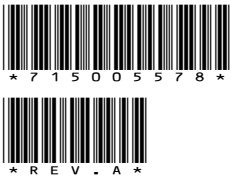

Waters
THE SCIENCE OF WHAT'S POSSIBLE.™

EDS 365 Service Release 5

User's Guide

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Revision A

General information

Copyright notice

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Audience and Purpose

This guide is intended as an aid to Empower personnel who are involved with using the Waters EDS365 software to monitor Empower installations.

Customer comments

Waters' Customer Experience and Knowledge Management organization invites you to report any errors that you encounter in this document or to suggest ideas for otherwise improving it. Help us better understand what you expect from our documentation so that we can continuously improve its accuracy and usability.

We seriously consider every customer comment we receive. You can reach us at tech_comm@waters.com.

Contacting Waters

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Conventional mail	Waters Corporation Global Support Services 34 Maple Street Milford, MA 01757 USA

Updated information

Refer to the Waters website (www.waters.com) and click **Services & Support** > **Support Library** for updates to this document.

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1 Introduction

EDS365 uses data from multiple Empower nodes or instances to provide metrics for monitoring the effectiveness and efficiency of your laboratories.

Important: EDS365 highlights specific metrics that may be associated with chromatography data-integrity issues. In such cases, you may want to investigate these metrics to determine if data integrity issues are present. You should always investigate the issues in the Empower system to determine if they merit concern.

Note:

- The presence of these metrics may not necessarily indicate that data integrity issues exist.
- Data integrity issues may exist despite the absence of data integrity related metrics.

EDS365 collects information from Empower databases and stores the extracted data in an EDS365 database, separate from the Empower databases. EDS365 periodically scans the Empower databases and updates the EDS365 database. EDS365 reads Empower data without modifying the Empower databases.

You connect to EDS365 through a browser. The EDS365 interface organizes data in dashboards that you access from the **Dashboards** drop-down menu. Dashboards contain multiple tabs, each with multiple sections that contain groups of data.

EDS365 contains two types of dashboards:

- A scorecard dashboard that displays key performance indicators for measuring system utilization, Message Center activity, and laboratory workflow.
- Data dashboards that display various data tables that you can filter to extract useful information.

EDS365 uses Oracle Business Intelligence that enables you to rearrange data tables, examine data relationships, and drill down on data values.

1.1 Using filters

Use filters to restrict the displayed data based on specified criteria. Most tabs contain filter fields at the top of the page. Filters for some sections in the tabs also contain filter fields in boxes on the left side of the page.

Tip: By using multiple filters with limited scope you can greatly reduce the time required to display results.

After you configure filters for a page, you can save the configuration by selecting **Save current customization** in the drop-down menu in the upper right corner of the page.

To specify filter criteria:

1. Specify the filter criteria by typing in text, by selecting from the drop-down list, or by typing text in the Search field at the bottom of the drop-down list.
2. Click outside the filter box to set the filter value.
3. Click **Apply**.

   Result: The filtered data appears on the page.

1.1.1 Using the Is Online filter

On the **Projects** tab, and on various **System Usage** tabs, you can use the **Is Online** filter to display data based on project availability. Because the **Is Online** value for the top node of the project hierarchy is Null, filtering with only yes or no returns no data from the top level, or from any lower levels. To ensure correct filtering, select Null along with Y (yes) or N (no).

1.1.2 Using the System Name filter

On the **System Usage** tabs, you can use the **System Name** filter to display data from a specified group of systems. By default, the **System Name** filter uses the 10 systems with the highest usage, and displays data from the last 120 systems. With the **System Name** filter you can specify systems that represent meaningful groups, such as laboratories or teams.

Important: Specifying a lengthy time period or a large number of systems can take an inordinate amount of time to display, or the information may fail to display.

1.2 Drilling down on data links

Many of the data items displayed on a tab contain links to additional detailed information. Data items with links display in blue text. Left clicking a data item displays a submenu with links for navigation.

Some links display pages specific to the data, others link to another dashboard window.

To drill down on data:

1. Click the data link.

   Result: A window or dialog box appears with additional information.
2. If applicable, click data links to further drill down.

Result: Windows or dialog boxes appear with additional information.

3. To return to the previous page, click one of the following:
   - **Back**: to return to the previous page.
   - **Return**: to return to the initial page.
   - **Breadcrumbs**: to return to the initial page through the pages in your browsing path.

   Note: Not all windows or dialog boxes display all of the buttons.

   Tip: Avoid using the **Back** button or other navigational feature in the browser, as this resets any specified search criteria.

1.3 Drilling down on date columns

Many data tables contain date columns, such as years. You can click a date column header to drill down to a lower date type. For example, clicking a year date column header displays the table with a month date column and restricts the data to the new date column range. Clicking the month column header displays a week column, and so on.

1.4 Empower Dimensions

Many tables on the **EDS365** tabs contain an Empower Dimension column. An Empower Dimension consists of one or more Empower databases, typically in a common geographical area. The tables often group data by Empower Dimensions.

1.5 Empower Projects

Most tables include an **Empower Projects** column that you can use to filter data for display. By selecting a group of projects, you can identify a specific group for analysis, such as a department or laboratory. Empower Projects can be hierarchical.

1.6 Manipulating columns in tables

On dashboard windows, you can re-arrange columns and separate columns from a data table.

By dragging a column from a table, you can create a pivot table, similar to the pivot tables commonly used with spreadsheets. By right-clicking a table header, you can include other columns in the table. You can also separate a column from a table and use the column as a sorting variable.

Click the top of a table to remove columns and to select columns for display.

1.7 Expanding hierarchies

You can click the **+** on data with hierarchical values, such as Empower dimension, Empower node, or Project dimension, to display information for the lower levels of the hierarchy.

1.8 Percent usage calculations

The percent usage calculation expresses the relative amount of time that a system was run during a period of time when the system was available. The percent usage value is calculated as follows:

Percent usage = (total system run time/total system availability) * 100

Important: The percent usage value can vary significantly depending on system availability. For example, a system with a 20 percent usage value may suggest that the system is significantly utilized, but if the system was actually utilized for only a short time, such as one week out of a year, then the system utilization can be exaggerated.

2 Using data dashboards

Use data dashboards to view groups of data for your Empower system. The data dashboards contain the raw data used to create the material displayed on the Scorecard dashboard.

EDS365 contains the following data dashboards:

- Empower Laboratory Management Analysis dashboard.
- Column Usage and Performance dashboard.
- Data Integrity dashboard.
- Custom Field Information dashboard.

To display a data dashboard, select the dashboard entry from the **Dashboards** menu in the upper right-hand corner of the window.

2.1 Empower Laboratory Management Analysis dashboard

The Empower Laboratory Management Analysis dashboard contains data for several system metrics, including project data, instrument data, and Message Center data.

The Empower Laboratory Management Analysis dashboard contains the following tabs:

- **Laboratory Overview** tab: includes user account data, instrument data, and data for Empower computing systems.
- **Projects** tab: includes data for projects and project groups.
- **Sample Sets** and **Sample Sets Workflow** tabs: includes data, such as the number of sample sets created during specific times, the number of unfinished sample sets.
- **Injections** tab: includes data about injections, such as the number of injections performed within a specified date range, and may be drilled into to interrogate single injection details in the Injection Details Dashboard Page.
- **Channels** tab: includes data about channels, such as the number of channels created within a specified date range.
- **Results** and **Result Details** tabs: includes information about results, such as the number of results within a specified date range, and information about individual results.
- **Peak Details** tab: includes summary data for result peaks.
- Seven **System Usage** tabs: include usage data and usage patterns by time ranges, or by methods and users, expressed in local or GMT time.

- **Process Flow** tab: includes data indicating bottlenecks in the laboratory.
- **ACQUITY UPLC Estimator** tab: provides an estimate of the potential runtime savings had an injection been acquired with UPLC.
- Three **Message Center** tabs: include summary data of message types for each node and details of each message.
- Four **Audit Trail** tabs: includes data about audit entries, such as the number of audit entries for the most common audit actions, and the number of entries within a specified time period, involving specific users and projects.
- **Users** tab: includes information about user account statuses, and about groups, projects, and systems assigned to users.

2.1.1 Laboratory Overview tab

The **Laboratory Overview** tab contains tables with data for the following sections:

- User account status: includes the number of active, inactive, disabled, and removed user accounts. Drilling down displays a list of user names.
- Chromatographic systems with injections: includes the number of online, offline, and unconfigured systems. Drilling down displays a list of systems relating to the selected item.

  Note: Unconfigured systems with previously acquired data are included in EDS365.
- Empower computing systems: includes the number of Empower client, LAC/E32, and server systems. Drilling down enables you to view information for individual nodes.
- User groups: includes the number of user groups for each node. Drilling down displays a list of user group names.
- User types: includes the number of user types for each node. Drilling down displays a list of user type names.
- Empower administrators: includes the number of group administrators, with active, disabled, or removed status, for each node. Drilling down displays a list of administrator names.
- Project Information: includes the number of online projects, each project's type, and lock status. Drilling down displays a list of projects relating to the selected item. Also includes a configurable chart that shows the on-line status, the projects by type, or the projects by lock status.

You can filter data on the tab by Empower dimension.

2.1.2 Projects tab

The **Projects** tab contains tables with data for the following sections:

- Project Summary: includes information in the following views:

- Project Summary Value Info view: includes project counts for on-line status, manually processed data, manually integrated data, sample set count, injection count, channel count, results count, custom field, levels 1 and 2 signoffs, and project last used date.
- Project Summary Date Info view: includes newest and oldest dates for sample sets, injections, results, and sign-offs. Provides useful information for scheduling data archiving.
- Project Summary Administrative view: includes lock status, integrity, quota size, used size, free size, percent used and percent free.

- Parent projects and data collection: includes information for parent projects containing acquired data.

You can filter data on the tab by Empower node and project online status. You can also filter the **Projects** tab by project dimension, such as project groups in specific sites or specific roles. If you create a custom view with project dimensions, the view automatically adds new projects as they become available.

2.1.3 Sample Sets tab

The **Sample Sets** tab contains tables with data for the following sections:

- Sample Sets: includes tables with information about the number of sample sets created within the specified date range. You can drill down on the number of sample sets to show information about the sample set names, associated projects, and users.

  Note: To include the sample sets with the oldest and newest dates, leave the Date filter fields blank. Because blank fields return all sample sets, the retrieval process can take significant time and consume significant resources.
- Number of Sample Sets by Date: includes a pivot table and chart with information about the number of samples sets for the selected year. You can drill down to show information about the quarterly, monthly, weekly, or daily values.
- Number of Sample Sets by Month: includes a pivot table and chart with information about the number of samples sets for a specific month. You can drill down to show information about the weekly or daily values.
- Unfinished Sample Set Summary: includes a table with information about the number of unfinished sample sets. You can drill down on the number of unfinished sample sets to show information about the sample set names, associated projects, and users.

You can filter data on the tab by Empower node, date, and project name.

2.1.4 Sample Set Workflow tab

The **Sample Set Workflow** tab contains the Sample Set Workflow Analysis section with a compilation of result and sign-off data you can use to determine the workflow.

You can filter data on the tab by Empower node, date, system name, and project name.

2.1.5 Injections tab

The **Injections** tab contains tables with data for the following sections:

- Injections: includes tables with information about the number of injections performed within the specified date range. You can drill down on the number of injections to show information about the associated projects and users.

  Note: To include the injections with the oldest and youngest dates, leave the Date filter fields blank. Because blank fields return all injections, the retrieval process can take significant time and consume significant resources.

- Number of Injections by Date: includes a pivot table and a chart with information about the number of injections for the selected year. You can drill down to show information about the quarterly, monthly, weekly, or daily values.
- Number of Injections by Month: includes a pivot table and a chart with information about the number of injections for a specific month. You can drill down to show information about the weekly or daily values.

You can filter data on the tab by Empower node, date, and project name.

2.1.6 Injection Details tab

The **Injection Details** tab contains the Injection Details section with information about injections, such as node, project name, sample set name, sample set ID, acquired by, system, method name, method ID, vial, vial ID, sample name, timestamp data, and injection ID.

You can filter data on the tab by Empower node, date, project, sample set name, sample set ID, acquired by, system, vial, vial ID, sample name, and injection ID.

2.1.7 Channels tab

The **Channels** tab contains tables with data for the following sections:

- Channels: includes tables with information about the number of channels performed within the specified date range. You can drill down on the channels to show information about the associated projects and users, and whether the channel is processed.

  Note: To include the channels with the oldest and youngest dates, leave the Date filter fields blank. Because blank fields return all channels, the retrieval process can take significant time and consume significant resources.

- Number of Channels by Date: includes a pivot table and chart, with information about the number of channels for the selected year, processed and unprocessed. You can drill down to show information about the quarterly, monthly, weekly, or daily values.
- Number of Channels by Month: includes a pivot table and chart, with information about the number of channels for a specific month, processed and unprocessed. You can drill down to show information about the weekly or daily values.

- Number of Unlocked Channels by Month: includes a pivot table and information about the number of unlocked channels for a specific month. You can drill down to show information about the weekly or daily values.
- Unprocessed Channels: includes a table with the number of sample sets for each project, and the number of processed and unprocessed channels for each project.

You can filter data on the tab by Empower node, date, and project name.

2.1.8 Results tab

The **Results** tab contains tables with data for the following sections:

- Results: includes tables with information about the number of results performed within the specified date range. You can drill down on the number of results to show information about the associated projects and users.

  Note: To include the results with the oldest and youngest dates, leave the Date filter fields blank. Because blank fields return all results, the retrieval process can take significant time and consume significant resources.
- Number of Results by Date: includes a pivot table and a chart with information about the number of results for the selected year, processed and unprocessed. You can drill down to show information about the quarterly, monthly, weekly, or daily values.
- Number of Results by Month: includes a pivot table and a chart with information about the number of results for a specific month. You can drill down to show information about the weekly or daily values.
- Results not signed off: includes a pivot table and information about the number of results not signed-off.

You can filter data on the tab by Empower node, date, and project name.

2.1.9 Result Details tab

The **Result Details** tab contains the Result Details section with information about injections, such as node, project, sample name, result set, sample name, system, method, user, and timestamp.

You can filter data on the tab by Empower node, date, project, sample set ID, result set, result ID, user, acquisition date, sample name, system name, processed by, and injection ID.

2.1.10 Peak Details tab

The **Peak Details** tab contains a table with the following items:

- Empower node
- Schema

- Result ID
- Peak name
- Integration type

The **Peak Details** section contains information for evaluating integration types in specified peaks.

You can filter data on the tab by Empower node, schema, peak name and integration type.

2.1.11 System Usage tabs

The **System Usage** tabs contain tables with data about system injection counts and system run-time information. Usage data provides information useful for maintenance scheduling or for throughput adjustments. By default, System Usage tabs display information for the 10 most utilized systems over the past 120 days. You can specify the time period for the data, such as a work week (Monday through Friday, 9:00 AM to 5:00 PM).

2.1.11.1 System Usage - Date tab

The **System Usage - Date** tab shows overall productivity and the productivity of individual systems. The **System Usage - Date** tab contains the following sections:

- All systems usage by month: includes system injection counts and system runtime information for all systems over a specified month. You can drill down on data by year, quarter, month, or week to view individual results for each time period.
- System usage by month: includes injection counts and system runtime information for individual systems over a specified month. You can drill down on data by year, quarter, month, or week to view individual results for each system in each time period. You can also view a chart with the number of injections, or the cumulative number of injections, by run time minutes, or by cumulative runtime minutes.

You can filter data on the tab by date, Empower node, system name, and online status.

2.1.11.2 System Usage - Date - Days Used tab

The **System Usage - Date - Days Used** tab shows system usage, such as when a system was last used and the number of days of use during the time the system was available. Also, the data shows the users who utilized a system and the busiest days and months of use. The **System Usage - Date - Days Used** tab contains the following sections:

- System usage - Days Used: includes the injection counts and running times of individual systems. You can drill down on data by system name to show data from the **System Usage -**

Date tab. From the drop-down list above the chart, you can also view a chart with the number of injections or the run-time minutes, or by days used.

- System usage - Days Used by user: includes individual systems and the users who used them to acquire data.
- System usage - days in use: includes the number of times a system was used on specified days in a given month and year, and the number of times a system was used during specified months in a specified year.

You can filter data on the tab by date, Empower node, system name, and online status.

2.1.11.3 System Usage - Local tab

The **System Usage Local** tab includes system injection counts and system run-time information for specified groups of systems over specified time periods. Acquisition dates and times are expressed in the local time where the acquisitions occurred. For system usage data in global dates and times, see System Usage - GMT. The **System Usage Local** tab contains tables with data for the following sections:

- Total system usage: includes the overall average system usage for the specified time period.
- System usage by date: includes the average system usage within the specified time period, separated by years.
- System usage by date: includes the average system usage within the specified time period.
- System usage details by date: includes the system usage by year for individual systems within a specified time frame. You can drill down on the year to view details, such as usage per quarter, usage per month, or usage per week. You can modify the tables to display the usage percentage, injection count, and system availability.
- System usage details by system: includes the system usage by year for individual systems as an average over the specified date range. You can modify the tables to display the usage percentage, injection count, and system availability.
- System usage percent thresholds: enables you to conditionally format the dashboard colors.

You can filter data on the tab by date, Empower node, system name, online status, work days, and work hours.

2.1.11.4 System Usage Patterns - Local

The **System Usage Patterns - Local** tab includes average percentages for daily usage within specified time periods The data can show trends for system usage and throughput using conditional formatting. Acquisition dates and times are expressed in the local time where the acquisitions occurred. For system usage patterns with global dates and times, see System Usage Patterns - GMT. The **System Usage Patterns - Local** tab contains tables with data for the following sections:

- System usage – hourly by day of week: includes the average usage percentage on specific days during the specified time period. You can drill down on the day to view individual usage

numbers. You can modify the tables to display the usage percentage, injection count, and system availability.

- System usage hourly by date: includes the average usage percentage for specified days within the specified time period, broken down into separate years. You can drill down on the year to view details, such as usage per quarter, month, or week. You can modify the tables to display the usage percentage, injection count, and system availability.
- System usage (percent) thresholds: enables you to conditionally format the colors on the dashboard tables.

You can filter data on the tab by date, Empower node, system name, online status, work days, and work hours.

2.1.11.5 System Usage GMT tab

The **System Usage GMT** tab is identical to the **System Usage Local** tab, except that acquisition dates and times are expressed in GMT.

2.1.11.6 System Usage Patterns - GMT

The **System Usage Patterns - GMT** tab is identical to the **System Usage Patterns - Local** tab, except that acquisition times are expressed in GMT, rather that the local time where the data was acquired. Using GMT time for all data enables you to analyze data from disparate geographical installations using synchronized time values, for example, to identify times when servers process the heaviest loads.

2.1.11.7 System Usage Method/User tab

The **System Usage Method/User** tab displays channel counts, number of methods, number of users, and number of systems. For example, the data might indicate that certain users utilize specific systems or have the most methods, or which systems are used most flexibly. The **System Usage Method/User** tab contains tables with data for the following sections:

- System usage by methods and users section includes channel count, number of instrument methods, number of users, number of instrument methods, and number of systems.
- System usage by user: includes a pivot table of the **System usage by methods and users** section data.
- System usage by method: includes the number of channels, users, and systems associated with each method.
- System usage by user and method: includes the method names and user names, and you can sort the data to display the methods and users that acquire the greatest number of injections.

You can filter data on the tab by date, Empower node, system name, and online status.

2.1.12 Process Flow tab

The **Process Flow** tab enables you to identify obstructions in your laboratory processes that require two approval sign-offs. The **Process Flow** tab contains tables with data for the following sections:

- Process Flow by Projects Top 10 Across All Nodes: includes information for injections, the first and second sign-off times, and the number of sample sets acquired per project per year. You can also filter the table by project. You can drill down to show process flow for Sample Sets within a project. You can also drill down to show the number of projects and the names of projects using sign-offs within a year.
- Process Flow by Method Top 10 Across All Nodes: includes information for injections, the first and second sign-off times, and the number of sample sets acquired per method per year. You can also filter the table by method. You can drill down to show process flow for Sample Sets within a method. You can also drill down to show the number of methods and the names of methods using sign-offs within a year. You can drill down on a year to show the weekly, monthly, and quarterly values.

You can filter data on the tab by Empower node and by date.

Note: You must use electronic signatures with your Empower system to utilize the **Process Flow** tab.

2.1.13 ACQUITY UPLC Estimator tab

The **Acquity UPLC estimator** tab contains the Acquity UPLC estimator section with information about injection times for all acquired injections, including total run time, and an estimate of the potential runtime savings had the injections been acquired with a Waters Acquity Ultra Performance Liquid Chromatography system. You can drill down to show information about the potential savings in specific methods, projects, and systems.

You can filter data on the tab by Empower node, date, and system configuration.

2.1.14 Message Center tab

The **Message Center** tab contains tables with data about messages in all Message Centers monitored by EDS365. You can use the **Message Center** tab to monitor Message Center usage, and to periodically purge obsolete messages.

The **Message Center** tab contains the Message center summary (unfiltered) section that by default shows the newest and oldest messages, and the total number of messages, identified by the message type of Error, Inform or Warn, and the message sub-section of General, Instrument, Processing or Security. Drilling down shows the individual message details.

With the dashboard's View selector, you can show the summary information in two different views:

- The Message summary by user, application view shows data relating to individual systems.
- The Display the top number of messages by number of messages view shows the top number of messages, and the percentage of the total messages the top number represents, relating to the Application, User Name or Project Name as selected. You can view the data as a table, pivot table, or chart.

2.1.15 Top Messages tab

The **Top Messages** tab includes information about the most common messages. Drilling down shows the **Message Details** tab.

The Display the Top Number of Messages by Detail section shows the top error messages, including their message type and category. It also shows the number of messages collected and the percentage of the audit trail to which the messages pertain. You can drill down on the number of messages value to show the projects to which the messages apply, and then you can drill down to the **Message Details** tab.

You can filter the messages on the tab by date and by Empower node. To search for specific messages, such as instruments or error types, you can use the Enter Message String option.

2.1.16 Message Details tab

The **Message Details** tab includes messages, message types, message categories, and total numbers of each type. Each message includes the percentage of the total messages to which it applies. To search for a specific message, or to exclude messages of no interest, in the Enter Message String text box, type a text string contained in the message.

You can filter the messages on the tab by date, node, project, application, user name, message type, message category, and by message.

2.1.17 Audit Trail – System tab

System audit trails can contain large numbers of audit entries that affect performance, storage capacity, and management costs. You can use the **Audit Trail - System** tab to manage audit trail entries. You can view data for the on-line audit trail and the off-line audit trail.

The **Audit Trail - System** tab contains tables with data for the following sections:

- Audit trail by top 15 selected actions: Includes a table with the number of audit entries for the 15 most common audit actions. You can drill down to show the action details.
- Audit trail by action: Includes a table with the total number of each audit entries for each audit action, and the percentage of the overall audit trail. You can drill down to show the action details.
- Audit trail by date: Includes a table with the number of audit entries created within the specified date range. The section shows three views of the data:

- A chart showing the number of entries for each month.
- An analysis showing the number of entries for each month, with the option to drill down to show details.
- A chart showing number of monthly entries and the cumulative number of entries.

You can filter data on the tab by Empower node, date, audit trail source, and action. You can also use the pattern match tool.

2.1.18 Audit Trail Details – System tab

The **Audit Trail Details - System** tab contains the Audit Trail Details - System section with a table listing recorded audit trail actions, user names, and audit entry details.

You can filter data on the tab by Empower node, date, audit trail source, action, user name, user type, record type, and details, such as key value "pattern match".

2.1.19 Audit Trail - Projects tab

The **Audit Trail - Projects** tab contains tables with data for the following sections:

Note: When a database contains a large number of audit records, the **Audit Trail - Projects** tab may use an inordinate amount of time and resources to display information when you specify a substantial time period. To minimize the impact, use the Date filter to limit the data retrieval to a manageable time period.

- **Audit trail by date - project**: Includes the following information:
  - A table showing individual actions, the projects with each action, the number of entries, and the percentage of the overall audit trail.
  - A table showing the number of audit trail entries per month and the cumulate total. You can drill down to show details.
  - A chart showing the cumulative audit trail entries for each month.
- **Audit trail entries per project**: Includes a table with all projects and the total number of audit entries for each.

You can filter data on the tab by Empower node, date, project name, details, and action.

2.1.20 Audit Trail Details – Projects tab

The **Audit Trail Details - Projects** tab contains the Audit trail details - projects section with a table listing all recorded audit trail actions, including user names and details.

You can filter data on the tab by Empower node, date, project name, system, action, user name, user type, record type, and details, such as key value "pattern match".

2.1.21 Users tab

The **Users** tab contains tables with information about your user's accounts, including account status, account type, projects assigned to users, groups assigned to users, and systems assigned to users.

The **Users** tab contains the following sections:

- Current Users Summary: includes a table with the number of users with the following account statuses:
  - Active
  - Disabled
  - Removed

  You can drill down to show a list of user names for each category.
- User account details - types and groups: includes a table with the user types for each user account, and a table with the groups for each user account.
- User account details - projects and systems: includes a table with the projects assigned to each user account, and a table with the systems assigned to each user account. You can drill down to show a user's assigned projects, or a user's assigned systems.
- Injection run time by user and project: includes a table with the injection counts and run-time minutes for each project for each user account.
- Top 10 users by node - injections per project: includes a table with the injection counts for each project for the 10 users with the most injection counts.

You can filter data on the tab by Empower node, user name, and user account status.

2.2 Column Usage and Performance dashboard

The Column Usage and Performance dashboard contains data for several system metrics, including the numbers of injections and system runtime durations.

The Column Usage and Performance dashboard contains the following tabs:

- **Column Usage** tab: includes column IDs and usage data by projects, individual systems, instrument methods, and by specific sample sets.
- **Column Performance** tab: includes metrics to determine column performance.

Note: Only Waters manufactured columns display a column ID.

2.2.1 Column Usage tab

The **Column Usage** tab contains tables with data for the following sections:

- Column Usage: includes information about usage of an individual column ID, such as the number of injections, the run-time minutes, dates of the first and most recent usage, and the total number of days used.
- Column Usage by Project, System, and Sample Set: includes information about column usage for an individual column. You can view the data by project, system, or sample set.
- Column Usage by Instrument Method: includes detailed information about methods used by individual columns.

You can filter data on the tab by Empower node, project, and column ID.

2.2.2 Column Performance tab

The **Column Performance** tab contains a table that indicates the performance of individual columns, based on average tailing factor, resolution, plate count, number of results and sample sets, date range, and length of use. You can select to view the data by project, system, or method.

You can filter data on the tab by Empower node and column ID. You can also search by peak name, method name, sample set name, project name and date used.

2.3 Data Integrity dashboard

The Data Integrity dashboard contains data for several system metrics, including information about unprocessed or aborted injections, and multiple injections on single samples.

The Data Integrity dashboard also contains a keyword search feature for locating data in the database.

The Data Integrity dashboard contains the following tabs:

- **Maintain Data Integrety Scorecard** tab: displays metrics specific to data integrity.
- **Single Injection Details** tab: includes information about individual injections not associated with a sample set.
- **Unprocessed Injections** tab: includes information about unprocessed injections.
- **Injections, Sample Sets, Unprocessed Channels filtered by Sample Names** tab: includes information about injections that you can filter based on many factors, such as sample sets and vials.
- **Single Vial Sample Sets** tab: includes information about sample sets that contain a single vial and injection.
- **Aborted Single Injections** and **Aborted Sample Sets** tabs: includes information about aborted injections, such as the audit timestamp and audit reason, and information about aborted sample sets, such as the audit timestamp and audit reason.

- **Multi-Tested Samples** and **Multi-Tested Sample Sets** tabs: includes information on multiple injections for a single sample, and information on multiple sample set IDs that exist for a single sample set.
- **Keyword Analysis** tab: enables you to locate keywords in the data set, such as sample names.
- **Project Audit Trail Policies** tab: includes information about policies associated with projects, and lists changes to project policies.
- **Reprocessed Data** tab: includes information about sample sets with manually entered or reprocessed result data.
- **Incomplete Signoff Analyses** and **Incomplete Signoff Details** tabs: include information about approval sign-offs.

2.3.1 Maintain Data Integrity Scorecard tab

The **Maintain Data Integrity Scorecard** tab displays metrics specific to data integrity. For more information, see the Maintain Data Integrity tab on the Scorecard dashboard.

2.3.2 Single Injection Details tab

The **Single Injection Details** tab contains a table in the Injections and specific custom field information section with data for each single injection not linked to a sample set (with a sample set ID of null). Data includes the corresponding Empower node, project, sample name, injection ID, system, user, acquisition timestamp, method, and data from up to 12 custom fields.

Custom field column titles populate from titles assigned in the Empower instance, following batch file updates to materialized views. Specify custom fields by substituting CF1_COLUMN… to return the values of interest.

Note: Custom fields values must be extracted to be shown.

You can filter data on the tab by Empower node, project, date range, and channel.

2.3.3 Unprocessed Injections tab

The **Unprocessed Injections** tab contains a table with data for injections without processed associated channels.

Additional information includes the corresponding Empower node, project name, sample set ID, sample name, vial ID, injection ID, chromatogram ID, channel, number of results, and timestamp local.

You can filter data on the tab by Empower node, project name, date, and channel exclusion. Specifying `NOT` excludes the channel from the data.

2.3.4 Injections, Sample Sets, Unprocessed Channels filtered by Sample Names tab

The **Injections, Sample Sets, Unprocessed Channels filtered by Sample Names** tab provides a search utility for finding information about injection details, sample sets, and unprocessed channels. The **Injections, Sample Sets, Unprocessed Channels filtered by Sample Names** tab contains tables with data for the following sections:

- Injection details: returns search results with information for specific samples, including Empower node, project name, sample name, sample set name and ID, acquisition name, vial ID, injection ID, and acquired by.
- Injection sample sets: returns search results with information for specific samples sets, including system name, method name, and method ID.
- Unprocessed channels: returns search results with information for unprocessed channels without associated results.

Note: You can filter the results based on specified samples or system channels. The default setting excludes all non-injection channels.

You can filter data on the tab by Empower node, project, date range, sample name, system name, sample set name and ID, vial name and ID, acquired by, injection ID, and channel exclusion.

2.3.5 Single Vial Sample Sets tab

The **Single Vial Sample Sets** tab contains a table with data about sample sets with a single vial and injection. Data includes the corresponding Empower node, project, sample set name and ID, vial name and ID, injection ID, system, acquired by, acquisition timestamp, method, and any custom field data.

You can filter data on the tab by Empower node, project, date, and system.

2.3.6 Aborted Single Injections tab

The **Aborted Single Injections** tab contains a table with data for each aborted injection, including the corresponding Empower node, project, sample, vial, injection ID, system, acquired by, acquisition timestamp, method, audit timestamp, audit reasons, and data from up to 12 custom fields.

Note: Specify custom fields by substituting CF1_COLUMN… to return the values of interest.

You can filter data on the tab by any of the data listed above.

2.3.7 Aborted Sample Sets tab

The **Aborted Sample Sets** tab contains a table with data for each aborted sample set, including the corresponding Empower node, project, sample set name and ID, system, sample, vial, injection ID, acquired by, acquisition timestamp, method, audit timestamp, and data from up to 12 custom fields.

Note: Specify custom fields by substituting CF1_COLUMN… to return the values of interest.

You can filter data on the tab by any of the data listed above.

2.3.8 Multi-Tested Samples tab

The **Multi-Tested Samples** tab contains a table with data for samples with multiple injections. Data includes the corresponding Empower node, project, sample set, injection ID, system, acquired by, acquisition timestamp, method, and any custom field data.

You can filter data on the tab by Empower node, date, individual sample names, and up to three custom field names.

2.3.9 Multi-Tested Sample Sets tab

The **Multi-Tested Sample Sets** tab contains a table with data for sample sets with multiple sample set IDs. Data includes the corresponding Empower node, project, sample set, injection ID, system, acquired by, acquisition timestamp, method, and any custom field data.

You can filter data on the tab by Empower node, date, and sample set.

2.3.10 Keyword Analysis tab

The **Keyword Analysis** tab contains a table with the results of a keyword search, including the corresponding Empower node, project, sample name and ID, system, acquired by, vial, injection ID, acquisition timestamp, method, and any custom field data. With keywords, you can locate specific data, such as retested data that displays by using the Retested keyword.

You can use sample set names, sample names, project names, and custom field values as search terms.

Note: You must provide all search terms in upper case, and separate search terms with semicolons.

You can filter data on the tab by Empower node and date.

2.3.11 Project Audit Trail Policies tab

The **Project Audit Trail Policies** tab contains the following sections:

- Project Audit Trail Policies: includes a list of projects with the audit trail policies associated with them.
- Changes to Project System Policies: includes a list of changes made to a project's audit trail policies.

You can filter data on the Project Audit Trail Policies section by Empower node, project, creation date, full audit trail, method sign-off required, sample sign-off required, results sign-off required, deletion sign-off required, method change sign-off required, sample change comments, results change comments, and deletion change comments. You can filter only by Empower node on the Changes to Project System Policies section.

2.3.12 Reprocessed Data tab

The **Reprocessed Data** tab contains tables with data for the following sections:

- Reprocessed Frequency - Result Sets: contains a table and chart with the number of reprocessed result sets, dates, and details about manual integration.
- Reprocessed Results: contains a table and chart with the same data as the Reprocessed Frequency - Result Sets section, with the addition of injection ID information to help identify the channel.

You can filter data on the tab by Empower node, project, date, sample, and sample set.

2.3.13 Incomplete Signoff Analyses tab

The **Incomplete Signoff Analyses** tab contains tables with data for the following sections:

- Channels, Injections, SampleSets not Processed or Signed Off: Includes the number of channels, injections, and unprocessed or unsigned sample sets. You can drill down to show details.
- Results not Signed Off: Includes the number of unprocessed or unsigned results. You can drill down to show details.
- Signed Off at Level 1 Only – Level 2 Not Complete: Includes the number of results with the first level of sign-off, but not the second level of sign-off. You can drill down to show Result IDs.
- Level 2 Signoffs Completed: Includes the number of results with the first and second level of sign-off. You can drill down to show sign-off reports and other details.

You can filter data on the tab by Empower node, project, date, project dimension, and channel value of `NOT`.

2.3.14 Incomplete Signoff Details tab

The **Incomplete Signoff Details** tab contains tables with data for the following sections:

- Unprocessed Items: includes the number of samples, with information about their Sample Sets, Vials, Inject, and Chrom IDs.
- Results without Signoffs: includes the number of sample results not signed off, with information about their Sample Sets, Vials, Inject, and Chrom IDs.
- Missing Level 2 Signoff: includes the number of results not signed off with a level 2 sign-off, with information about their Sample Sets, Results, and Inject IDs.

You can filter data on the tab by Empower node, project, date, project dimension, and channel.

2.4 Custom Field Information dashboard

The Custom Field Information dashboard contains information about data fields that you create and use.

The Custom Field Information dashboard contains the following tabs:

- Custom Fields Total Inventory tab: includes the number of custom field names and definitions, identifies multiple formulae or attributes for specific custom fields, and identifies locked and unlocked custom fields.
- Custom Fields in Projects tab: includes the number of custom fields in each project, and information about custom fields present and not present in each project.
- Non-Project Custom Fields in Report Methods tab: includes information about custom fields in report methods where the custom fields are not present in the projects containing the methods. Generating reports in such situations creates error messages in the Empower Message Center.
- Custom Fields Usage tab: includes information about custom fields with and without values in sample sets and sign-off results. The information enables you to identify custom fields in sample sets and report methods not completed by Empower users.
- Custom Field Attributes tab: includes filters you can use to search custom fields for custom field attributes.

2.4.1 Custom Fields Total Inventory tab

The **Custom Fields Total Inventory** tab contains tables with summary data for all custom fields. The tab contains the following sections:

- Custom Fields Summary: includes two tables that show custom field names and definitions with the total number of unique custom field names, and the number of unique definitions for each custom field type and subtype.
- Custom Field Administration-Same Name, Different Formula/Attributes: includes two tables that identify discrepancies, such as custom fields with multiple formulas or multiple attributes.
- Custom Field Administration-Locked/Unlocked Custom Fields: includes two tables that identify locked and unlocked custom fields.

You can filter data on the tab by Empower node, and project name. You can also use Custom Field Name value with `NOT` to exclude default Empower custom fields.

You can drill down on values in all tables to show custom field details.

2.4.2 Custom Fields in Projects tab

The **Custom Fields in Projects** tab contains tables with information about custom fields used in projects, including the total number of custom fields in each project. The information helps to identify unnecessary or missing custom fields in projects. The tab contains the following sections:

- Custom Fields in a Project by Type and Subtype: includes information about custom fields types used in projects. You can expand the project tree and view individual projects and their custom field counts by type. You can also select the Calculated, External, and Keyboard subtypes from the Sub Type filter directly above the table.
- Custom Fields in a specified Project and Not in a specified Project: includes information about the custom fields that exist, and custom fields that do not exist, in a selected project. This information can be useful for evaluating if a project contains the correct custom fields.

You can filter data on the tab by Empower node.

2.4.3 Non-Project Custom Fields in Report Methods tab

The **Non-Project Custom Fields in Report Methods** tab contains tables with information about custom fields in report methods where the custom fields are absent in the project containing the method.

The tab contains the Reports with Non-Project Custom Fields section that includes a list of report methods with custom fields not residing in the project with which the method is associated. Creating method reports in Empower containing non-project custom fields generates errors in the Empower message center. You can drill down to show the project's short name.

Note: You can add columns to display custom field columns, custom field headers, or custom field types by right-clicking a column and selecting **Include Column**, and then selecting **Custom Field Column**, **Custom Field Header**, or **Custom Field type**.

You can filter data on the tab by Empower node, project name, method type, method name, SQL column name, and custom field type.

2.4.4 Custom Fields Usage tab

The **Custom Fields Usage** tab contains tables with summary data for usage of custom fields with or without values in sample sets and sign-off reports. Unused custom fields indicate that Empower users fail to populate the custom fields. The tab contains the following sections:

- User Entry Custom Fields Populated in Sample Set: includes a table with the project name, custom field name, and the number of sample sets. You can drill down on values to show sample set details.
- User Entry Custom Fields Not Populated in Sample Set: includes a table with project name, custom field names, and the number of sample sets with unpopulated custom fields in a specific project. Inordinate numbers of such sample sets could indicate redundant custom fields in a project. You can drill down on values to show sample set and user details.
- Custom Fields Populated in Signed off Results: includes a table with the project name, custom field names, and the number of custom fields with values in a project with signed-off results. You can drill down on values to show Custom Fields used in Signoff Details.
- Custom Fields not Populated in Signed off Results: includes a table with project name, custom field names, and the number of custom fields without values in signed-off results. Inordinate numbers of such signed-off results could indicate redundant custom fields in a project. You can drill down on values to show custom fields not used in sign-off details, including the custom field names without values per results set and project.

Note: You must use result sign-offs in your Empower system for tables to display in the User Entry Custom Fields Populated in Sample Set and User Entry Custom Fields not Populated in Sample Set sections.

You can filter data on the tab by Empower node, date range, project name, and custom field name.

2.4.5 Custom Field Attributes tab

The **Custom Field Attributes** tab enables you to search all custom fields for custom field attributes. The tab contains the Custom Field Attributes section that includes details for all of a custom field's attributes.

Note: You can filter data on the tab by Empower node, project name, method name, method type, custom field name, table name, type, sub-type, formula, visibility in Empower, Method Validation Module (MVM) column, MVM project, locked, precision, min value, max value, width, default value, and required.

3 Using the Scorecard dashboard

The Scorecard dashboard displays key performance indicators for measuring system utilization, Message Center activity, and laboratory workflow, on a per-weekly basis. With the Scorecard dashboard metrics, you can identify potential problem areas in your system. Use the Year-Week filter to specify the time period for the data display.

The Scorecard dashboard contains the following tabs:

- **Overview** tab
- **Improve Laboratory Workflow** tab
- **Increase System Utilization** tab
- **Manage Message Center** tab
- **Maintain Data Integrity** tab

The tabs display information in the same way. The **Overview** tab displays the status for all aspects of the system. The other tabs display metrics specific to parts of the system, such as system utilization.

Each tab displays data in three formats:

- The Watchlist displays tabulated data in rows and columns.
- The Strategy Tree displays data in a hierarchical tree of individual items.
- The Wheel displays each item in a circular layout.

To display the Scorecard dashboard, select the Scorecard dashboard entry from the **Dashboards** menu in the upper right-hand corner of the window.

3.1 Overview tab

At the top of the tab, a table displays the metrics and data for the overall system.

A graphical hierarchical tree of metrics appears below the table. Each node in the tree displays a score between zero and 100. The icons shown in the following table indicate the relative score quality.

Icon	Meaning
	Indicates a warning.
	Indicates an issue for review.

Icon	Meaning
	Indicates the value is within the target range.
	Indicates that values for the metric have been increasing over time.
	Indicates that values for the metric have been decreasing over time.

To open a subnode, click a dot in the tree structure. The values in higher nodes are calculated from the values of the subnodes.

To see a bar chart of the metric, click the subnode. To display the metric data, click the node's down-arrow.

A wheel diagram displays all the nodes in a circular layout. Clicking a node in the circle displays the underlying metrics and data.

3.2 Improve Laboratory Workflow tab

The **Improve Laboratory Workflow** tab displays the following types of metrics specific to laboratory workflow:

- Percentages of manual integration in the workflow.
- Percentages of manual processing in the workflow.
- Delays between sample runs and sample processing.

3.3 Increase System Utilization tab

The **Increase System Utilization** tab displays the following types of metrics specific to system utilization:

- Number of acquisition errors for individual instruments.
- Percentage of instruments online during a specific time period.
- Overall system usage to identify idle instruments.

3.4 Manage Message Center tab

The **Manage Message Center** tab displays the following types of metrics specific to the Message Centers:

- Number of error and warning messages.
- Number of instrument errors.

- Number of processing errors.
- Number of custom field error messages.
- Error message scorecard for determining root causes.
- Alerts that could identify new errors.

3.5 Maintain Data Integrity tab

The **Maintain Data Integrity** tab displays the following types of metrics specific to data integrity:

- Aborted Sample Sets
- Aborted single injections
- Multi-tested samples
- Multi-tested Sample Sets
- Single injections
- Single-vial Sample Sets
- Unprocessed injections