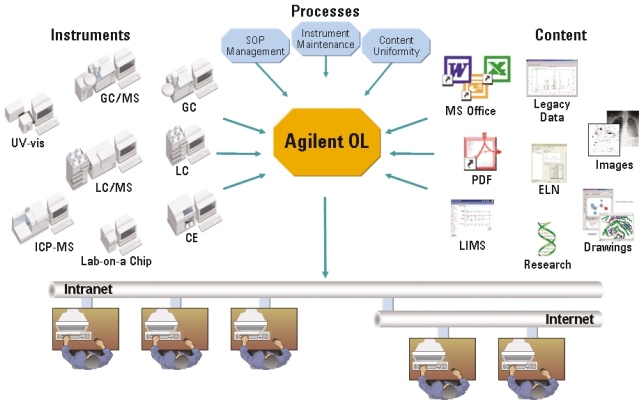
Agilent OL - General Features and Benefits

Key Benefits

- Manage all laboratory content including information from Microsoft Office applications, Adobe PDF files, even e-mail.
- Control over 300 analytical instrument modules from 26 different manufacturers through Web clients.
- Provide laboratories with an archiving strategy for all laboratory information from instruments, end users, and laboratory workflow operations.
- Automate and manage laboratory workflows and SOPs.
- Control access to all laboratory information safely and securely to facilitate sharing and collaboration.
- Satisfy compliance issues ranging from GLP/GMP to 21 CFR Part 11.

What is Agilent OL?

Agilent OL, Operating System for the Laboratory, from Agilent Technologies provides a new approach to instrument control and data management in the laboratory. More than a Chromatography Data System (CDS), a Laboratory Database System, or a LIMS, Agilent OL is a revolutionary new operating system for managing laboratory instruments, content, and work processes. Designed as a modern .NET framework and utilizing years of experience in developing instrument control and laboratory software, Agilent OL is a scalable solution for laboratories seeking a computing strategy to make laboratory data more protected, secure, accessible, and ultimately, more valuable for everyone.



Agilent Technologies

A Scalable, Modern Computing Architecture

The Agilent OL Operating System for the Laboratory uses an advanced computing architecture to accommodate the laboratory environment. Users operate from Web clients to conveniently control instruments, monitor laboratory runs, review data, and perform database queries. Instruments connect to the software framework through Agilent Instrument Controllers (AICs), enabling each instrument to be network controlled. Instrument runs are automated and controlled by AICs so that even if the network becomes inoperative, the AICs can continue to control and run the instruments, buffering and storing instrument data in each AIC's flash memory. Agilent OL's unique Content Management System supports an N-tier storage architecture, supporting industry-standard online archiving devices, such as network SANs and IBM Tivoli, to provide any laboratory's IT department with a highly flexible way to archive and back up the massive amounts of Agilent OL laboratory data.

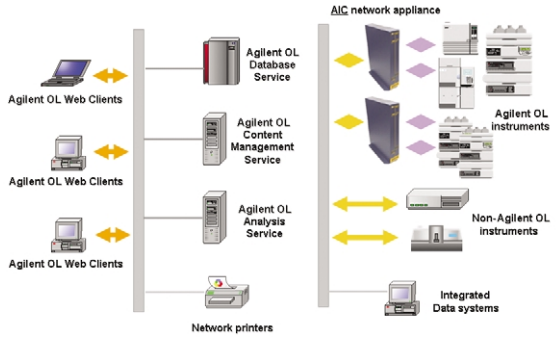


Figure 1. Agilent OL's unique architecture provides direct control of multi-vendor instruments through web clients. Direct control of instrument status, real time data acquisition, and data handling/processing control is available for a variety of different equipment from leading hardware manufacturers.

Support for Multi-Vendor Instrumentation

Today's laboratory is heterogeneous with instruments from a wide variety of different manufacturers. Agilent OL's unique instrument control architecture enables an unsurpassed level of multi-vendor instrument control. This allows Agilent OL users to work from web clients on the laboratory network to fully control each instrument through software. Users can create complex automated pump and temperature programs and program detector controls, and set autosampler operations as part of the overall software method. They can track and record all changes in the instrument with each result as part of an unambiguous and fully traceable audit trail, and flexibly monitor real-time instrument status from anywhere in your company's computing network. These benefits and more come from the powerful integrated instrument-control capability in Agilent OL. At present, over 300 different HPLC, GC, and related chromatography modules from 26 different manufacturers are controlled through Agilent OL.

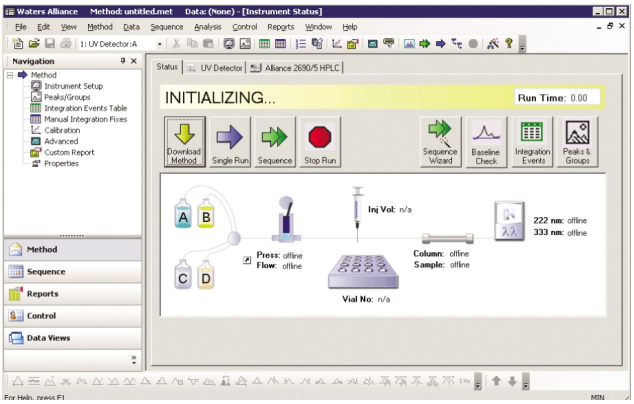


Figure 2. Agilent OL's flexible design allows integration of all laboratory sources of informatin so that electronic content (reports, results, electronic files, etc.) is safely and securely organized and protected in a modern Enterprise Content Management system. All information is centrally protected, stored, archived, and made available for collaboration and sharing.

Protect and Secure Data with Lab-Wide Content Management

Incorporating Agilent's powerful content-management technology, Agilent OL can manage all electronic information and content from laboratory instruments, users, and work processes. The Agilent OL operating system can fully protect and secure all electronic information, including that from proprietary third-party data systems and instruments. Instrument raw data and results, files from desktop applications such as Microsoft Word or Excel, graphic images, Adobe PDF files, and even e-mail can be put into the secure, organized repository of Agilent OL's operating system. All information becomes fully searchable and protected. *If it's electronic, Agilent OL can handle it.*

Centralized Management for Laboratory Content

Laboratory content can be placed into the Agilent OL operating system in a variety of flexible ways. Agilent OL Scheduled Import Services can be used to conduct unattended automated record transfers on a scheduled basis. Laboratories can simply add the desired appropriate Scheduled Import Services for their particular laboratory operation, set them up, and within minutes they will be running background services to ensure that all desired content is put into the Agilent OL repository. Third-party instruments under the control of proprietary data systems can completely integrate into Agilent OL through the use of these Scheduled Import Services.

Agilent OL instrument parameters and results can be placed directly into the operating system as part of the instrument-control method without the need for scheduling. This allows laboratories a highly flexible and convenient way to organize instrument results into "locations," "cabinets," "drawers," and "folders" in the Agilent OL content organization. Content created from Agilent OL instruments is immediately put into a repository, safely and securely. Both

human- and machine-read information can be directly handled this way in Agilent OL. In addition, Agilent OL has a variety of other flexible ways to collect laboratory content from user operations. The optional Agilent OL Desktop Client application provides a special toolbar that can be installed on Microsoft Office, Adobe Acrobat, and Microsoft Outlook, so that users running these highly popular applications can perform "Open" and "Save" operations directly into the Agilent OL content repository. There is no need to perform separate Open/Saves to a local hard drive and subsequent scheduling actions — end users can have immediate and direct access to Agilent OL from within popular software applications.

Search and Share Key Information

What good are laboratory results that you can't find? How much insight are you missing because you can't search for data across different instrument types and projects? How much time are you losing trying to share information with different laboratory users? As an informatics software framework, Agilent OL makes all the information it manages fully searchable and shareable.

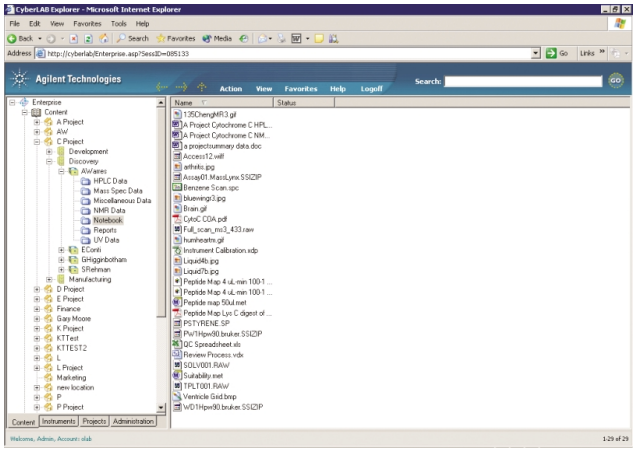


Figure 3. Agilent OL can make ALL information (content) searchable and accessible. Content from different instruments, analytical techniques can be organized along with files from regular desktop environments such as Microsoft Word, Adobe PDF files, even graphic images. Database searches can access a variety of different files so that Agilent OL users can more easily collaborate and share information.

Agilent OL Automated Extraction Services ("SmartFilter") have been developed to make all content fully searchable, even proprietary files from other vendor data systems. The Automated Extraction Services are able to extract key meta data value pairs of proprietary data files from systems such as Agilent ChemStation and ChemServer for chromatography and MS; Waters Millennium, Empower, and MassLynx; Varian Galaxy and Saturn MS; PerkinElmer Sciex, Turbochrom, and Totalchrom; Thermo Electron's Xcaliber MS, and many others. In addition, files from Microsoft Office, Adobe, industry-standard JCAMP, and more can have Automated Extraction Services used to make their content fully searchable. These Automated Extraction Services allow labs to store their content in Agilent OL and conduct unique and highly focused searches.

Flexible and Convenient Data Searches

All content managed by Agilent OL can be subjected to a variety of data searches. Simple Google-type searches can be run to quickly and conveniently find data that fits the search criteria; advanced searches can be conducted to impose more restrictive search criteria. Smart searches are enabled that let users drill down to specific file content. For example, searches can be conducted quickly and easily in Agilent OL to find all Agilent ChemStation data where phenol is reported in excess of 50 parts per million, all Word documents where the compound "Methylarsonic Acid" is discussed, and all Excel files in a particular project folder that were modified between a specific date range.

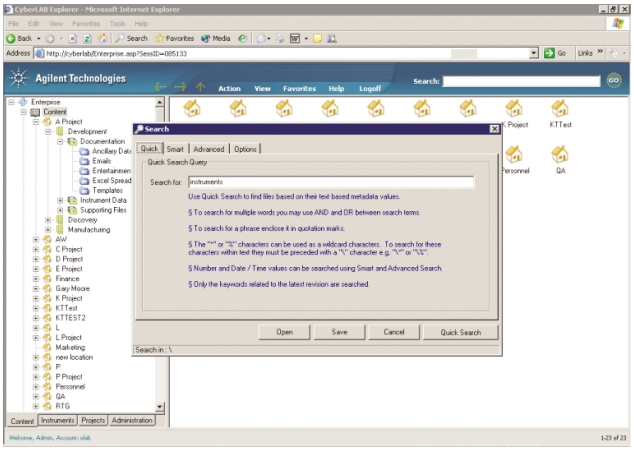


Figure 4. Agilent OL's powerful searching can be done in a variety of convenient ways. A simple "Google" type search lets users easily and quickly setup searches across different projects.

Support for Laboratory Business Processes

Not only does Agilent OL deal with managing instrument and laboratory-user content, it can also manage laboratory work processes. The optional Business Process Manager can also be used to automate laboratory workflow operations. For example, it can notify users when results are generated from other users and manage automatic routine laboratory workflows. It can also alert users when particular instruments are due for scheduled maintenance and then record the maintenance operation as positive evidence. All of these typical laboratory operations can be automated and managed by Agilent OL to improve overall laboratory efficiency. The Business Process Manager can be added to any Agilent OL system as an option, and BPM templates can be designed without the need for special programming. Template

designs are based on Microsoft Visio and incorporate an elegant "drag and drop" user interface so labs can create workflow templates specific to common laboratory operations.

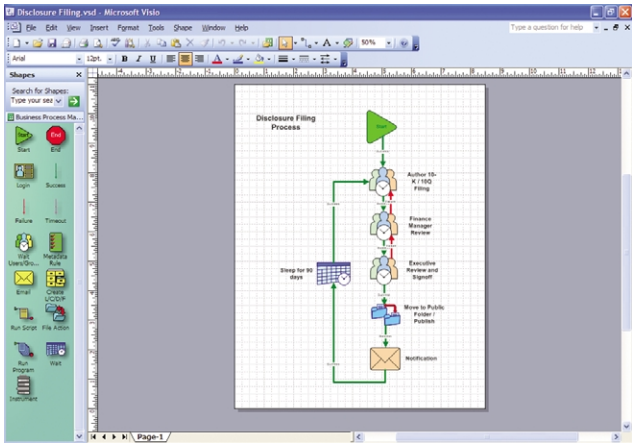


Figure 5. The new Agilent OL Business Process Manager is an optional software that provides automation of a number of laboratory workflows for handling routine electronic information. Based on an industry standard, Microsoft Visio, the BPM templates can be easily created specific for a laboratory, using special BPM activities for the laboratory.

Features to Address Full Compliance

Agilent OL's built-in features ensure that every regulated laboratory can address compliance issues ranging from current GLP/GMP requirements and 21 CFR Part 11 initiatives to conforming to the Sarbanes-Oxley Act.

Standard features in Agilent OL ensure complete data integrity in the management of all information at all times. Built-in audit trails and instrument and system logs can unambiguously track and monitor all access and changes. Our special "check-in/check-out" feature ensures that all documents managed, including proprietary third-party raw data, Microsoft Word and Excel files, and even Adobe PDF files, have controlled access to all users. Version control ensures that no data is ever lost or overwritten, even during reanalysis. In addition, Agilent OL provides a Record Retention feature so laboratories that require an automated process to retain content for specific periods of time can ensure the information is under complete Agilent OL control.

The optional Excel Remediation Service is a special application interface that enables controlled access and application functionality to Excel spreadsheet templates, while automatically auditing changes to individual cells. It's the perfect complement to regulated laboratories that use Excel for extended data summations.

Electronic signatures can be applied in Agilent OL in full conformance to 21 CFR Part 11 definitions. Electronic signature and signoff provides laboratories with a paperless way to efficiently manage all laboratory electronic content. Even advanced security features such as the SAFE global digital identity standard are available, allowing users to apply SAFE's legally enforceable and regulatory-compliant digital signatures to documents via a special option for the Agilent OL web client.

Features to Flexible Deployment

Based on a .NET architecture, Agilent OL's scalable design allows for the deployment of software in laboratories, ranging from multi-user/multi-instrument to single-user/single-instrument work environments. Agilent OL services for content management, data analysis, database management, file transfer, and more can be flexibly deployed on separate machines so that each laboratory is able to install and optimize the software response to individual laboratory needs.

Designed as a true web client application, Agilent OL allows all users to interact with PCs through standard Microsoft browsers. Optional data viewers can view/display instrument data collected from third-party data systems without requiring the native data system application loaded on the web client. Data viewers for more than 10 different chromatography and 4 different mass spectrometry data systems are currently available. The powerful N-tier foundation in Agilent OL allows flexible IT support for archiving all information with support for archiving devices ranging from network SANs, IBM Tivoli devices, and more. What's more, all this archive management is transparent to the end user. As a result, users can still look to their customary folders and projects to retrieve their information if necessary.

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