



Capabilities for large networks

A Chromatography Data System (CDS), whether deployed as a network or enterprise, is vital for compliant, efficient and reliable operation of any modern laboratory – it will manage all of the analytical processes from instrument control to raw data storage and processing, right through to generating the final results.

Centralized but devolved administration tools reduce time spent on system administration. Maximize laboratory productivity with enhanced communication and system availability with the benefits delivered by Chromeleon CDS.

Delivering these capabilities across a network brings a unique set of challenges regarding performance, data transfer and data security. Thermo Scientific™ Chromeleon™ CDS has been designed and optimized to overcome them.



The Chromeleon software architecture can connect multiple sites and locations to a central data center with the same performance as a fully local operation. With future-proofed architecture, Chromeleon CDS can be deployed with physical, virtual, on-premise or cloud-based servers.



One software does it all

Licensing only one software is the most cost-effective solution, especially when client licenses are distributed on a concurrent basis, like with Chromeleon CDS. The initial investment in client licenses is only required to cover the number of users operating the system at any one time.

A key-based licensing system provides independence from the infrastructure (physical, virtual, on-premise or cloud) without the need for a physical dongle and provides an easy way to expand the license pool. When working in multiple sites with various Organizational Units (OU), license features can be assigned either globally or to a specific OU, for improved administration. An additional advantage is the reduction in infrastructure, installation, validation and maintenance that comes from only having a single software platform.

Manage Licenses

Code	Status	Version	Org. Unit
CME111002.PWWE.BPF7.E67.A2PR.1FLH.WMT5.VCSX.677U.B11M.RKDB.SJF3.KPKL.ME05.43YW	Activated	7.3.1	<Global>
CME999997.BUVS.AHWH.SQAM.ASTF.VCRH.UEDA.NUEH.NKCA.DG8A.B3NU.S4MR.ZNGA.XC4U.UMD7	Activated	7.3.1	Aly
CME111001.KS2L.K1M8.S3ER.K2TU.R9RM.NEJH.KCFA.PC3J.MERF.CW69.648B.ABIC.UHEP.NWVE.XV15	Activated	7.3.1	<Global>
CMA7110115.0BMA.HMDY.FL9D.ZCF4.LSRK.4C1H.VD94.DQ3A.WN9R.R93A.2R2B	Activated	7.3.1	Aly
CMA7000115.341E.J3GQ.YRED.BV19.KTRN.7MWW.MDL4.EY3N.SHJF.DH57.535V.HQ29	Activated	7.3.1	Aly

Chromeleon Administration Console (LKALT-Z9FNKCZ)

Feature	Total	Granted	In Use	Available
Client Licenses				
Data Client	106	1	1	105
Instrument Operation	106	1	1	105
Compliance Tools	26	1	1	25
Report Designer Pro	26	1	1	25
Virtual Column Basic	26	1	1	25
Virtual Column Complete	26	1	1	25
SDK Developer	35	1	1	34
SDK Runtime	35	1	1	34
Standard Instrument Integra...	0	0	0	0
Non-targeted MS Data Proc...	45	1	1	44
Chromeleon AFS	45	0	0	45
Intact Protein Decomvolution	20	1	1	19
Instrument Controller Licenses				
Instrument Controller	89	2	1	87
DDK Developer	25	0	0	25
Instrument Class 1	170	8	7	162
Instrument Class 2	174	2	2	172
Instrument Class 3	70	0	0	70



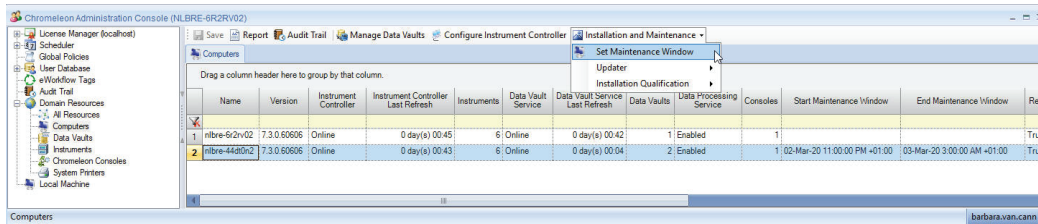
Centralized Administration

In an Enterprise installation, the Chromeleon Administration Console can be accessed from anywhere in the Chromeleon Domain, so it's one "admin portal" that can be accessed from any local or remote location, which allows for easy and secure administration. This includes licensing, user and resource management, scheduling tasks, for example for archival, and configuration of the Discovery Service.

It provides comprehensive user management tools for the creation of users, roles and access groups, allowing a granular refinement of what users can and cannot do and access.

The Administration Console allows administrators to schedule system maintenance and automatically schedule and rollout software updates, as well as installation qualifications. With one click on the Resources node, it's possible to have a glance how many Chromeleon CDS sessions are active, who the users are, and if instruments are running, so users can be warned before any maintenance window is set.

This reduces time spent on performing these tasks and minimizes downtime in the laboratory and enables smooth operation, lowering the administration cost.

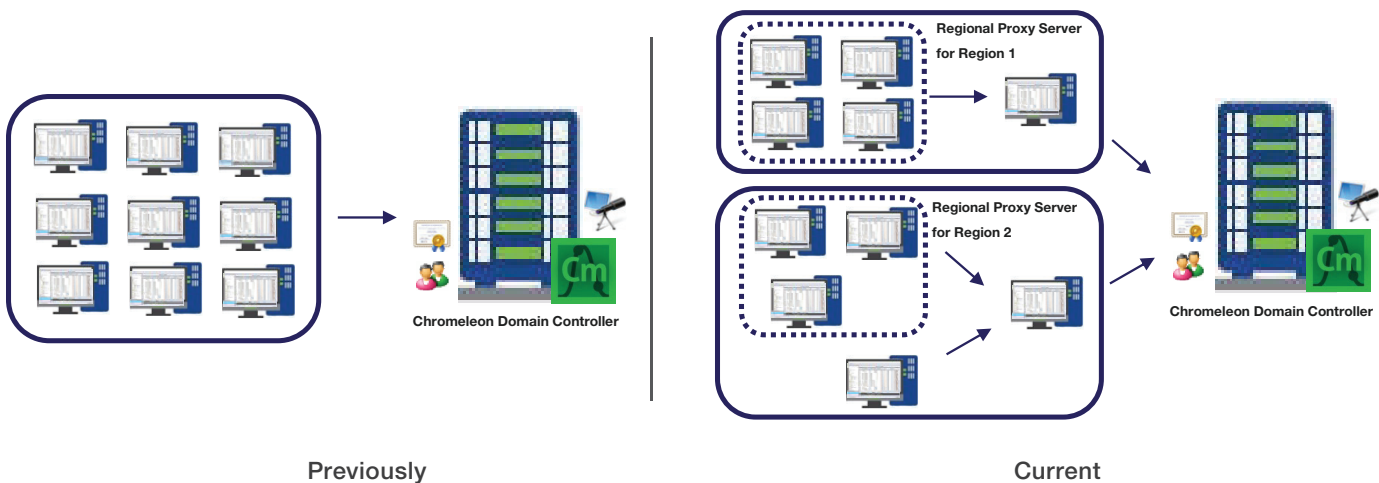


Load balancing of domain resources

In a Chromeleon Domain, the Chromeleon Domain Controller and its services are involved in gating access control for users and instruments.

In a large Enterprise deployment, regional servers can be used to reduce the network traffic between the Chromeleon Workstations and the Chromeleon Domain Controller.

If a region is created, the performance of the Chromeleon Domain Controller is improved by decreasing the load it needs to handle related to discovery of Domain resources, which allows the Chromeleon Domain to easily scale beyond 1000+ of connected users/instruments/workstations without affecting performance and network stability.



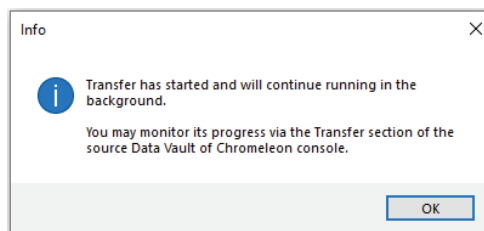
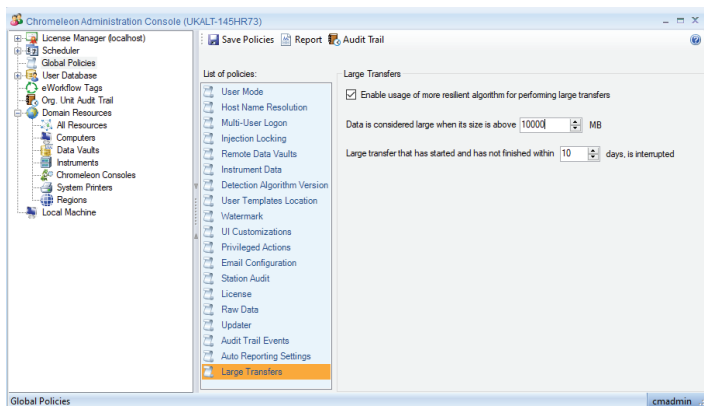


Quick and secure transfers of large data sets

With version 7.3.2, Chromeleon CDS significantly improved the speed and security of transferring large amounts of data between Data Vaults by using an additional algorithm that optimizes the time required to move big data sets, such as mass spectrometry (MS) data.

The Large Transfer option is activated in the Chromeleon Administration Console by selecting the corresponding checkbox and specifying the size of the data that is considered large. If OUs are enabled, you may also determine the policy settings for individual OUs, allowing different organizations in your network with different speeds of file transfer to meter what that network would consider a 'large file'.

All Transfers will occur in the background, freeing the user interface during the process, minimizing system downtime, and delivering operational efficiency.

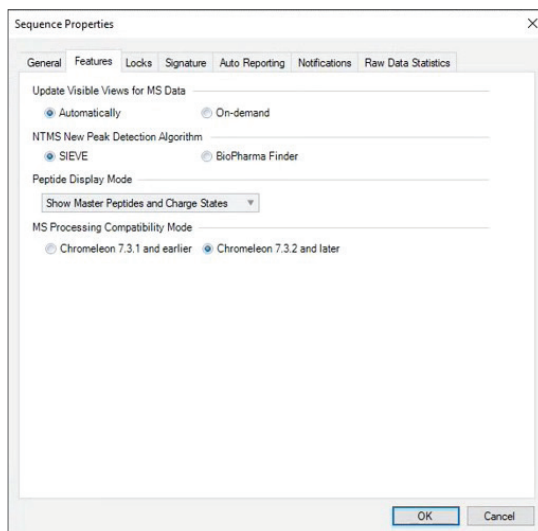


Improved performance and responsiveness

With version 7.3.2, Chromeleon software introduced a powerful client/server data processing service that leverages the power of 64-bit services for an optimized user experience when processing MS data. This service provides access to processing data remotely on a server.

For best efficiency, the computer responsible for data processing (i.e., Terminal Server) should be hard-line connected to the Enterprise Raw File Server.

Processing large data sets asynchronously decreases the overhead in the Chromeleon Client, reducing its memory usage and improves response time for visualizing results.





Network Failure Protection

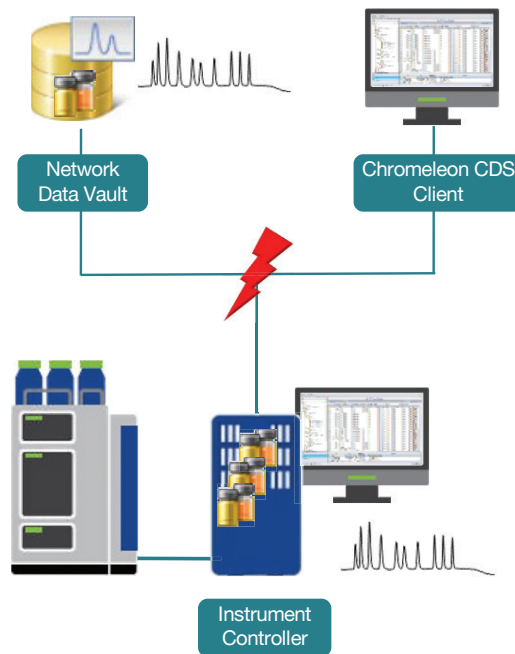
In a network environment, ensuring business continuity and preventing data loss or corruption during a network or central resource outage is key to maintaining laboratory operations, data integrity and compliance. Chromeleon CDS provides unique, industry-leading Network Failure Protection (NFP) functionality to deliver 24/7 uptime.

All information required to properly operate the system, like license information and user data, is securely cached on local Instrument Controllers and Clients and in case of network outage, laboratory operation can continue uninterrupted for up to 7 days.

Chromeleon software's unique XVault™ technology ensures continuous operation of the laboratory. During data acquisition, sequences are always run on the XVault, which is present on the local Instrument Controller, and the data is synchronized centrally.

In case of network failure, NFP mode is immediately enabled and data acquisition simply continues, with the data stored on the local computer. This data can be easily accessed for processing and reporting and further sequences can be started if required.

After network recovery, the data is automatically uploaded and synchronized to the central server ensuring data security, data integrity and compliance. Any new sequences initiated while in NFP mode can be uploaded within the Chromeleon Client, ensuring data integrity and compliance.



Conclusion

With a low cost of implementation and ownership, Chromeleon CDS delivers the best tools for network stability, central data storage and load distribution. It also enables quick and secure transfers of large data files across the lab network without affecting the end user experience, ensuring that the lab is always up and running.

It can be easily deployed in a large multi-site environment to streamline administrative oversight and increase collaboration and data sharing, all while ensuring continued performance with a consistent end-user experience.

Instrument connectivity and data acquisition are streamlined through a load balancing of domain resources, allowing for more efficient control of data flowing across the network and delivering improved system resilience and the highest level of data security.

Expanding your business operations can present many challenges. With Chromeleon software you can overcome them.

Built for Stability. Built for Performance.

With no compromise.



Learn more at thermofisher.com/chromeleon

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