

# Streamline your Laboratory with Chromatography Data System Software

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### Streamline Your Laboratory

Maximize Your Lab Productivity



#### Up to 30% efficiency gain

Save 5–60 min per sequence using smart processing tools

Get more "right-the-first-time" analyses with intelligent functionality

Network-independent data acquisition for 24/7 uptime

Simplify Your Lab Workflows



#### **Faster, simpler workflows**

Roll out methods faster with Chromeleon eWorkflows™

Simplify method development with parameter-less integration

Faster results with instant reporting

Reduced number of tests with MS

Lower Your Cost of Ownership



# Scalable deployment with easy maintenance

Single software for all instruments reduces training and admin

Leverage existing IT infrastructure
Simplified administration

Link to existing software systems for seamless data flow

Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System (CDS) Software





# Streamline Your Laboratory



# Boosting Lab Productivity



Simplifying Lab Workflows



Reducing Costs







### **Translating Operational Simplicity into Lab Productivity**

- Operational Simplicity concept:
- ✓ Minimize steps needed to perform any task
- ✓ Make all steps easy to understand and easy to use
- ✓ Minimize the time it takes to perform any task
- Significant productivity gains reported by range of customers from different industries
- In addition, productivity gains have been verified by direct competitor comparison
  - Head-to-head comparison of the same tasks (prescribed by customer) in each CDS









### Boosting Lab Productivity - Competitor Comparison

#### **WORKFLOW STEPS FOR SEQUENCE CREATION & RUN**









### Boosting Lab Productivity – Getting It Right The First Time

### Getting analysis right first time automatically gives:

- ✓ High quality of and confidence in results
- ✓ Lower cost of analysis
- √ Improved lab efficiency
- √ Faster release to market and return on investment



### **Predictive Performance**

 Analysis more likely to complete first time



### **ICH Method Validation Templates**

 Robust method more likely to run first time



#### **eWorkflows**

✓ Create correct sequence first time, every time



### Sequence Ready Check

✓ Confirms sequence will run to completion



### **Smart Startup**

✓ Ensures first injection is always good



### **System Suitability Tests**

✓ Gives highest confidence in results



### **Intelligent Run Control**

Get right results, no out of specinvestigations



### Report Templates with Report Check

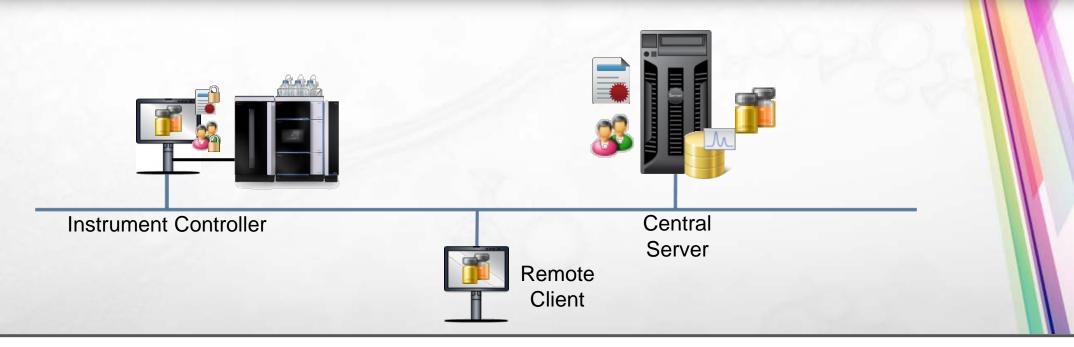
 Correct calculations give high confidence in results







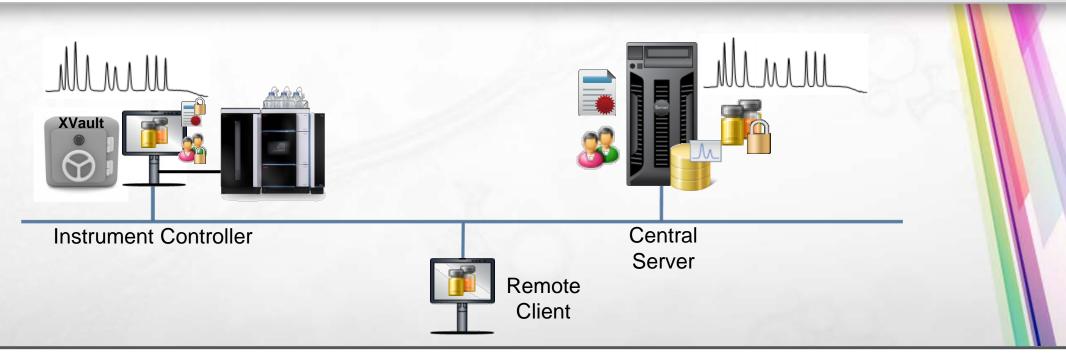
- ✓ Software license always available
- ✓ Users can always log on
- ✓ Users can continue working
- ✓ No loss of data being generated during a network failure







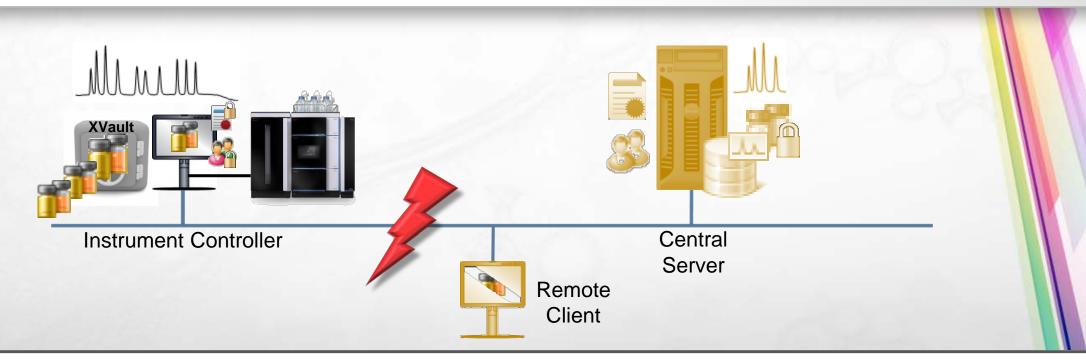
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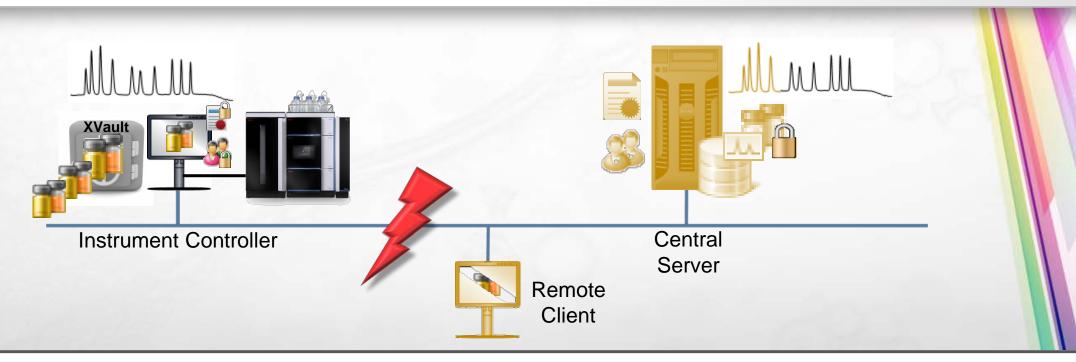
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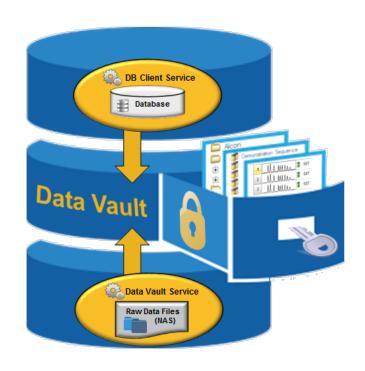
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Chromeleon Domain Concept: Logically separating administration and data management





Benefits: Superior user experience, unmatched uptime (fail-over in emergency case) and central administration







# Boosting Lab Productivity

# **Chromeleon CDS increases** your lab productivity!

- Operational simplicity delivers ease of use, saving time, effort, and training costs
- Suite of intelligent tools work together, ensuring more right-thefirst-time analyses saving time and cost
- True 24/7 laboratory uptime with outage protection for maximum utilization of resources and faster return on investment







### Streamline Your Laboratory



# Boosting Lab Productivity



# Simplifying Lab Workflows



Reducing Costs







# Simplifying Lab Workflows – Sequence Creation

- Most components of analysis are already in the CDS
- Many areas where manual sequence creation causes errors
- How do you ensure that your sequence is created and structured correctly?
- How do you know you have the right methods and report?
- How can you simplify analysis setup and execution?

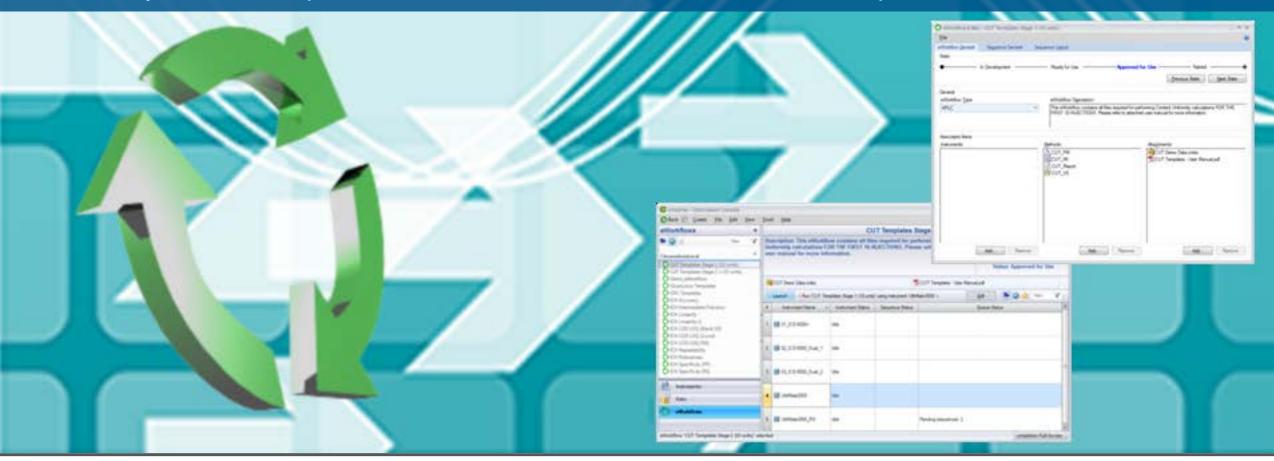
Chromeleon eWorkflows for fast, easy, accurate sequence creation







- Electronic procedure automating lab processes related to a chromatographic analysis
- Assists user in creating an appropriate sequence for a suitable instrument with pre-defined associated files and a well-defined structure
- Guides you from samples to reliable results in minimum number of steps







### eWorkflows contain:

- Instruments on which the analysis can be run
- All associated files:
  - Instrument methods
  - Processing methods
  - Reports
  - Spectral libraries
  - External documents (e.g., the SOP!)
  - Template for sequence name and storage location
  - Custom variables
  - Signature requirements
  - Launch message to user
  - Rules for sequence layout

- Ensure your SOP is followed
- Reduce errors and produce reliable results faster
- Fully customizable for any application in any laboratory
- Minimize amount of training required







- Easy method distribution
  - eWorkflows Category
    - Once saved appears automatically
    - Control via filters and access groups



- ewfx Backup File
  - External to Chromeleon CDS
  - Can email and import



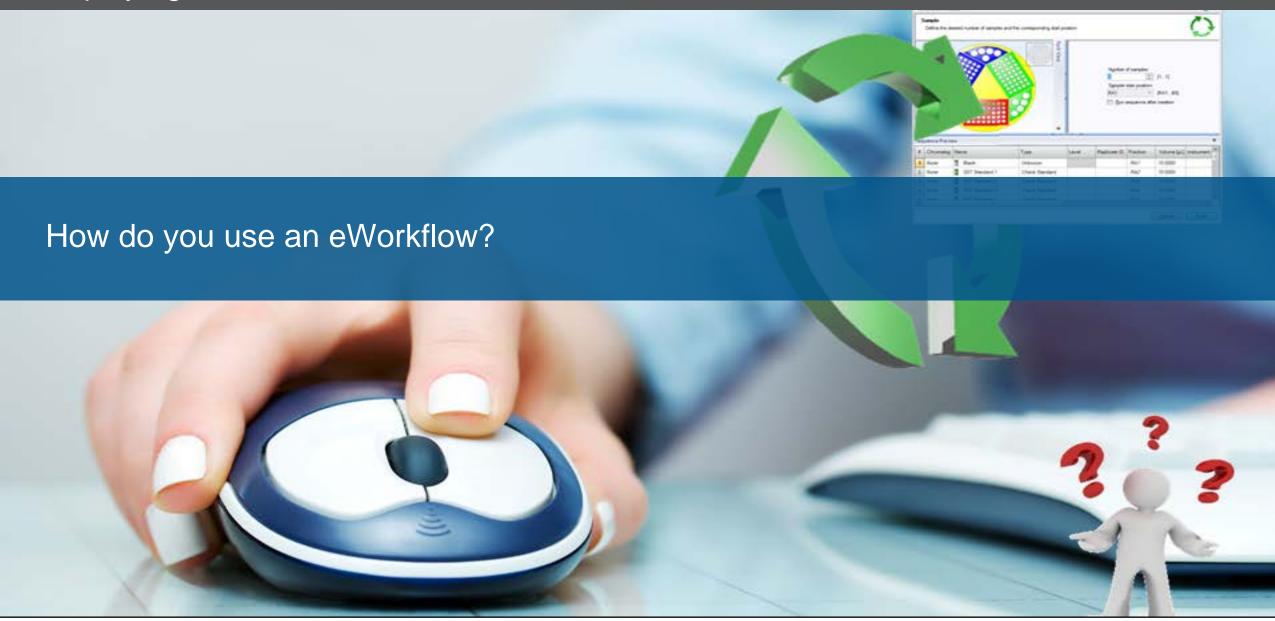
- AppsLab Library of Analytical Applications
  - Repository of methods
  - Contain eWorkflows ready to download and run















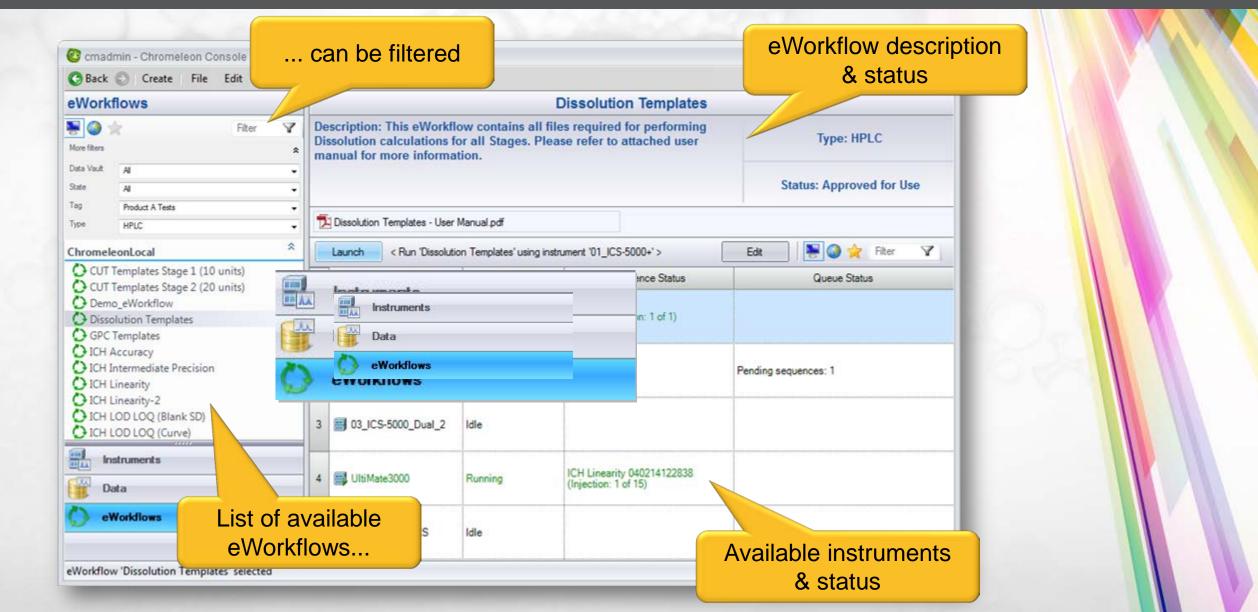
- Category bars in the Chromeleon Console
- Provide immediate access to all your instruments, data and eWorkflows







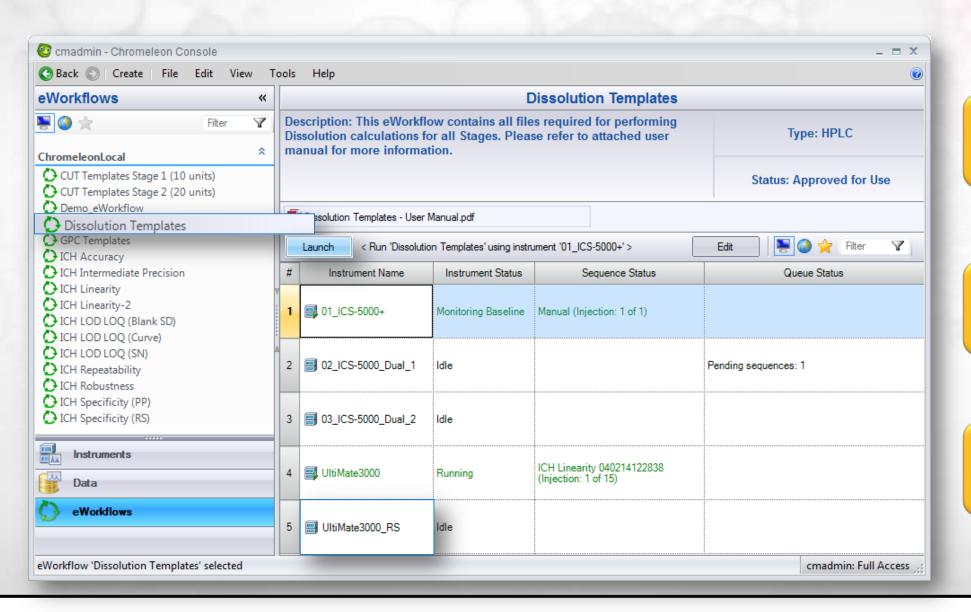












1. Select eWorkflow

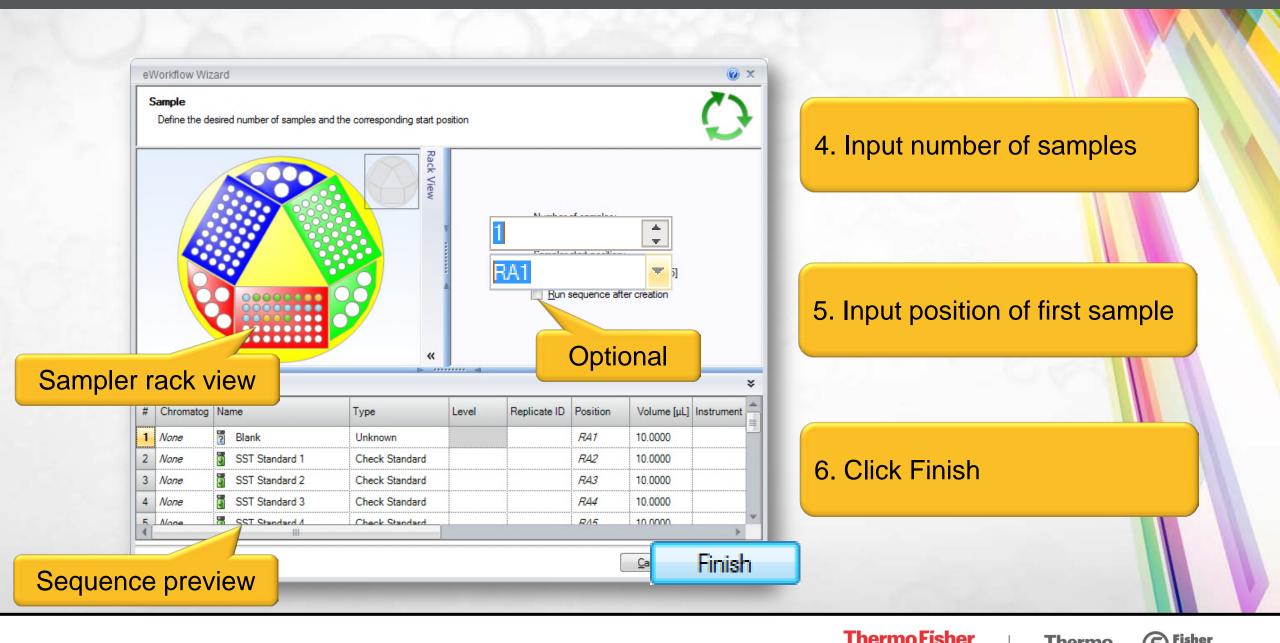
2. Select Instrument

3. Click Launch

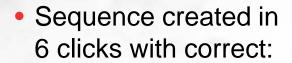






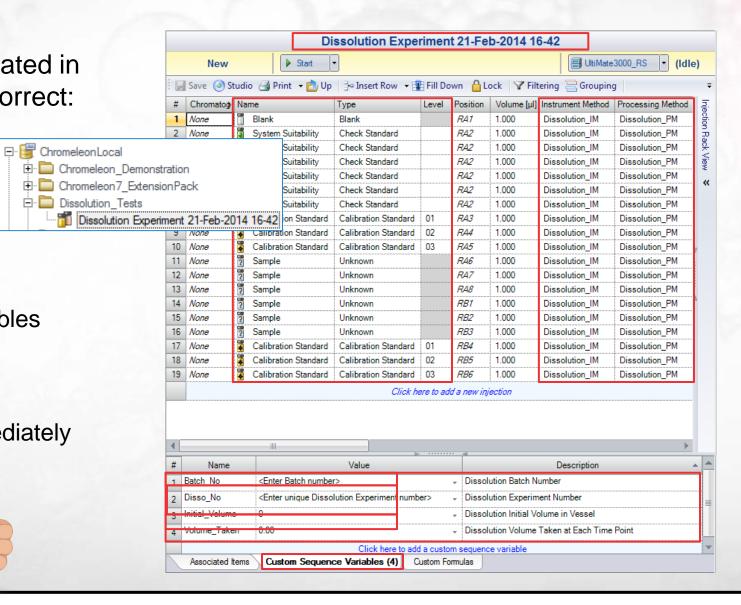


Scientific



- Name
- Location
- Methods
- Report
- Structure
- Custom Variables
- Plus:
  - SOP attached
  - Can run immediately









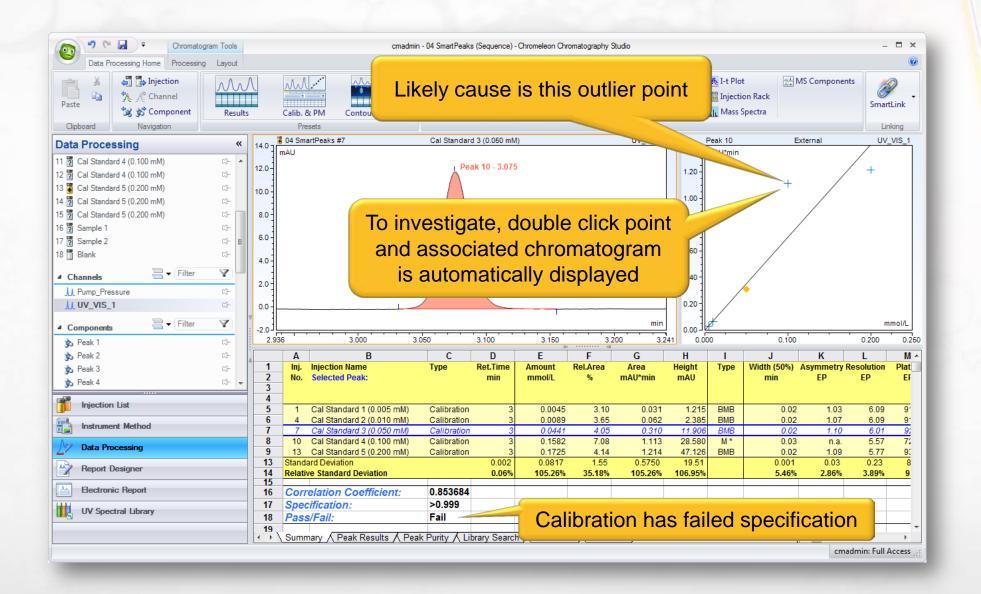


- Instant data processing and reporting
- Parameter-less integration
- Smart integration tools





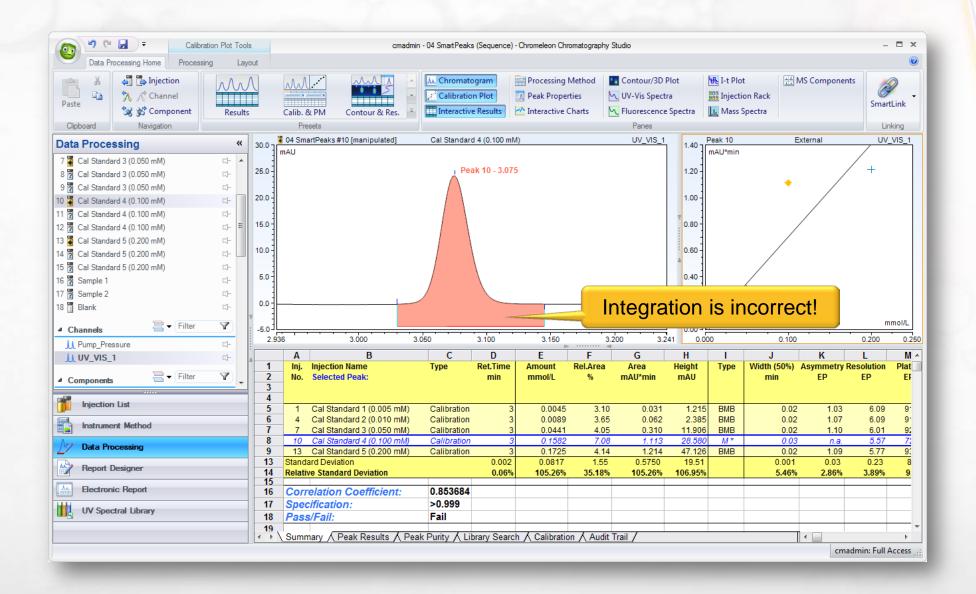








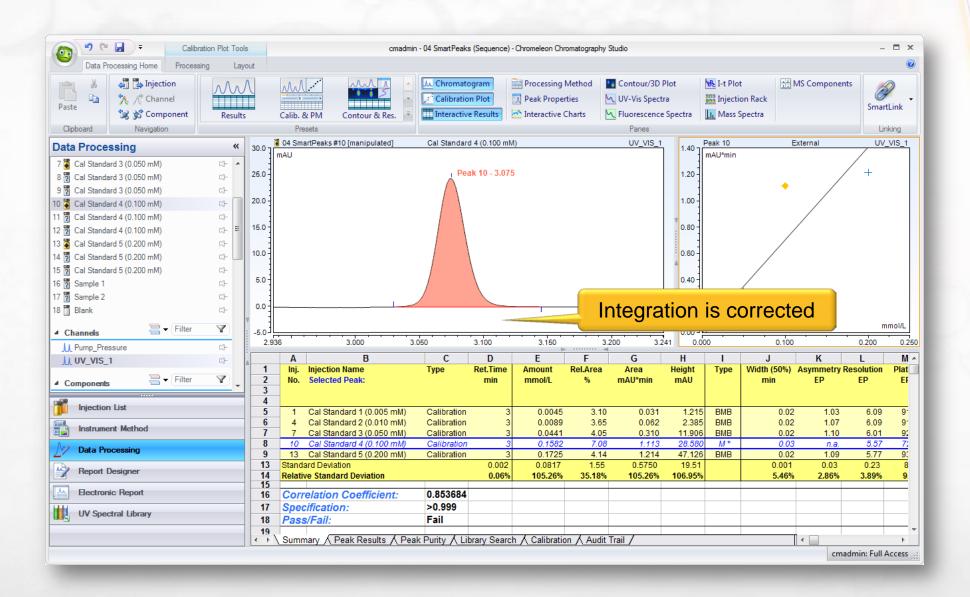








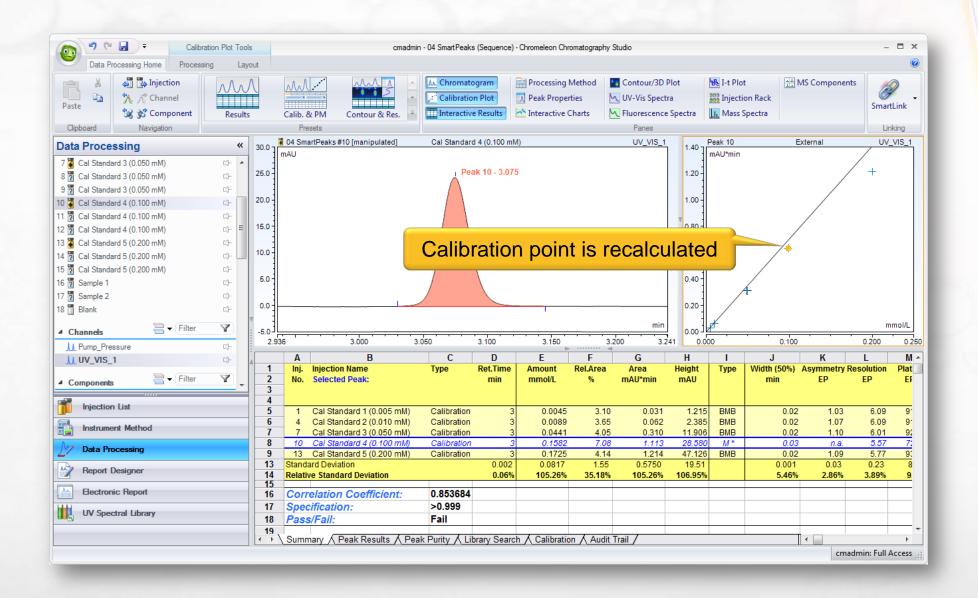








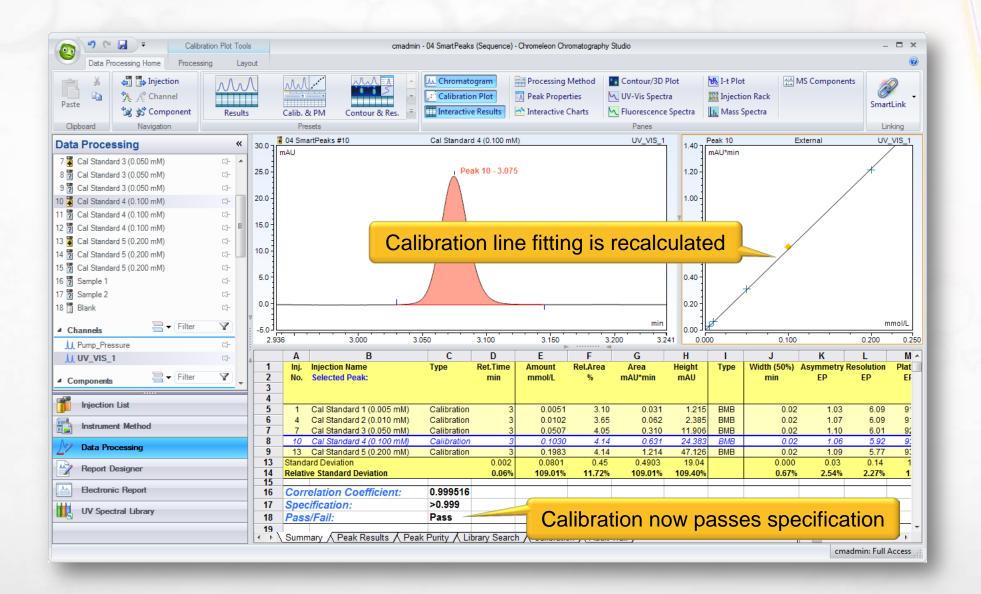










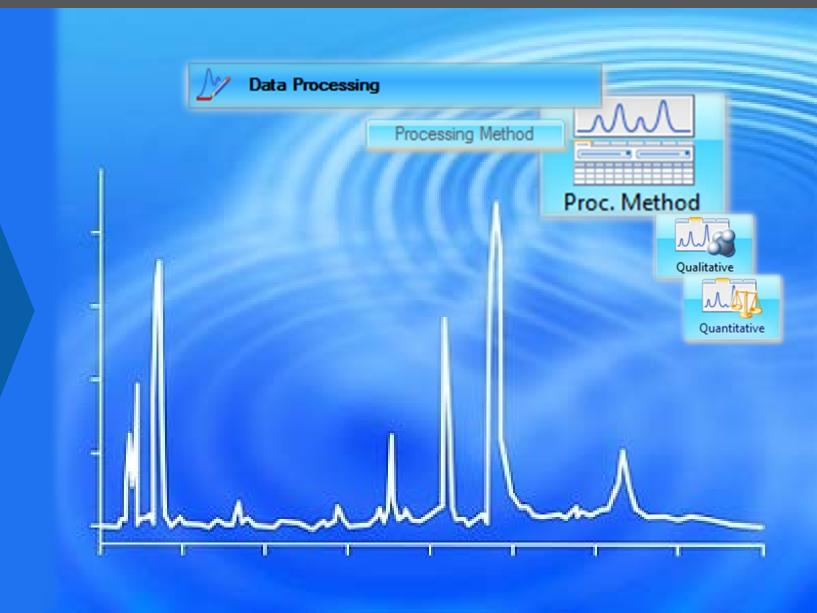








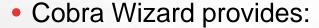
- Cobra™ peak detection algorithm detects true underlying baseline and integrates automatically
- Cobra wizard for assisted refinement of integration
- ✓ SmartPeaks<sup>™</sup> Integration Assistant for consistent unresolved peak handling







- Cobra is an algorithm that:
  - Finds peak start/end times accurately and consistently
  - Accurately determines "true" underlying baseline
  - Often requires no further parameters to reach integration goal



- Fast, guided way to determine initial detection parameters
- Just 5 steps to achieve integration goal



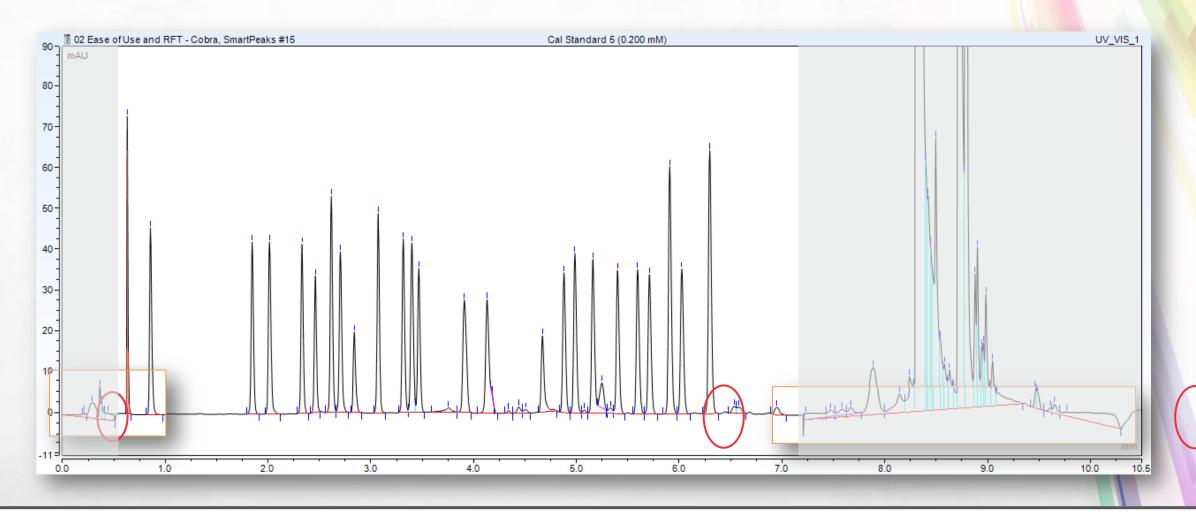






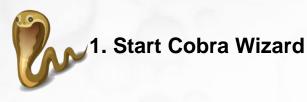


### Parameter-less first pass Cobra integration

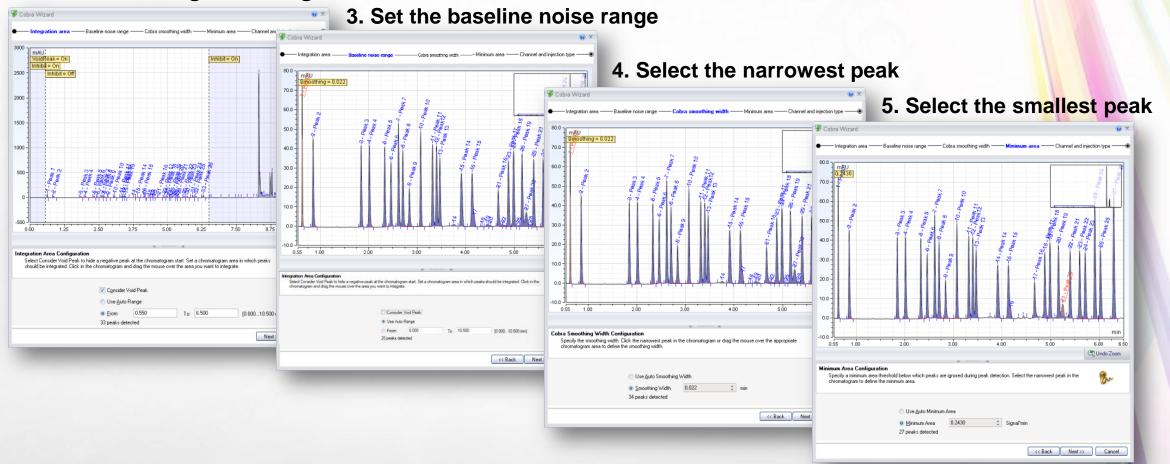






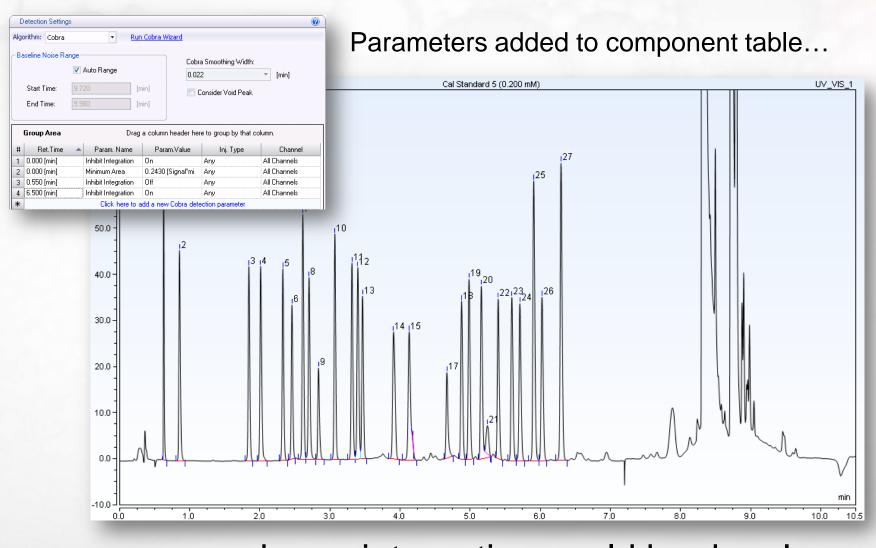


2. Define the integration range









... and your integration could be done!



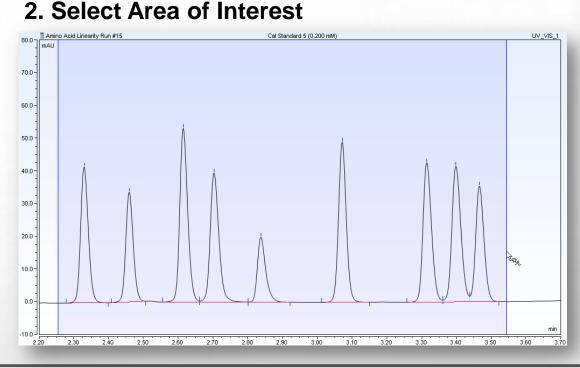




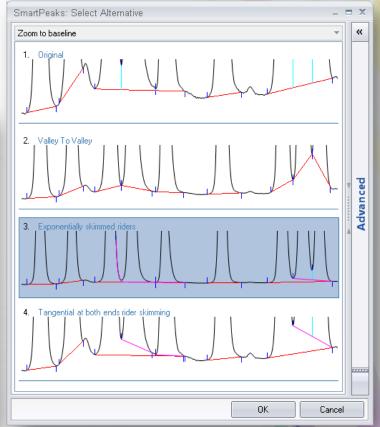
- SmartPeaks unique tool for easily reaching your integration goals for unresolved peaks
- Great example of Operational Simplicity
  - Process is clear and understandable requires no training
  - Only a few steps
  - Correctly integrates all unresolved peaks in seconds

# 1. Activate SmartPeaks Wizard





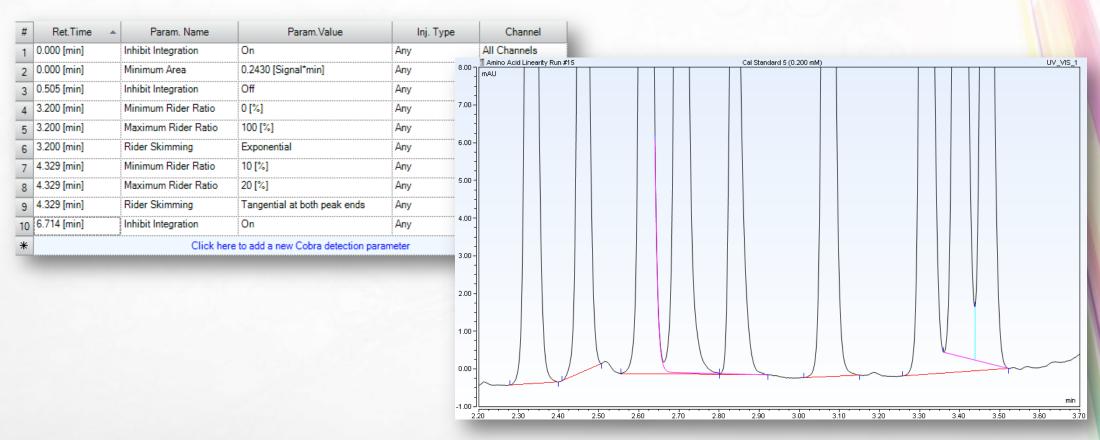
### 3. Select the Integration you Want







- Parameters added to component table
- Changes apply to ALL chromatograms in sequence



Your integration is done!



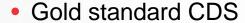




#### Simplifying Lab Workflows – Mass Spectrometry







- Scalable enterprise architecture
- Unparalleled ease-of-use
- Strong quantitation functionality
- Comprehensive auditing and data management







- Complete, integrated MS systems
- Highest sensitivity and selectivity
- Confident identification, deep characterization and precise quantification
- Unrivaled MS application expertise
- Streamline chromatography and MS quantitation workflows in one software package
- ✓ Use MS like any other routine detector







### Simplifying Lab Workflows – Mass Spectrometry

	Multi-Attribute Method			Conventional Release Methods				
Antibody PQA	Pep Map-MS	SEG	CEX	rCE-SDS	nrCE-SDS	HILIC	ID EUSA	HCP ELISA
Aggregate Assessment	N	Y	Indirect	Υ	Υ	N	N	N
Deamidation (Isomerization) Assessment	Υ	N	Indirect	N	N	N	N	N
Disulfide Isoform Assessment	maybe	N	Indirect	N	Υ	N	N	N
Glycation Assessment	Υ	N	N	Υ	Υ	N	N	N
High Mannose Assessment	Y	N	N	N	N	Υ	N	N
Methionine Oxidation Assessment	Y	N	N	N	N	N	N	N
Signal Peptide Assessment	Υ	N	N	N	N	N	N	N
Unusual Glycosylation Assessment	Υ	N	Indirect	maybe	maybe	Υ	N	N
CDR Tryptophan Degradation Assessment	Υ	Indirect	N	N	N	N	N	N
Non-consensus Glycosylation Assessment	Y	N	N	maybe	maybe	N	N	N
N-terminal pyroGlutamate Assessment	Υ	N	Indirect	N	N	N	N	N
C-terminal Lysine Assessment	Υ	N	Υ	N	N	N	N	N
Galactosylation Assessment:	Υ	N	N	N	N	Υ	N	N
Dimer Assessment	N	Y	N	N	N	N	N	N
Fragmentation (peptide bond) Assessment	maybe	maybe	N	Υ	Υ	N	N	N
Disulfide Reduction (DS Fragmentation) Assessment	maybe	N	N	N	Υ	N	N	N
Host Cell Protein Assessment	Υ	N	N	N	N	N	N	Υ
Mutations/Misincorporations Assessment	Υ	N	N	N	N	N	N	N
Hydroxylysine Assessment	Y	N	N	N	N	N	N	N
Thioether Assessment	Υ	N	N	N	N	N	N	N
Trisulfide Assessment	maybe	N	N	N	N	N	N	N
Non-glycosylated Heavy Chain	Υ	N	N	N	N	N	N	N
DNA Assessment	no	N	N	N	N	N	N	N
Cysteine Adducts Assessment	maybe	N	maybe	N	N	N	N	N
C-terminal Amidation Assessment	Υ	N	Indirect	N	N	N	N	N
CDR Conformers (HIC Isoform) Assessment	no	N	Indirect	N	N	N	N	N
O-linked glycans Assessment	maybe	N	N	N	N	N	N	N
Fucosylation Assessment	Υ	N	N	N	N	N	N	N
Residual Protein A	Υ	N	N	N	N	N	N	N
Identity	Υ	N	Υ	N	N	N	Υ	N







#### Simplifying Lab Workflows

# Chromeleon CDS simplifies your lab workflows!

- eWorkflows deliver operational simplicity, reproducibility, and easy method distribution
- Parameter-free integration with instant reporting gives ease of use saving time and effort
- Unique integration of MS can reduce number of tests, simplify workflows and give faster return on investment







#### Streamline Your Laboratory



## Boosting Lab Productivity



Simplifying Lab Workflows



Reducing Costs







#### Reducing Costs – Single Software Platform

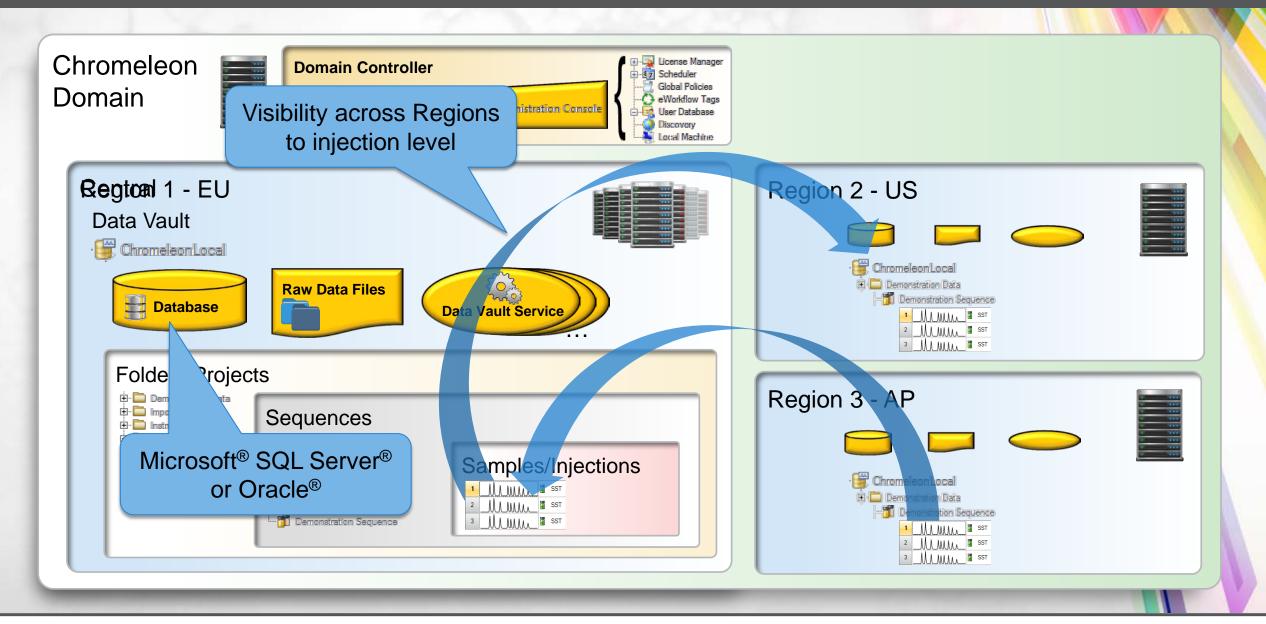
- One software platform for the whole lab
  - Control over 450 different modules from 17 different manufacturers including:
    - Thermo Scientific (LC, IC, GC, MS, Sample Prep)
    - Agilent (LC, GC)
    - Waters (LC)
    - Shimadzu (LC, GC)
    - Varian (LC, GC)
    - Perkin Elmer (LC, GC)
    - Gilson (LC)
    - CTC PAL (Sample Prep)
- ✓ Reduced training
- ✓ Reduced administration
- ✓ Reduced infrastructure







### Reducing Costs – Simplified Administration and Scalability







#### Reducing Costs – Seamless Data Flow

Chromeleon CDS to Thermo Scientific™ SampleManager ™ LIMS Software link

This link gives users ability to:

- See real time information like instrument status & queue in LIMS
- Select samples in LIMS & use eWorkflows to create sequence
- Pull LIMS samples into existing sequence from Chromeleon CDS
- Show Chromeleon CDS results directly in LIMS

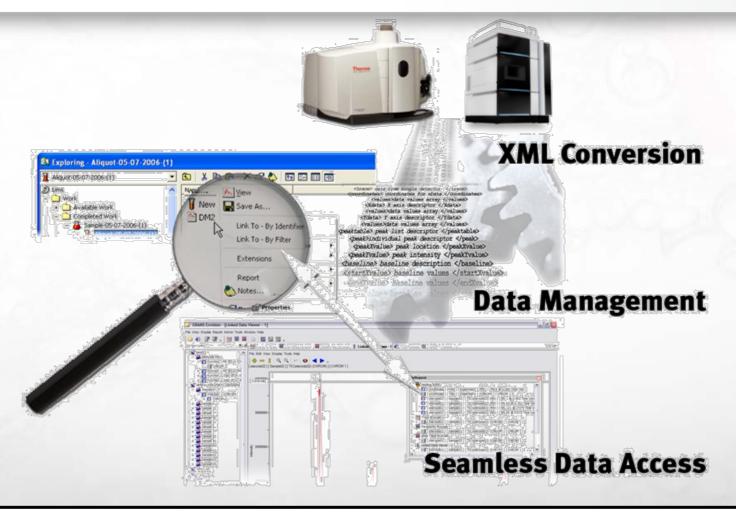






#### Reducing Costs – Seamless Data Flow

Thermo Scientific<sup>™</sup> DataManager<sup>™</sup> Software provides secure, future-proofed data archival and management.



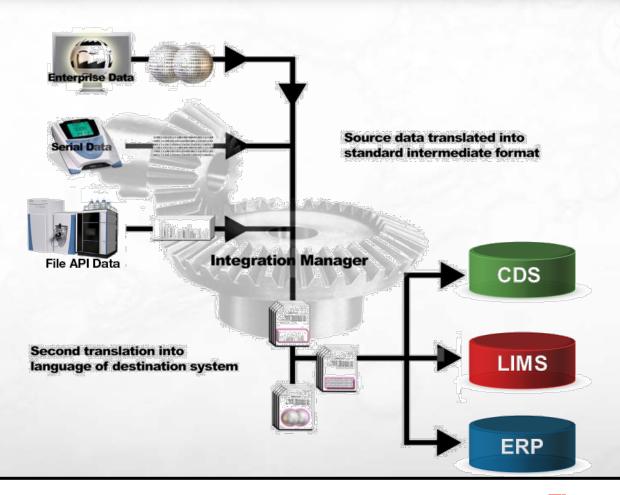






### Reducing Costs – Leverage Existing Infrastructure

Thermo Scientific™ Integration Manager provides bi-directional interfaces between Chromeleon CDS and existing business systems, e.g., LIMS, SAP, etc.





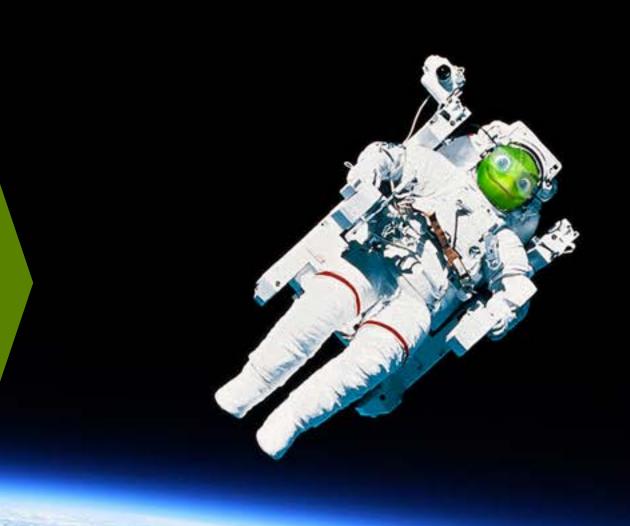




### Lowering Cost of Ownership

## Chromeleon CDS lowers your cost of ownership!

- ✓ Single software platform reduces admin, training and infrastructure costs
- Leverage existing infrastructure
- ✓ Unique integration to informatics products and existing software systems can deliver seamless data flows saving time and cost







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Single software for all instruments reduces training and admin

Leverage existing IT infrastructure
Simplified administration

Link to existing software systems for seamless data flow

Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System (CDS) Software





For more information about Chromeleon 7.2 CDS or to request a Demo CD, visit:

#### thermoscientific.com/Chromeleon

Like Charlie Chromeleon on Facebook to follow his travels and get important updates on chromatography software!



facebook.com/CharlieLovesChromatography







Now, please join me in the Chromeleon CDS section of our booth and I will address any further comments and questions.





