



Release Notes 2023.1



Clinisys Laboratory Solutions Release Notes

Clinisys Laboratory Solutions™ 2023.1

Document information:

Prepared by: Clinisys

Date: 10 May 2023

Contact details:

Clinisys Tech Pubs

Tech Pubs

TechPubs@clinisys.com

3300 East Sunrise Drive Tucson, AZ 85718

+1 (520) 570 2000

A solid yellow horizontal bar at the bottom of the page.

Clinisys, Inc.
3300 East Sunrise Drive
Tucson, AZ 85718

Copyright © 2023 Clinisys, Inc. All Rights Reserved.

Clinisys Laboratory Solutions Release Notes for Clinisys Laboratory Solutions™
2023.1
10 May 2023

Clinisys is a trademark owned by Clinisys, Inc. All rights reserved.

Clinisys Laboratory Solutions™, among other marks, is a trademark of Clinisys, Inc.

All other brands, names, and marks are the property of their respective owners.

All screen shots and images used in this guide are for demonstration purposes only. Names, dates, businesses, addresses, test results, and other information are fictitious. Any resemblance to actual persons, living or dead, or actual places of business is purely coincidental.

Features and specifications described herein are subject to change without notice.

Screen and report examples presented in this guide are based on the implementation of all the Clinisys products and modules. The screens and reports at the user's facility may differ from those presented in this guide based on the Clinisys products and modules installed and any site-specific modifications.

Email comments or corrections to TechPubs@clinisys.com.

Table of Contents

Release Notes 2023.1	1
Table of Contents	4
Required Package Information	8
User Features	1
Improvements	1
Grid Improvements	3
Ad Hoc Queries	4
Advanced Search	4
Batches	4
Charges	5
Charts and Analysis	5
Clinisys Azure Cloud	6
Collection Sites	6
Contacts	7
Containers	7
Demonstration of Competency	7
Drop-down Lists	9
Epidemiology	9
Equipment Calendar	10
Field	10
Follow-up Login	11

High Speed Login	11
IH Login	11
Inventory	11
LabOnline	13
Logbooks	15
Login	16
Manage Labels	16
Patients	16
Permits	17
Phone Log	17
Pre-Login	17
Pre-Login Receiving	17
Profiles	18
Reference Ranges	19
Reports	19
Results Entry	19
Results Upload	19
Samples	19
Shipments	20
Test Catalog	21
User Schedule	21
Workorders	21
Quotes	22

System Administration Features	23
About	23
Alerts	23
Archive Data	23
Auditing	24
Dashboards	24
Debug Logs	24
HL7 API	24
Jobs	25
LabOnline Manager	26
Lab Impersonate	26
Logbook Definitions	27
Manage Jobs	27
Patient Portal	27
Printers	27
Role Permissions	28
Report Definitions	28
Rules Engine	29
Subcontract Data Interface (SDI)	30
Query Datasets	31
Utility Scripts	31
Database Changes	32
Tables	32

Views	35
Sequences	37
Stored Procedures and Scripts	37
Quality-Assurance (QA) Configurations	40
Support Lifecycle	42

Required Package Information

Clinisys Laboratory Solutions™ requires the following software versions:

- Oracle RDBMS 19c (19.0.0.0.0), version 19.17.0.0.0
- Internet Information Services (IIS) 10
- Chrome or Edge (Chromium-based)
- Telerik Report Designer R3 2022 (16.2.22.914)

User Features

Improvements

Clinisys is proud to officially launch Clinisys Laboratory Solutions™ with this 2023.1 release. Built from the HORIZON base, CSL provides core LIMS and LIS functionality for all modern and future Clinisys offerings. Users will immediately notice new logos and updated colors that both match the Clinisys brand and resolve many accessibility issues through greater contrast and improved readability.

- **Clinisys Rebranding**

- In addition to its name change, the product has undergone many changes to give a refreshed look and feel that aligns with the Clinisys brand.
- The Sign In page has a new, rotating background image and updated logo. The functionality of the page remains unchanged.
- The main menu is now accessed from a hamburger icon in the upper left corner of the application. The menu opens vertically, with the submenus now opening on hover instead of clicking. Each of the main menu items still displays the same submenu options, and the content is still determined by the user's role permission. A pink underline is used to indicate the hover and focus state of menu entries. Keyboard shortcuts for menu navigation remain unchanged.
- A shaded label now reflects an active tab, while the pink underline used for menu selection is also used for tab control hover and focus.
- All drop-down lists now use the underline hover style and are redesigned to display a color scheme with added contrast for individuals with vision impairment.
- Read-only header areas utilize a darker blue color with added contrast.
- Drag/drop icons now include hover text "Adjust position" to describe the functionality.

- **Breadcrumbs**

- 2023.1 introduces breadcrumb navigation. When navigating to any page in the application, the header bar now includes breadcrumbs to help users

recall their context and navigate within the path. The breadcrumbs bar replaces the back links from previous versions. One notable exception is Rules Engine, which still includes back links because it is a self-contained page. Note the browser back button also functions to navigate users to the immediate previous context.

- **Electronic Signatures**

- In previous releases, electronic signatures for containers were not consistently implemented when containers were added to the application for the first time. This release now implements e-signatures with aliquot logic, plate tracking, and pooled sample creation. All these places include chain of custody records for new containers, which now prompt electronic signatures when the option is turned on.
- Laboratories configured with OpenID authentication may now use the electronic signatures features. Since OpenID authenticated users do not have passwords in the LIMS, users can configure multi-factor authentication using Microsoft Authenticator or Google Authenticator. The electronic signatures modal prompts for a verification code rather than password under these conditions.

- **Expanded Address Fields**

- 2023.1 improves the address field to provide a longer entry space for address lines 1 and 2 for contacts, referrers, suppliers, insurance carriers, collection sites and patients from any screen where this information is provided.

- **Blind Samples**

- Samples with a sample type configured as a blind now automatically transfer to an internal QC account profile upon sample completion. The specific profile identifier is determined by a new system installation setting (BLND_PROF), assumed to be the default QC Account profile 1 when not present. Previously, similar logic was handled by the DOAB CAT and custom code is no longer required.

- **Date and Datetime Controls**
 - Keyboard input for date and datetime controls has changed with v2023.1. Dates are no longer separated into month, day, and year inputs. When a date is empty, down or up arrow populates with the current date. Once a date is populated, up/down arrow increments or decrements the date by one day.
- **Document Scanning**
 - Features for scanning chain of custody documents at login no longer utilize the Dynamsoft WebTWIN third-party tool. Clinisys Laboratory Solutions has replaced this tool with equivalent functionality that does not involve the third-party component. Similar to previous releases, users are prompted to install the component when not present on their workstation.
- **Scanning into Drop-down Lists**
 - v2023.1 makes improvements to the drop-down list control to enhance its handling of scanned input.

Grid Improvements

- This release adds "equal" as a new option to the grid filter search. The search is case-sensitive and the stored value must EXACTLY match the target value.
- Grid controls are now styled to include a dark gray row selection for improved contrast and greater distinction between cell selection, hover, and focus. Links are now underlined on hover and focus as well.
- The dropdown on grid column menus is now restyled with an underline selector.
- The gear icon for grid settings is replaced by the three vertical dots menu icon, which also uses the new underline selector when navigating the menu.
- Quick filter buttons and action buttons stand out with higher contrast. All action buttons include icons as visual indicators. Delete and Remove buttons have a red border to distinguish them since these are destructive actions.

Ad Hoc Queries

- v2023.1 adds a new column to the Ad Hoc Queries Overview Grid to identify queries that contain PHI information.
- For laboratories licensed for patients, users who do not have the permission to view PHI will now see a banner when opening a query that includes patient information. Users must have permission to view patient identifiers in order to execute queries that contain PHI. In the case of user without permission to view identifiers, the Run button and the Load button on the Preview tab are disabled. Users can still modify and save the query, but cannot view the results of changes.
- v2023.1 adds a duplicate name check prompt that appears when a newly created ad hoc query is saved or an existing query is updated. This change prevents two internal laboratory or LabOnline queries from having the same name, but it is possible to have an internal lab query with the same name as a LabOnline query.

Advanced Search

The refresh and advanced search buttons are now white in color. The repeat content controls for Advanced Search are also restyled and the Add option is now a button.

Batches

- **Batch Overview**
 - The Analyst column on the Batches overview list grid is renamed to Batch Owner. Instrument and Analyst are new optional columns for the grid, displaying the scheduled instrument and analyst respectively.
- **Batch Details**
 - The Analyst field on the Batch details page is renamed to Batch Owner to distinguish it from the analyst scheduled to run the batch.
 - On the Batch-level tasks tab, users can now multi-select available tasks and use the Delete Task button to remove them. Posted tasks or tasks with active children cannot be deleted.

- The posting of batch-level tasks using the CC dropdown within the tasks grid is now relaxed to remove the restriction that neither run date nor instrument be required. It made sense to remove this restriction since the dropdown is already limited to facades that do not capture results.
- The Actions menu from genetic sequencing batches (as configured in Rules Engine, Batch Rules) includes a new Generate Metadata Template option that allows users to initiate the GENEPORTALBATCH event. By default, this event triggers the write_geneportal_data_file datawriter job to produce the BioNumerics CSV data file.

Charges

- When creating a new charge manually through the Charges feature, users can now enter a Lab ID or Workorder and the associated client and profile will default. Choosing client and profile first will still filter the Lab ID and Workorder drop-downs as before.

Charts and Analysis

Charts

- When creating limits using chart results, the Update Limits pop-up in the Charts and Analysis overview grid now allows the entry of start / stop times in addition to the date. You can also access the Update Limits pop-up from the Actions menu of the chart details and on the data analysis page for analytes when you recalculate and save the changes.
- The Output Chart pop-up in the Charts and Analysis overview grid is modified to work within a cloud environment. The output options to print all charts to a selected printer or save them to a specified location are now replaced by options to write the output to the document repository and / or download everything to the local drive as a PDF. Users can print or move the files as required by their laboratory guidelines.

Analysis

- The MDL Studies grid on the Analysis Analyte Data page has added a prep batch column that shows the prep department and batch number.

- The prep batch information has also been added to the analysis report. Both the MDL blank and MDL spike analysis results now include a prep batch column.

Clinisys Azure Cloud

Beginning with the 2023.1 release, Clinisys Laboratory Solutions™ is now available in the Clinisys managed cloud which is hosted in Microsoft Azure. No VPN connection is required with your laboratory to operate within this environment. In order to optimize and eliminate the VPN, several features are offered only within the Azure cloud deployment:

- Rather than storing documents within the Oracle database, Azure blob storage is utilized.
- Print jobs, such as label printing, can be directed to a local printing agent that utilizes QZTray to send print jobs to your local printers.
- Instrument integration utilizes a local proxy agent to securely upload instrument data files and send datastream messages to the application gateway.
- Datawriter output can be directed to the local proxy agent to deposit batch files for instruments to process.
- Authentication for cloud deployments utilizes OpenID Connect (OIDC). It can be configured to utilize popular Microsoft-supported identity services using Azure AD B2C.
- OIDC authentication does not use core user names and passwords for electronic signatures. Instead, users are prompted for verification codes. The MFA for ESIG option from the user menu allows multi-factor authentication configuration using either Microsoft Authenticator or Google Authenticator.

Collection Sites

- Client ID is added as an available column of the Collection Sites overview grid. This column is hidden by default.

Contacts

- 2023.1 improves the address field to provide a longer entry space for address lines 1 and 2 for contacts, referrers, suppliers, insurance carriers, collection sites, and patients from any screen where this information is provided.
- Referrer ID is a new field added to contacts. This field is displayed only for laboratories licensed for patients features and refers to the unique identifier of the contact in an EMR. In the United States, this field equates to the ten-digit NPI (National Provider Identifier); in Canada, this is the 14-character MINC (Medical Identification Number for Canada). Referrer ID is available in Contacts overview as a hidden column, in Contact details, as well as from the Referral Information panels of Follow-up Login, Sample details, and Pre-Login. Referrer ID is also included in Referrer drop-down lists as a searchable element.
- A universal patient search checkbox is added to the Contact Details page to enable users to access data for all LabOnline clients. To access this checkbox, users must have role permissions to 'Set universal patient search', the laboratory must be licensed for patient features, and Rules Engine System Installation setting PAT_EPI must be set to YES.
- Contacts with universal patient search are required to have a unique, valid email address because multi-factor authentication is required for these users.

Containers

- The container list page has added a preservative column that shows the preservative used by the container.

Demonstration of Competency

- 2023.1 adds the ability to track the demonstration of competency (DOC), also known as the demonstration of capability. DOC is a quality management feature used to document an analyst's ability to perform his or her work accurately. Tracking DOCs is a requirement for environmental laboratories accredited by TNI (The NELAC Institute). An analyst must pass an initial demonstration of the procedure, and then be re-examined to check continued competence.

- The new competency feature can be accessed from the Data menu in the newly added Quality section. In order to access this page, a new Competencies role permission has been added to enable the user to add / edit from the page.
- Competency records go through a series of workflow steps. The laboratory decides whether it wants a one or two-step approval process. Approvers must have designated role permissions to approve a competency record.
- One of the ways to demonstrate competence is through blind samples. Blind samples are a type of QC sample that appears to the analyst as any other client production sample. Blind samples can be created like any laboratory control sample duplicate (LCSD) used to demonstrate reproducibility, or they can be an aliquot of a sample previously tested in the laboratory by a senior analyst. Either way, the QC manager knows the actual contents of the sample and can check the analyst's ability to reproduce these results accurately.
- The Sample Details page now includes a True Values option that can be accessed from the Actions menu for users with permission to view or add / edit blinds. The Enter submenu opens a pop-up to enable a manager to enter the true values of blind samples used for demonstration of competency. The lab manager with blind sample permissions can also use the Review submenu from the True Values option to compare the analyst's results with the true values.
- When checking the results of the blind analysis against true values using the Review True Values pop-up, users can automatically create a competency record. The Update Competencies button on the pop-up window creates a new active record for the analyst.
- 2023.1 includes the ability to attach various documents to competency records using the standard modal for attaching documents, with the competency type and ID already filled.
- When approving a competency record, the approval process includes an option to update the analyst's certification record on the User Details page. A checkbox on the approval modal indicates whether the analyst's certification information should be updated. The checkbox is visible and activated when a department has been selected on the Competency Details page.

- The Competencies feature allows you to add control samples and test them to demonstrate competency.
- You can evaluate and review an analysis of the results of the competency sample to ensure that all requirements are met. When a blind or control sample type is used as the competency type, the Competency Details page displays an analysis of the selected samples.
- A "Save as Document" button is included in the Evaluation section to capture the contents of the evaluation into a document that is attached to the competency record. Once the competency record is approved, users can run the competency report to save as a printed record. The report is also attached to the competency record.
- If a user creates, modifies, or approves a competency record, an audit is captured. The audit trail is viewable from the Actions menu of the Competency Details page.

Drop-down Lists

All drop-down lists now use the underline hover style and are redesigned to display a color scheme and look and feel accessible to people with color blindness.

Epidemiology

2023.1 has added features to improve the usability of LabOnline for epidemiologists, allowing designated health officials to access patient test results without having a direct association with the client record. These features apply only to systems licensed for patients. For additional security, these features require a new system installation setting (PAT_EPI). When either condition is not met, the features are hidden and inaccessible.

- Clinisys Laboratory Solutions now includes a 'Universal patient search' check box located on the contact details record. When checked, the user is granted access to all clients and universal patient search capabilities.
- Access to set the 'Universal patient search' check box for contact records is restricted by a new role permission.

- LabOnline users with 'Universal patient search' are forced to use MFA, regardless of display template configuration.
- Users with 'Universal patient search' access (i.e., epidemiologists) will see all clients in the dropdown for workorders, samples, and patients.
- LabOnline includes a new Test Summary feature that allows epidemiologists to analyze a specific geographical and demographic breakdown of different test results. The Test Summary page summarizes the results of a given test over a certain period, by geographical area (state, country or postal code) and / or demographic (race, gender, ethnicity).

Equipment Calendar

- **Equipment Schedule**
 - Users can now change an instrument for a previously scheduled calendar entry. The Equipment Schedule feature is included in Equipment Management as a calendar function to schedule a given piece of equipment, to see if the equipment is offline for maintenance, or if it is already scheduled for other use. This feature is accessed from the Equipment Management overview list page through a View Schedule button on the Equipment, or from the Batch details page when scheduling a batch, and from the User details page when scheduling users. In all these scenarios, users can now select a different instrument from the Equipment drop-down list in the Calendar entry pop-up. Users need scheduling permissions for equipment management to create or change records.
 - When editing the start date of a calendar entry, the end date now auto-adjusts by the same original duration to make data entry easier.

Field

Clinisys Laboratory Solutions v2023. 1 brings a rebranded splash page for the Field application showing the Clinisys name and logo and a new color scheme for product recognition.

- **Pick Samples**
 - The Pick Samples screen now provides the ability to search by Workorder and the workorder is displayed on the Event cards to confirm identity.

Follow-up Login

- Referrer ID is a new field added to the Referrer Information panel. Referrer ID refers to the unique identifier of the contact in an EMR. In the United States, this field equates to the ten-digit NPI (National Provider Identifier); in Canada, this is the 14-character MINC (Medical Identification Number for Canada). The Referrer ID is included in Referrer drop-down lists as a searchable element.
- Profile/sample setting 21 is a new setting that controls whether to require a referral. If the profile requires referral and an order is missing this information, the order cannot skip follow-up login regardless of other settings.
- The sample collector field now distinguishes free-text entries from names selected from the drop-down list by including the contact's internal ID on drop-down selections. Similarly, predefined collection sites from the drop-down list include the internal ID while the free-text entries do not.
- A Save button is now included at the bottom of the page (in addition to the top) to speed data entry for mouse users.

High Speed Login

- A Login button is now included at the bottom of the page (in addition to the top) to speed data entry for mouse users.

IH Login

- Industrial Hygiene (IH) Login is updated to set the sample and workorder lab site to the current user's default lab site. This field is not displayed during login; rather, it is now set automatically behind the scenes.

Inventory

- **Overview Grid**

Two new columns are now added to the Inventory grid.

- The Expired column shows the number of items in stock that have expired. The current stock is reduced by the number of expired items before calculating the low stock evaluation.
- The Expires Soon column shows the number of items in stock that will expire in the next two weeks. These items do not affect the low stock calculation, but could be important when stock is getting low.
- **Part Details**
 - It is no longer possible to create duplicate, active combinations of vendor, catalog number, and pack size for a given part.
 - A Delete button is added to the vendors grid of Part details. This button allows users to delete a vendor row as long as it has not been included on any orders.
 - "Expired" and "Expires Soon" are added to the stock panel as fields to show the number of expired items and the number of items in stock that expire within the next two weeks.
 - The Parts details page now includes a checkbox in the header to indicate whether a kit is purchased or created in-house. Purchased kits do not contain a list of kit components and require one or more vendor entries. By default, all existing kits are assumed to be laboratory prepared.
 - The Kit Components section is enhanced to allow purchased kits to be added as components of an in-house kit.
- **Kit Tracking**
 - You can now return kits from a customer site and mark them as available for use by other customers. This feature allows you to scan kit IDs and move the kit from a status of "shipped" back into the in-house status. It is available from the selection of Return Kits from the Actions menu on the Kit Tracking page.
 - Users can now assign an expiration date to kits as they are created. Expiration date appears as a new column of the Kit Tracking grid.
 - Kit label formatting now includes a kit expiration date.

- When a user scans kits for shipment, the validity of each entry is now verified. If the kit is expired, the entry is shown in a gray color and contains the word expired. The number of invalid entries, including the number of entries scanned, will be displayed.
- Users can now change the expiration date for the kits they are tracking. On the Inventory Kit Tracking page, select one or more kits and click the Set Expiration button to change or reset the expiration date of the selected items.

LabOnline

- **Re-branding**
 - Similar to Clinisys Laboratory Solutions™, LabOnline has a refreshed look and feel to align with the Clinisys brand. Many of the common element changes carry over to LabOnline.
 - Grid styling in LabOnline matches that of the main application.
- **Order Supplies**
 - Users with incomplete mailing addresses are now asked to add a mailing address when ordering supplies on the Collection Supplies page in LabOnline. Users can still request a new order, but must select a user with a valid postal address in the "ship to" field of the order form.
 - Inventory parts with a part type configured in Rules Engine as 'Include in all shipments by default' are now automatically added to shipment requests originating in LabOnline. Previously, these parts were only added to orders created through the *Clients > Shipments* menu option within the LIMS.
- **Kit Inventory**
 - A column to show the expiration date for a kit is added to the Kit Inventory page if the user's display template is configured to include it.
- **Data Grids**

- This release adds "equal" as a new option to the grid filter search. The search is case-sensitive, and the stored value must EXACTLY match the target value.
- **Test Summary**
 - Test Summary is a new feature that allows epidemiologists to get a specific geographical and demographic breakdown of different test results. The Test Summary page summarizes the results of a given test over a certain period, by geographical area (state, country or postal code) and / or demographic (race, gender, ethnicity, age range).
 - To access the Test Summary feature, the laboratory must be licensed for patients, the system administrator must configure the PAT_EPI setting to YES in Rules Engine System Installation, grant test summary permissions for the user's display template, and the contact must have Universal Patient Search permission.
 - Users with Universal Patient Search permission are prompted to use multi-factor authentication when logging into LabOnline, regardless of display template settings.
- **Order Tests**
 - When placing an order, if the selected client and profile has only a single active line item, that line item now automatically defaults.
 - Patient date of death (DOD) and Age are added as available fields for clinical orders.
 - LabOnline Order Tests no longer assigns the sample lab site to the default laboratory. Instead, High Speed Login and Pre-Login Receiving are updated to default the lab site to the current user's default lab site upon receipt. If the lab site is set on a pre-login record, such as through an HL7 order, that lab site is carried into the sample regardless of the user who logs it.
 - LabOnline users can now add comments when ordering clinical tests. A comments text box is added in the Tests panel between the description and the additional information section. Previously, only special instructions

were available for clinical orders and full comments were reserved for environmental orders.

- Referrer ID is included in Referrer drop-down lists for LabOnline clinical orders.
- Profile/sample setting 21 is a new setting that controls whether to require a referral. LabOnline clinical orders now respect this setting and require referral based on the profile as an override to the order template.
- **Bulk Orders**
 - The logic of bulk orders is modified to ensure that expired kits are excluded and cannot be used to order tests in LabOnline.
- **Security**
 - LabOnline has added Microsoft Authenticator as an alternative multi-factor authentication option. If the laboratory has configured two-factor or multiple-factor authentication for LabOnline, users can use the Manage My Account function to set their preference for email or mobile authentication as the secondary authentication method. Mobile authentication now includes options for both Google or Microsoft authenticator.

Logbooks

- **Logbooks Overview**
 - The Logbooks overview grid now includes a Description column, which provides a general description of the purpose of the logbook based on its logbook definition. This column is hidden by default.
- **Logbook Details**
 - The Actions menu on the logbook details page now includes the option to view reference documents attached to the logbook definition. The attached documents provide more detailed information on how and why the logbook is used. This would normally be a lab-generated SOP for the logbook.
 - Workorder is a new list option for logbooks. The list can be configured through Logbook Definitions to filter for in-progress workorders and for workorders created within the last n days.

Login

- A Login button is now included at the bottom of the page (in addition to the top) to speed data entry for mouse users.
- When a default workorder-type label is configured in Rules Engine, the label now prints automatically for new workorders created through the Login page.
- The sample collector field now distinguishes free-text entries from names selected from the drop-down list by including the contact's internal ID on drop-down selections. Similarly, predefined collection sites from the drop-down list include the internal ID while the free-text entries do not.

Manage Labels

- 2023.1 has removed the restriction on the number of labels that can be created through search results from the New Label page of Manage Labels. The search grid is now paged and includes all results of the search, rather than the first 100.

Patients

- **Patients Overview**
 - Client ID is added as an available column of the Patients overview grid. This column is hidden by default.
- **Patient Details**
 - On the tasks tab, users can now multi-select available tasks and use the Delete Task button to remove them. Posted tasks or tasks with active children cannot be deleted.
 - The posting of patient-level tasks using the CC dropdown within the tasks grid is now relaxed to remove the restriction that neither run date nor instrument be required. It made sense to remove this restriction since the dropdown is already limited to facades that do not capture results.
- **Patient Import**
 - The Create Import Template option from the Actions menu on the Patients overview page now includes email as an available field when selecting

items that can be included in the spreadsheet template for importing patients.

- **Actions Menu**
 - v2023.1 adds a View Patient Access option to the Patient details Actions menu. When selected, this option opens the Patient Access tab of the Audit Trail page and displays the access records for the patient.

Permits

- An Analyte search box is added to the Permit Details page to help find entries for a permit with a long list of analytes.
- When using the Default Analytes pop-up on the Permits Details page, Method now auto-populates along with the analytes from the list.

Phone Log

- Client ID is added as an available column of the Phone Log overview grid. This column is hidden by default.

Pre-Login

- In 2023.1, the expected collect and receive dates for all event samples are now updated when an event is copied and the user changes the dates of the new event. This update occurs even if the original sample dates were not all on the same day.
- The sample collector field now distinguishes free-text entries from names selected from the drop-down list by including the contact's internal ID on drop-down selections. Similarly, predefined collection sites from the drop-down list include the internal ID while the free-text entries do not.

Pre-Login Receiving

- It is no longer possible for a user to receive a prelogged sample for a lab site for which they are not authorized.

- The Pre-Login details page displays a banner and prevents users from editing samples associated with inaccessible lab sites.
- A new 'Show all lab sites' check box is added to the Find modal. When unchecked, the modal is filtered to prelogged samples with a lab site for which the user is authorized and those with no lab site specified. Checking this check box adds prelogged samples for all lab sites to the search results. Users can select samples for unauthorized lab sites; however, they cannot edit or receive these samples.
- The ability to capture container temperature and pH is added to Pre-Login Receiving. Both temperature and pH can be entered at the sample level, and overridden for an individual container if needed. The sample-level values will populate for any container that does not have its own value.
- The sample collector field now distinguishes free-text entries from names selected from the drop-down list by including the contact's internal ID on drop-down selections. Similarly, predefined collection sites from the drop-down list include the internal ID while the free-text entries do not.

Profiles

- 2023.1 improves the address field to provide a longer entry space for address lines 1 and 2 for contacts, referrers, suppliers, insurance carriers, collection sites, and patients from any screen where this information is provided.
- Referrer ID is a new field added to contacts. This field is displayed only for laboratories licensed for patients features and refers to the unique identifier of the contact in an EMR. In the United States, this field equates to the ten-digit NPI (National Provider Identifier); in Canada, this is the 14-character MINC (Medical Identification Number for Canada). Referrer ID is available in Contacts overview as a hidden column, in Contact details, as well as from the Referral Information panels of Follow-up Login, Sample details, and Pre-Login. Referrer ID is also included in Referrer drop-down lists as a searchable element.
- A universal patient search checkbox is added to the Contact Details page to enable users to access data for all LabOnline clients. To access this checkbox, users must have role permissions to 'Set universal patient search', the laboratory must be licensed for patient features, and Rules Engine System Installation setting PAT_EPI must be set to YES.

- Contacts with universal patient search are required to have a unique, valid email address because multi-factor authentication is required for these users.
- Effective dates are now stored using midnight relative to the local user so that timezone conversions result in the expected time boundaries.

Reference Ranges

- Effective dates are now stored using midnight relative to the local user so that timezone conversions result in the expected time boundaries.

Reports

- The Compliance Report is updated to add an option to include attachments.
- The Invoice report is updated to attach to the invoice records directly, and no longer to the client or workorder.
- Competency report is a new system report whose purpose is to produce a hard-copy record of a competency analysis.

Results Entry

- The historical data graph of the View Analysis pop-up from Results Entry is enhanced to utilize a smaller scale when the average result is less than one to make it easier to visualize the trend.

Results Upload

- Cloud implementations may now associate an installed instrument proxy with each new interface. The Instrument Interfaces tab is updated to display the name and status of the associated instrument proxy for each interface.

Samples

- **Samples Overview**
 - Client ID is added as an available column of the Samples overview grid. This column is hidden by default.

- MRN is removed from the Samples overview grid to avoid the necessity to capture extra view patient audits for this page.
- **Sample Details**
 - On the tasks tab, users can now multi-select available tasks and use the Delete Task button to remove them. Posted tasks or tasks with active children cannot be deleted.
 - The posting of sample-level tasks using the CC dropdown within the tasks grid is now relaxed to remove the restriction that neither run date nor instrument be required. It made sense to remove this restriction since the dropdown is already limited to facades that do not capture results.
 - Referrer ID is a new field added to the Referrer Information panel of the Patient Information tab. Referrer ID refers to the unique identifier of the contact in an EMR. In the United States, this field equates to the ten-digit NPI (National Provider Identifier); in Canada, this is the 14-character MINC (Medical Identification Number for Canada). The Referrer ID is included in Referrer drop-down lists as a searchable element.
 - Profile/sample setting 21 is a new setting that controls whether to require a referral.
 - The sample collector field now distinguishes free-text entries from names selected from the drop-down list by including the contact's internal ID on drop-down selections. Similarly, predefined collection sites from the drop-down list include the internal ID while the free-text entries do not.

Shipments

- When a user scans kits for shipment, the validity of each entry is now verified. If the kit is expired, the entry is shown in a gray color and contains the word expired. The number of invalid entries, including the number of entries scanned, will be displayed.
- A warning now displays when updating one or more shipment records with a shipped status if the shipment contains at least one expired kit.

Test Catalog

- The Analyte Overview Grid from the Test Catalog Details page now contains an Analyte List column that shows the source list for each analyte.

User Schedule

- My Schedule is a new option from the User menu in the top right corner of Clinisys Laboratory Solutions. This menu item opens the User Schedule page for the user currently logged on. Previously, this page could be accessed only from the Users page or a dashboard widget.
- Supervisors have access to view the schedules of all users who report to them through the My Schedule menu option. The Choose Users search panel includes the list of users who report to the current user.

Workorders

- **Workorders Overview**
 - Users can now filter on the Workorders overview grid by authorized lab sites. The filter drop-down contains all the sites to which the current user has access, but also offers the option to include all lab sites. The Lab Site column on the grid displays the lab site associated with each workorder.
- **Workorder Details**
 - Lab site is added to the Workorder details page and is now explicitly linked at the workorder level. Previously, a workorder's lab site was assumed to inherit from its first sample.
 - Modifying a workorder's lab site prompts the user to optionally update the lab site for all in progress samples associated with the workorder.
 - Users without permission to the workorder's lab site are prevented from making updates. The workorder details page displays a banner indicating that the lab site is inaccessible to the user.

- On the workorder-level tasks grid, users can now multi-select available tasks and use the Delete Task button to remove them. Posted tasks or tasks with active children cannot be deleted.
- The posting of workorder-level tasks using the CC dropdown within the tasks grid is now relaxed to remove the restriction that neither run date nor instrument be required. It made sense to remove this restriction since the dropdown is already limited to facades that do not capture results.
- **View Relationships**
 - An invoice checkbox is now available in the Relationship Panel of the View Relationship page, which can be accessed from the Actions menu of the Workorder Details page. Search results now contain an invoice ID link. The link opens an invoice record, and from this record you can use the Actions menu to view the document list and associated invoice documents. The invoice document is no longer directly attached to the workorder, it is now attached to the invoice record and then made available to the workorder. The enhancement also allows additional documents to be attached to an invoice, including supporting information on various charges.

Quotes

- Client ID is added as an available column of the Quotes overview grid. This column is hidden by default.

System Administration Features

About

The About page has been given a general facelift to update its look and feel, and now includes additional product information such as build number, unique device identifier (UDI), and manufacturer. License information now details the number of licenses currently in use.

Alerts

- On the alert details page, a new due date alert type "Competency Expiration" was added. You can now create alerts based on the expiry of competency checks to receive warnings when competencies are about to expire.
- The Alert Details page has added "Inventory Expiration" as an alert type. This alert type creates alerts based on the expiration dates for items in the inventory, to warn when stock needs replenishing.
- In a cloud implementation, if the local instrument interface proxy cannot access an interface source directory, an email alert is sent to the system administrator as configured in Rules Engine, System Installation NOTIFY1, NOTIFY2, ..., NOTIFY5. Similarly, an email alert is now sent to the system administrator when a datastream interface fails to send a heartbeat within two minutes.

Archive Data

Laboratories configured with OpenID authentication may now use the archive data feature. Since OpenID authenticated users do not have passwords in the LIMS, users can configure multi-factor authentication using Microsoft Authenticator or Google Authenticator. The designated archivist user will be prompted for username and MFA verification code before the Delete button is enabled.

Auditing

- v2023.1 records when users view patient identifying information. Audit records are recorded in a new table, separate from traditional insert, update, and delete audit records. A distinction is made between incidental and directed PII access. Viewing a list of patients is generally considered incidental PII unless the Client can be used to infer something about the patient's health. For example, if the client is a cancer center or a drug treatment facility. To allow the laboratory to make this distinction based on its own clients, a new System Installation setting PHILISTAUD is added. Set this to YES if users can infer something about a patient's health by seeing the associated client.
- Audits are always recorded when viewing details for a patient from any context.
- Audits are recorded for LabOnline users viewing patient details.
- The Audit Trail page now includes a separate tab to query audit records related to viewing PII.

Dashboards

- Users without permission to view patient identifiers are now prevented from drilling into the details of a chart, gauge, or tile widget based on an ad hoc query that includes PHI. Grid widgets based on ad hoc queries that include PHI display a "Protected" message rather than the query details for users who do not have permission to view identifiers.

Debug Logs

- The Debug Log Upload UTL feature is enhanced to allow multiple files to be selected and uploaded at once.
- The file browse dialog from Upload UTL now includes the ".hl7" file extension by default.

HL7 API

- HL7 API is updated in 2023.1 to reflect the time zone of the sample's lab site in OBX.14 and OBX.19.

- A new function RemoveHtmlTags is now available to strip HTML content from reference range comments so they can be included in an HL7 message.
- The APIPrelogin package is updated to include the new Referral ID field for referrals.

Jobs

- The AR File Backout job used to back-out invoices that need correction is updated to remove any pending report delivery records associated with the unwanted invoice.
- Note that several executables have been renamed to replace the former "horizon" name. Examples include:
 - Horizon_document_service.exe is now cls_document_service.exe. "CLS" stands for Clinisys Laboratory Solutions.
 - HorizonInstrumentInterface.exe is now CLSInstrumentInterface.exe.
 - HorizonJobMonitor.exe is now CLSJobMonitor.exe.
- The subcontract data interface (SDI) functions have been extracted from Auto-load_cleanup into a separate, customizable function. Isolating this functionality should reduce the impact on customizations in future releases.
- To accommodate cloud users, the server parameter for a monitor job can now be set as localhost and the job can use the real application server name, not the gateway server name, which may not be familiar to cloud users.
- GENEPORTALBATCH is a new job event used by the write_geneportal_data_file datawriter job. This event is used by the Generate Metadata Template option from the Batch details Actions menu for genetic sequencing batches.
- RestartInstInterface is a new job that can be used to restart a datastream interface. Interfaces now send a heartbeat and will display as Inactive when the heartbeat fails to report within two minutes.

LabOnline Manager

- **Order Templates**
 - LabOnline Manager adds a duplicate check to enforce unique template names across all display and order templates. This is necessary for the new export and import template features.
 - LabOnline Manager has added the ability to configure patient date of death (DOD), age, and comments in clinical order templates.
- **Display Templates**
 - Permissions for Test Summary and Summary Details are added to control access to the new Test Summary feature of LabOnline. This feature is specific to laboratories licensed for patients and further restricted by the System Installation setting PAT_EPI being set to YES.
 - The Grid Settings tab on the Display Template Details page has added a checkbox to the Visible by Default grid column header to display or hide all columns at once when configuring columns of a grid.
 - The Grid Settings tab now includes settings for Summary Details to configure the new details grid of the Test Summary feature.
 - The Template Aliases tab includes new fields to allow aliases for City, County, Age, Age Range, Ethnicity, Gender, Patient DOD, and Race.
- **Export/Import Data**
 - New options for exporting and importing LabOnline configuration are now available in the Actions menu from LabOnline Manager. The feature allows you to export LabOnline Manager settings, including display templates, order templates, and system settings from one CSL installation to another, such as between TESTLIMS and LIMS.

Lab Impersonate

- When the laboratory is configured for OpenID authentication, users do not have passwords in the LIMS. Under this configuration, users who are authorized for the LabOnline impersonate feature through their role permissions will see an option on their user menu in the top right corner to Change LabOnline Password. This option allows the user to set a password for use with LabOnline

impersonate. It replaces the Change Password option for laboratories without OpenID authentication.

- From the User details page, laboratories configured for OpenID authentication will see a Reset LabOnline Password option on the Actions menu in the place of the Reset Password option.

Logbook Definitions

- A new logbook level description field is added to Logbook definition details page. The field can be used to provide users a general description of the purpose of the logbook.
- This release has also added the ability to attach a file as a reference document on the logbook definition details. This type of supplemental information would typically be something like a lab-generated SOP for the logbook.
- Workorder is added as a new column type for logbooks. Workorder column lists can be configured to filter for in-progress workorders and for workorders created within the last n days.

Manage Jobs

- Status messages for report execution are enhanced to distinguish between failed reports and reports that did not run. The message directs users to the report log for troubleshooting failed reports and the debug log for reports that did not run.
- The Active, Complete, and Pending grids of the Manage Jobs page now have grid column filters.

Patient Portal

- The Patient Portal patient registration feature now includes a CAPTCHA control mechanism to prevent the functionality from abuse by malicious threats.

Printers

- Machine is added as a new column of the Printers page to assist in identifying local printers in a cloud configuration.

- When system installation setting CLOUD_PRNT is set to YES, the Printers page now includes an option from the Actions menu to download the print agent for cloud printing.

Role Permissions

The following Role permissions were added in v2023.1:

- **Set universal patient search** - secondary role permission under Contacts for the Clients menu that controls edit access to the 'Universal patient search' check box.
- **Competencies** - role permission for the Data menu, controlling access to the new Competencies feature.
- **Audit with prompt for reason** - The permission was changed to a single checkbox and renamed. When the checkbox is unchecked, you are still audited but will not be prompted for a reason. It is no longer possible to turn off auditing altogether for any role.

Report Definitions

- As of v2023.1, Crystal reports are no longer supported. The Crystal reports engine is built on C++ older technologies and there are no published plans to support .Net 6, therefore Clinisys was forced to remove this option.
- Report footers for out-of-the-box reports now include the "Powered by Clinisys" statement with the Clinisys logo. In order to reduce the impact on custom reports, the logo image is still named horizon_logo.jpg for this release. Similarly, the HorizonReportFunctions.dll remains.
- The AssignRecipients function in rpt_library_shared includes a new optional parameter to override delivery methods. Leaving this parameter blank will use the contact's configured delivery method preferences.
- The GetAnalyteName and GetRefRangeInfo functions in rpt_library_finalreport are now exposed so that they can be referenced by customized GetResults functions.

- The GetValidRecipientCalls function in rpt_library_finalreport now includes the out of range (OR) final result for report recipients designated with setting 5 = R (all reports), X (negatives and cancels), and O (non-negatives and cancels).
- The Compliance Report is updated to add an option to include attachments.
- The Invoice report is updated to attach to the invoice records directly, and no longer to the client or workorder.
- The Workorder Summary section of the ENV Final report is updated to group by method rather than by test. This change resolved a performance issue retrieving method comments.
- Competency report is a new system report whose purpose is to produce a hard-copy record of a competency analysis.
- Write_geneportal_data_file is a new system datawriter to produce a BioNumerics CSV data file.
- Predefined narrative templates can include substitution variables for dynamic content. The variables include @sysdate@, @matrix@, @labsite@, @receivedate@, and @collectdate@.

Rules Engine

- **System Installation**
 - BLND_PROF - Profile identifier (reqnbr) to use for blind samples when the sample moves to completion. This setting is meant to indicate an internal client (such as QC account) to prevent blind samples from being billed or reported inadvertently. If the setting is missing or invalid, the default internal QC account profile identifier of 1 is used.
 - CLOUD_PRNT - Determines whether cloud printing options are available. Set this value to YES to include the Actions > Download Print Agent option on the Printers page.
 - DOC_PRELIM - Determines whether the approval process for competencies requires one or two reviewers. If the setting is 'YES', both a preliminary and final approval are required. Otherwise, only a single approval is needed.
 - PAT_EPI - Controls access to universal patient search, which allows designated contacts the ability to search test results across patients for any

client without the contact having a direct association with the client. This setting must be present and set to 'YES' to turn on these features.

- PHILISTAUD - Controls whether view patient audit records are captured when viewing a list of patients with their associated clients. Viewing a list of patients is generally considered incidental PII unless the Client can be used to infer something about the patient's health. For example, if the client is a cancer center or a drug treatment facility. Add this setting and set to 'YES' when viewing a list of patients would constitute directed PII access for your laboratory.
- **Results Calculations**
 - Rules Engine is now set up for using sample types in calculations. Sample type can now be used to determine the calculations that can be performed, in addition to Matrix and Method.
 - The calculation equation is expanded to 1000 characters in v2023.1 to allow for increasingly complex equations.
- **Sample Types**
 - 'Proficiency test sample' is added as a new option to the Class drop-down for sample types. Proficiency test (PT) samples can be selected for Competency records when the competency type matches.

Subcontract Data Interface (SDI)

- Process_SDIData function is now separated from autoload_cleanup to reduce impact on customizations.
- When mapping the subcontract laboratory method to the owner lab's procedure using SUBC data mapping in Rules Engine, SDI now checks for combinations of method, matrix, and basis. The first pass checks for all three values concatenated by colons (External value = [method]:[matrix]:[basis]). The second pass is method and basis. The third pass is method and matrix. The final pass attempts to map with only the method.
- Unexpected analytes no longer fail the entire SDI import file. If an analyte is included by the subcontract lab that is valid but does not appear on the analyte list, the record does not move from hdm_instru_data to instru_data. If the analyte is unknown to the owner lab, the result moves to the data pipeline and fails

during results upload with an IA status. The laboratory can choose to resolve this by adding a mapping or by removing the result for the unexpected analyte.

Query Datasets

- A new "Includes PHI" column has been added to the Query Datasets overview grid to identify datasets that contain PHI information. Any query that includes patients, patient_addresses or patient_insurance tables, or includes at least one column interpreted as PatientSeq is automatically identified as including PHI. This grid column is hidden by default.
- For laboratories licensed for patient features, users who do not have permission to view patient identifiers will see a banner informing them that they cannot execute queries that contain PHI. The Preview tab is disabled and any changes to datasets that include PHI cannot be saved.

Utility Scripts

- The lims upgrade script will move National Provider Identifier (NPI) information to the new contact referrer ID field from the previous commonly-used NPI aux data.
- Users who run the Receive_forced_samples job must reload the utility script after upgrading to v2023.1 to successfully compile the job. Note that it is no longer possible to use this job when electronic signatures are required because the job has no way of capturing a signature.

Database Changes

Clinisys Laboratory Platform 2023.1 includes changes to the database that can affect custom software. An overview of these changes is provided below to aid the LIMS Administrator in updating custom software as needed.

Tables

Status	Table Name	Description
Changed	ADDRESS_ DETAILS	Modified fields STREET_ADDR and X_STREET_ADDR to 60 char. Added primary key on ADDR_DETAIL_SEQ.
Changed	ADDRESSES	Added fields UNIVERSAL_SEARCH and REFERRER_IDENTIFIER. Added primary key on ADDR_SEQ. Modified fields ADDR_DETAIL_SEQ and FLAGS to not allow null values. Added foreign key constraint on ADDR_DETAIL_SEQ.
Changed	AUX_DATA	Modified fields AUX_DATA_FORMAT, AUX_DATA_ID, AUX_DATA_TYPE, and AUX_FIELD to not allow null values.
Changed	CT\$ADDRESS_ PRESETS	Modified fields ADDRESS_LINE1 and ADDRESS_LINE2 to 60 char.
Changed	CT\$CALCS	Added field SAMPLE_TYPE. Modified field EQUATION to 1000 char. Added constraint CT\$RK_KYF_SAMPTYPEID.
Changed	CT\$SAMPLE_ TYPES	Modified constraint CT\$SMT_VAL_CLASSTYPE.

Status	Table Name	Description
Changed	CUSTOMERS	Added primary key on CUST_SEQ. Modified fields CUST_NAME, FLAGS, and ACTIVE to not allow null values. Added unique constraint on CUST_ID. Added Y/N value constraint on ACTIVE.
Changed	DEV_MODE	Added field MACHINE_NAME.
Changed	HEARTBEATS	Modified field NAME to 200 char.
Changed	INSTRU_INTERFACES	Added fields INSTRU_PROXY_ID, LAST_HEARTBEAT_DATE, and DOWN_EMAIL_DATE. Added foreign key constraint on INSTRU_PROXY_ID.
Changed	INSTRU_UPLOADS	Added field PROXY_SYS_NAME.
Changed	KITS	Added field EXPIRE_DATE.
Changed	LIMS_USERS	Added field TWO_FACTOR_ENABLED.
Changed	LO_TEMPLATE_GRIDCOLS	Modified constraint TLOTG_VAL_GRID_NAME.
Changed	LOCATIONS	Added primary key on LOCATION_SEQ. Modified fields CREATE_DATE, CREATE_USER, and FLAGS to not allow null values. Added foreign key constraints on CUST_ID and REQNR.
Changed	LOGBOOKS	Added fields DESCRIPTION, HELPFILE_NAME, and HELPFILE_CONTENT.
Changed	PATIENT_ADDRESSES	Modified fields STREET_ADDR and X_STREET_ADDR to 60 char.
Changed	PROFILE_ACODES	Added primary key on PROFILE_ACODE_ID. Modified fields ACODE, FLAGS, SORT_ITEM, and CUSTOM_LIST to not allow null values. Added .C value constraint on CUSTOM_LIST.

Status	Table Name	Description
		Added constraint PROFILEACODES_CUSTOMLIST. Added foreign key constraint on LINE_ITEM_ID.
Changed	PROFILE_LINE_ITEMS	Added primary key on LINE_ITEM_ID. Modified fields LINE_ITEM and PRIMARY_LINEITEM to not allow nulls. Added Y/N value constraint on PRIMARY_LINEITEM. Added A/I value constraint on STATUS. Added foreign key constraint on LOCATION_SEQ.
Changed	PROFILES	Added primary key on REQNR. Modified fields CREATE_DATE, FLAGS, PRICE_CODE, PRIMARY_PROFILE, PROJECT_TYPE, IS_MASTER, and PERCENT to not allow null values. Added Y/N value constraints on PRIMARY_PROFILE and IS_MASTER. Added value constraints on PERCENT and PO_AMT. Added foreign key constraints on CUST_ID, MASTER_REQNR, and LOCATION_SEQ.
Changed	PROJECTS	Added field OWNER_LAB.
Changed	PROJECTS	Added field OWNER_LAB.
Changed	RESULT_CALC_VARS	Modified field CALC_ID to number 9 and to not allow nulls. Added foreign key constraint on CALC_ID.
Changed	RESULT_CALC_S	Added field SAMPLE_TYPE. Modified field EQUATION to 1000 char. Modified field ID to number 9 and to not allow nulls.
Changed	SAMPLE_SCHEDULES	Added fields PH and TEMP.
Changed	SAMPLE_SCHEDULES_CONTAINERS	Added fields PH and TEMP.

Status	Table Name	Description
Changed	SYSDATA	Added field HAS_PHI.
New	COMPETENCIES	New table. Used with Competencies.
New	COMPETENCY_LINKS	New table. Used with Competencies.
New	DATAWRITER_REQUESTS	New table. Used with Datawriters.
New	DB_PATIENT_AUDIT	New table. Used with Auditing.
New	EPI_HDM_ACCESS	New table. Used with LabOnline.
New	INSTRU_PROXY	New table. Used with instrument interfacing.
New	LIMS_USERTOKENS	New table. Used with security.
New	PRINT_JOBS	New table. Used with cloud-based printing.
New	REPORTABLE_RESULT_DOC	New table. Used with Competencies.

Views

Status	View Name	Description
Changed	CTV\$CALCS	Modified view structure.
Changed	CTV\$INSTALL_RK	Modified view structure.
Changed	CTV\$USAGE_MT	Modified view structure.
Changed	CTV\$USAGE_MX	Modified view structure.
Changed	CTV\$USAGE_SMT	Modified view structure.
Changed	FDC\$SAMPLE_SCHEDULE_EVENTS	Modified view structure.
Changed	FDC\$SAMPLE_SCHEDULES	Modified view structure.

Status	View Name	Description
Changed	LO\$ACODE_CATALOG_ANALYTES	Modified view structure.
Changed	LO\$ACODES	Modified view structure.
Changed	LO\$KITS	Modified view structure.
Changed	LO\$PATIENT_BASE	Modified view structure.
Changed	LO\$PATIENTS	Modified view structure.
Changed	LO\$REPORTS	Modified view structure.
Changed	V\$BACKLOG_SCHEDULE_DETAILS	Modified view structure.
Changed	V\$BACKLOG_SCHEDULES	Modified view structure.
Changed	V\$BACKLOG_SCHEDULES_BY_DEPARTMENT	Modified view structure.
Changed	V\$BATCH_ELIGIBLE_TASKS	Modified view structure.
Changed	V\$INSTRU_INTERFACES	Modified view structure.
Changed	V\$KITS	Modified view structure.
Changed	V\$REPORT_DELIVERY	Modified view structure.
Changed	V\$SAMPLE_SCHEDULES	Modified view structure.
New	LO\$PATIENTS_ALL	New view. Used with LabOnline.
New	LO\$PROJECTS_ALL	New view. Used with LabOnline.
New	LO\$SAMPLES_ALL	New view. Used with LabOnline.
New	LO\$TEST_SUMMARY_DETAILS	New view. Used with LabOnline.
New	LO\$TEST_SUMMARY_TESTS	New view. Used with LabOnline.

Sequences

Status	Sequence Name	Description
New	COMPETENCY_LINK_SEQ	New sequence. Used with COMPETENCY_LINKS.
New	COMPETENCY_SEQ	New sequence. Used with COMPETENCIES.
New	DATAWRITER_REQUEST_SEQ	New sequence. Used with DATAWRITER_REQUESTS.
New	DB_PATIENT_AUDIT_SEQ	New sequence. Used with DB_PATIENT_AUDIT.
New	EPI_HDM_ACCESS_SEQ	New sequence. Used with EPI_HDM_ACCESS.
New	INSTRU_PROXY_SEQ	New sequence. Used with INSTRU_PROXY.
New	PRINT_JOBS_SEQ	New sequence. Used with PRINT_JOBS.
New	RESULT_CALC_SEQ	New sequence. Used with RESULT_CALC.

Stored Procedures and Scripts

Status	Package Name	Description
Changed	AUTOLOAD_CLEANUP	Modified default behavior of this customizable function.
Changed	APIHL7	Modified default behavior of this exposed package.
Changed	COMPLIANCE_REPORT	Modified job script for the Compliance report job.
Changed	DELIVERY_SUMMARY	Modified default behavior of this customizable function.
Changed	DOWNLOAD	Modified job script for the Download job.
Changed	DOWNLOAD_FORMAT_A	Modified job script for the Download Format A job.

Status	Package Name	Description
Changed	GENERATE_ARFILE	Modified job script for the Generate AR File job.
Changed	GENERATE_LIQUID_HANDLER_FILE	Modified job script for the Generate Liquid Handler File job.
Changed	GENERATE_PLATE_INSTRUMENT_FILE	Modified job script for the Generate Plate Instrument File job.
Changed	HL7_INTERFACE	Modified job script for the HL7 Interface job.
Changed	INVOICE_TRK	Modified job script for the Invoice report job.
Changed	MONITOR	Modified job script for the Monitor job.
Changed	PATIENT_MATCH	Modified default behavior of this customizable function.
Changed	POWERGRID_DEFAULTS	Modified default behavior of this customizable function.
Changed	POWERGRIDSORT	Modified default behavior of this customizable function.
Changed	RPT_LIBRARY_FINALREPORT	Modified default behavior of this exposed package.
Changed	RPT_LIBRARY_SHARED	Modified default behavior of this exposed package.
Changed	SUBCONTRACT	Modified default behavior of this customizable package.
Changed	VALIDATE_PASSWORD	Modified default behavior of this customizable function.
New	COMPETENCY_REPORT	New job script for the Competency report.
New	GENERATE_GENEPORTAL_FILE	New job script for the Write Gene Portal File datawriter job.

Status	Package Name	Description
New	PROCESS_SDI_DATA	New customizable hook, extracted from AUTOLOAD_CLEANUP.
New	WRITE_GENEPORTAL_DATA_FILE	New Write Gene Portal File datawriter.

Quality-Assurance (QA) Configurations

Component	Operating System	Third-party-applications
Database server	<ul style="list-style-type: none"> Windows Server 2019 Windows Server 2022 Red Hat Enterprise Linux 8.4 (Ootpa) 	Oracle Server 19c (19.0.0.0.0) - Production Version (19.17.0.0.0)
Application server	<ul style="list-style-type: none"> Windows Server 2019 Windows Server 2022 	<ul style="list-style-type: none"> Oracle Client 19c (19.0.0.0.0) - Production Version (19.3.0.0.0) IIS 10 .Net Core 6.0.10
LabOnline, Patient Portal Server	<ul style="list-style-type: none"> Windows Server 2019 Windows Server 2022 	<ul style="list-style-type: none"> Oracle Client 19c (19.0.0.0.0) - Production Version (19.3.0.0.0) IIS 10 .Net Core 6.0.10
External API Server	<ul style="list-style-type: none"> Windows Server 2019 Windows Server 2022 	<ul style="list-style-type: none"> Oracle Client 19c (19.0.0.0.0) - Production Version (19.3.0.0.0) IIS 10 .Net Core 6.0.10
Interfacing Server (cloud only)	<ul style="list-style-type: none"> Windows Server 2019 Window Server 2022 	<ul style="list-style-type: none"> IIS 10 .Net Core 6.0.10
Workstation	<ul style="list-style-type: none"> Windows 10 (64 bit) 	<ul style="list-style-type: none"> Chrome

Component	Operating System	Third-party-applications
	<ul style="list-style-type: none"> Windows 11 	112.0.5615.138 <ul style="list-style-type: none"> Microsoft Edge 112.0.1722.68
Field	<ul style="list-style-type: none"> Apple iPad (7th Generation) (9.7"), iOS 15.4.1 Windows Surface Go (10.8"), Version 10.0.19043 OS Build 19043 Samsung Galaxy Tab A (10.1"), Android 11 	<ul style="list-style-type: none"> IOS 16.4.1(a)
Data Innovations Instrument Manager	<ul style="list-style-type: none"> Windows 10 (64 bit) Windows 11 	DI Instrument Manager IM2020 MR3 (8.17.30)

Support Lifecycle

Release	Release Date	Full Support End Date*	Data/Content Management Compatibility	Report Management Compatibility
v11.1.3	4/1/2015	4/29/2017	SDMS v8 SR1	Actuate v11.0
v11.2	4/29/2016	4/29/2018	SDMS v8 SR1	Actuate v11.0
v12.3	6/22/2015	12/31/2017	HCM, HDX	Actuate v11.0
v12.4	10/14/2016	10/14/2018	HCM, HDX	Actuate v11.0, LabOnline
v12.5	9/21/2017	9/21/2019	HCM, HDX	Actuate v11.0, LabOnline
v12.6	3/2/2018	3/2/2020	HCM, HDX Server	Actuate v11.0, LabOnline
v12.7	9/27/2018	9/27/2020	HCM, HDX Server	Actuate v11.0, LabOnline
v12.8	4/8/2019	9/27/2020	HCM, HDX Server	Actuate v11.0, LabOnline
v12.9	9/23/2019	2/23/2022	HCM, HDX Server	Actuate, Telerik, LabOnline
v13.0	8/10/2020	8/10/2022	HCM Database, HDX Server	Telerik, LabOnline
v13.1	3/22/2021	12/22/2022	HCM Database, HDX Server	Telerik, LabOnline
v13.2	9/27/2021	6/30/2023	HCM Database, HDX Server	Telerik, LabOnline
v13.3	7/11/2022	7/11/2024	HCM Database, HDX Server	Telerik, LabOnline
v13.4	9/23/2022	7/11/2024	HCM Database, HDX Server	Telerik, LabOnline

*Extended support (bug fixes and troubleshooting) available after this date is determined on a best-effort time and materials basis.