Calculation Variables

Report Parameters

Customize Report Parameter related settings

Report Parameter Properties

Report Parameter_0

Properties

Parameter name : Report_Parameter_0

Data type : Integer

Prompt name : Multiplier

☐ Internal ☐ Multi-Value

Available Values

Label	Value
10	10
20	20
30	30

Default Values

10

View Report

OK Cancel Apply

Report Parameters

Multiplier 20

10

20

30

View Report

Display user-entered parameters

Agilent Technologies

Name	RT [min]	Area	Amount [ng/ul]	Multiplier	Amount (corrected)
c10	4.374	2269.9009	98.903	20	1978.06
c11	4.935	2272.0645	98.416	20	1968.32
c12	5.448	2376.7705	98.062	20	1961.24
c13	5.924	2352.6052	98.184	20	1963.69
c14	6.37	2346.7683	97.81	20	1956.20
c15	6.792	2366.4912	97.659	20	1953.19
c16	7.19	2317.2615	97.757	20	1955.15

Use user-entered parameters in calculations

Problem / Solution

Problem

I need to control cost in my laboratory when printing out reports.

Solution

OpenLAB CDS Intelligent Reporting: Double-row tables allow you to create paper-saving reports.



Intelligent Reporting: Double Row Table

- Allow to design tables with two headers and two detail rows
- Summary calculations for both detail rows
- Especially useful for reports where you want to fit a lot of information onto one page

Multiple Table Rows

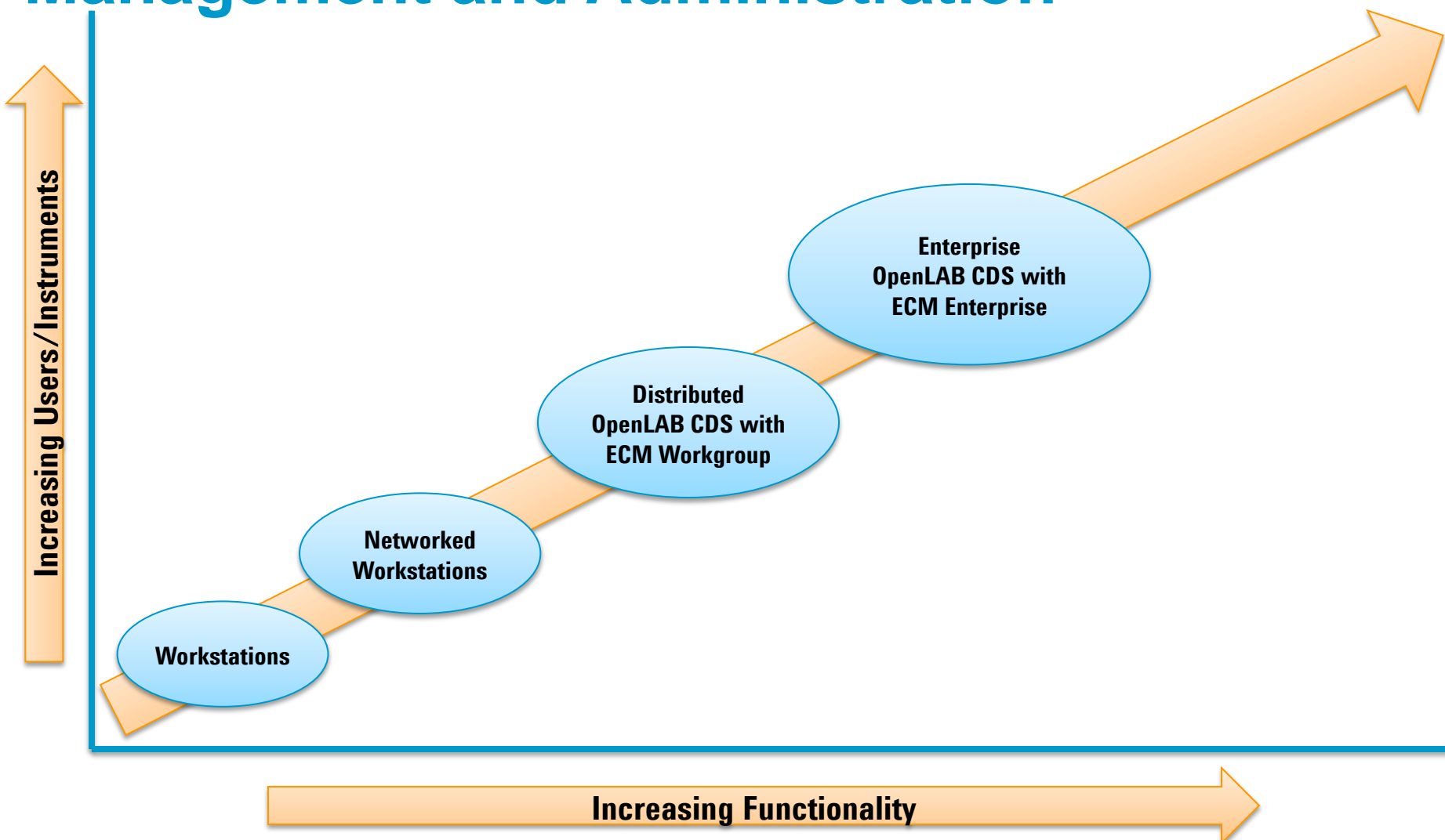
☒ Enable Additional Header Row

☐ Enable Additional Detail Row

Single Injection Report						
Name	RT [min]	Area	Height	Area %	Height %	Amount [ng/ul]
		Signal Desc.	RF			
c10	4.374	2269.9009	1367.9119	13.92	14.16	98.903
		FID1 A,	0.04357			
c11	4.935	2272.0645	1365.1278	13.94	14.13	98.416
		FID1 A,	0.04332			
c12	5.448	2376.7705	1464.0107	14.58	15.15	98.062
		FID1 A,	0.04126			
c13	5.924	2352.6052	1390.4696	14.43	14.39	98.184
		FID1 A,	0.04173			
c14	6.37	2346.7683	1383.3612	14.40	14.32	97.81
		FID1 A,	0.04168			
c15	6.792	2366.4912	1345.9601	14.52	13.93	97.659
		FID1 A,	0.04127			
c16	7.19	2317.2615	1345.5991	14.21	13.93	97.757
		FID1 A,	0.04219			

In addition.....

OpenLAB CDS: Scalable in Storage, Lab Management and Administration



OpenLAB CDS: Networked Workstation Configuration

OpenLAB CDS Configurations: Networked workstation



- **Instrument Control:** Local on each workstation
- **Administration:** Central in OpenLAB Core Server Software
- **Storage:** Local on each workstation
- **Benefits:**
 - Central administration for all users, licenses and all user privileges
 - Status information in lab-at-a-glance view from all instruments connected

Fits well with:

- Laboratories with many instruments and few users, budget-controlled
- Laboratories looking for central lab monitoring without putting their instruments on the network

OpenLAB CDS Networked Workstation with OpenLAB ECM configuration

OpenLAB CDS Configurations: Networked workstation with OpenLAB ECM



- **Instrument Control:** Local
- **Administration:** Central
- **Storage:** Central (OpenLAB ECM)
- **Benefits:**
 - Central administration (users, licenses, user privileges)
 - Instrument status information (lab-at-a-glance view)
 - Result data available from anywhere
 - Storage in central OpenLAB ECM with database storage

Fits well with:

- Laboratories who need GLP/GMP compliance and central storage
- Laboratories looking for central lab monitoring without putting their instruments on the network and have a need of database storage

Problem / Solution

Problem

- I cannot afford to duplicate work one of my colleagues has already done.
- I need to securely store my data for a set period of time.

Solution

OpenLAB Data Store allows you to centrally store your data, share it with colleagues, backup and archive.

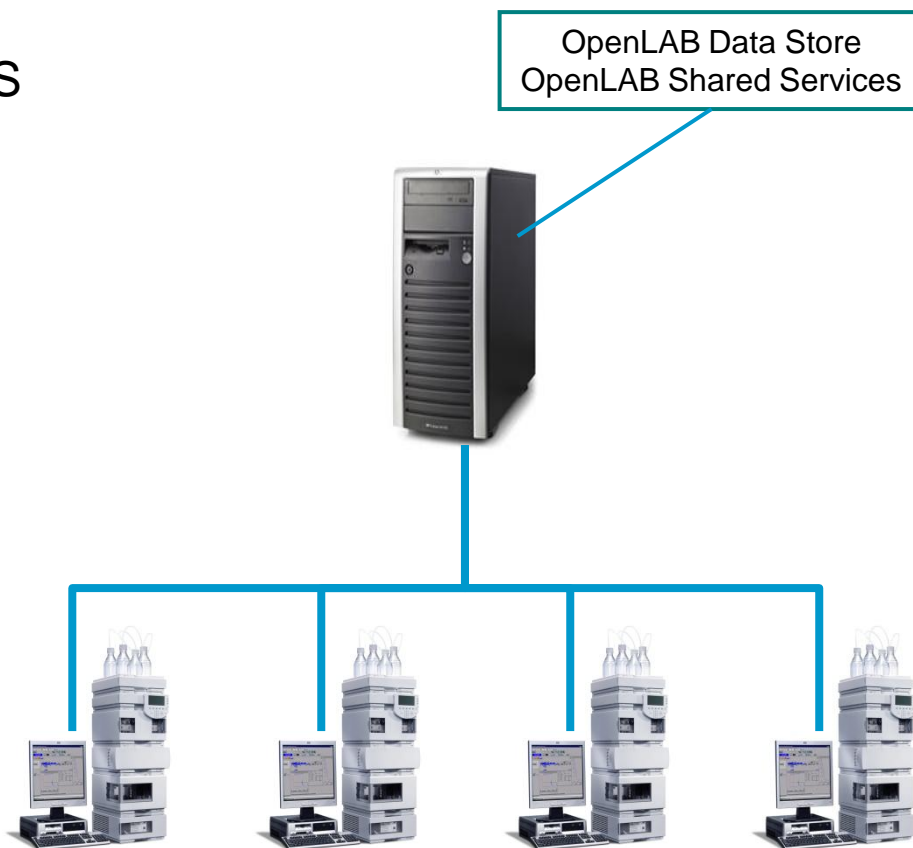
OpenLAB Data Store – Central Data Storage for OpenLAB CDS

Efficient Data Storage and Retrieval

- ✓ Centralized Storage for OpenLAB CDS
- ✓ Project-based organization and user privileges (EZChrom)
- ✓ Efficient search and retrieval of files
- ✓ Local Language Support (Chinese & Japanese)

21 CFR Part 11 Compliant

- ✓ Built to support FDA regulations
 - ✓ Data Integrity and Traceability
 - ✓ Electronic Signatures
 - ✓ Archival Capabilities



For More Information ...



For more information, check the Agilent web site
or contact your Agilent sales representative.

