

TIBCO EBX® Insight Add-on

Version 2.8.10
January 2023

TIBCO®

Important Information

SOME TIBCO SOFTWARE EMBEDS OR BUNDLES OTHER TIBCO SOFTWARE. USE OF SUCH EMBEDDED OR BUNDLED TIBCO SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED TIBCO SOFTWARE. THE EMBEDDED OR BUNDLED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER TIBCO SOFTWARE OR FOR ANY OTHER PURPOSE.

USE OF TIBCO SOFTWARE AND THIS DOCUMENT IS SUBJECT TO THE TERMS AND CONDITIONS OF A LICENSE AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED SOFTWARE LICENSE AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER LICENSE AGREEMENT WHICH IS DISPLAYED DURING DOWNLOAD OR INSTALLATION OF THE SOFTWARE (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH SOFTWARE LICENSE AGREEMENT OR CLICKWRAP END USER LICENSE AGREEMENT, THE LICENSE(S) LOCATED IN THE “LICENSE” FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENT IS SUBJECT TO THOSE TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

ANY SOFTWARE ITEM IDENTIFIED AS THIRD PARTY LIBRARY IS AVAILABLE UNDER SEPARATE SOFTWARE LICENSE TERMS AND IS NOT PART OF A TIBCO PRODUCT. AS SUCH, THESE SOFTWARE ITEMS ARE NOT COVERED BY THE TERMS OF YOUR AGREEMENT WITH TIBCO, INCLUDING ANY TERMS CONCERNING SUPPORT, MAINTENANCE, WARRANTIES, AND INDEMNITIES. DOWNLOAD AND USE OF THESE ITEMS IS SOLELY AT YOUR OWN DISCRETION AND SUBJECT TO THE LICENSE TERMS APPLICABLE TO THEM. BY PROCEEDING TO DOWNLOAD, INSTALL OR USE ANY OF THESE ITEMS, YOU ACKNOWLEDGE THE FOREGOING DISTINCTIONS BETWEEN THESE ITEMS AND TIBCO PRODUCTS.

This document is subject to U.S. and international copyright laws and treaties. No part of this document may be reproduced in any form without the written authorization of TIBCO Software Inc.

TIBCO and TIBCO EBX are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only.

This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. Please see the readme.txt file for the availability of this software version on a specific operating system platform.

THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENT. TIBCO SOFTWARE INC. MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS DOCUMENT AT ANY TIME.

THE CONTENTS OF THIS DOCUMENT MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "READ ME" FILES.

This and other products of TIBCO Software Inc. may be covered by registered patents. Please refer to TIBCO's Virtual Patent Marking document (*https://www.tibco.com/patents*) for details.

Copyright 2006-2023. TIBCO Software Inc. All rights reserved.

Table of contents

Quick Start Guide

1. The add-on at a glance..... 10
2. Creating dashboards..... 13
3. Monitoring your data..... 17

User Guide

4. Overview 22
5. Add-on configuration 23
6. Indicator declarations 29
7. Result storage 31
8. Execution, query and dynamic indicator report 35
9. Grouping indicator results 59
10. Permission management 63
11. Sending results by email 67
12. Exporting to Excel format 75
13. Indicator configuration 77
14. D.E.C. and Indicator administration 95
15. Probe declaration 103
16. Purge of the report tables 105
17. Monitoring of the execution 109
18. Dashboard 111
19. User graph preference 129
20. Dashboards in perspectives 133
21. Synthesis configuration 137
22. Correlated watchdog configuration 143
23. Migration 149
24. Appendix 151

Indicator Portfolio Reference

25. Overview and naming convention..... 188
26. Indicators applied to a table..... 189
27. Indicators applied to a field..... 212
28. Indicators applied to a workflow..... 273
29. Indicators applied to a dataset - dataspace..... 289
30. Indicators applied to an operation..... 299

Release Notes

31. Version 2.8.10.....304
32. All release notes.....308

Quick Start Guide

CHAPTER 1

The add-on at a glance

This chapter contains the following topics:

1. Introduction
2. How this guide is organized

1.1 Introduction

The TIBCO EBX® Insight Add-on can monitor your repository's assets, such as, data, workflows, and business rules. Much like a cockpit contains instruments and gauges that provide feedback from mechanical systems to pilots, the add-on uses components called *indicators* to monitor your assets. Indicators have specific functions to provide you with a variety of data, and several presentation styles to aid in analysis. For example, indicators can help you see which tables have the most complete records, or learn where bottlenecks might be occurring in data workflows.

In addition to the add-on's predefined indicators, you can customize your own. Indicators can be set to execute automatically, or on demand. Additionally, you can customize the look and feel of results displayed by indicators using the dashboard.

The add-on is configured by administrators. This involves determining and defining which indicators are applied to which data assets. You can then specify whether indicators are part of a dashboard, or can only be accessed via the add-on's **Execute and query** service. A dashboard presents a contextual collection of indicators and groups them in sections.

To provide some clarity on the user role terms set forth in this guide:

- *Administrators* are any users who can access the **Administration** area and update configuration options. Depending on your organization, admins may also be business users.
- *Business users* can view indicators, execute indicators, and generate result reports.

1.2 How this guide is organized

The purpose for the *Quick Start Guide* is to provide a high-level overview of the process required to get the add-on up and running. The configuration process must be performed by a user with administrative privileges. Additionally, this guide will provide a high-level overview of actions and options business

users can access along with an overview of the UI. The following table describes the sections contained in this guide:

Section	Description
Creating dashboards [p 13]	This section jumps right in to add-on usage and shows administrators how they can create, and add indicators to, dashboards. For brevity's sake, the example uses default options and doesn't delve into customizing look and feel. For additional information on these topics, please see the *User Guide*.
Monitoring your data [p 17]	This section describes how to access and interact with the dashboard, describes dashboard tiles, and shows how to run the **Execute and query** service.

CHAPTER 2

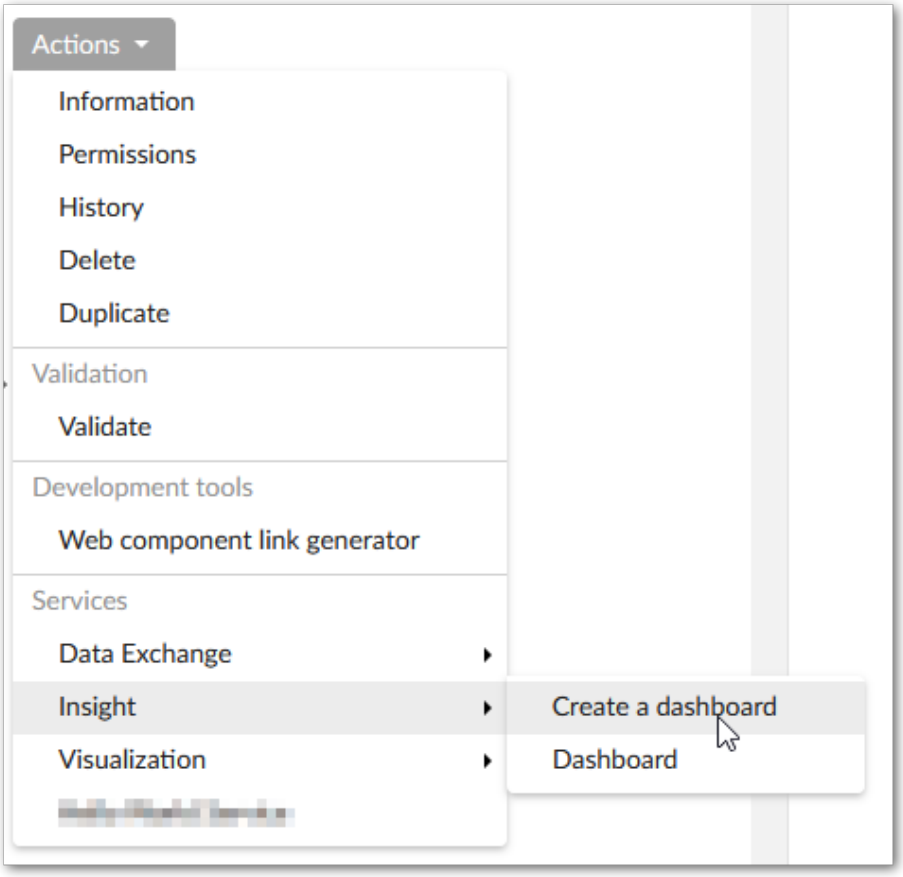
Creating dashboards

A dashboard presents visual feedback from indicators. Each TIBCO EBX® Insight Add-on dashboard can have multiple sections and each section can have multiple indicators. This affords you flexibility in how you group indicators.

> **Note**
>
> Once you create a dashboard and add indicators using the steps outlined below, users can also interact with the indicators via the **Execute and query** service. For instructions on configuring indicators outside of the dashboard, see Add-on configuration [p 23].

To create your first dashboard and add indicators:

1. From a dataspace or dataset **Actions** menu, select *Insight* > *Create a dashboard*.



2. Supply the required information and select **Add**. The following describes the required fields:
   - A name for the dashboard. This name displays in the drop-down menu users use to access different dashboards.
   - Select the dashboard template. If this is the first time you are configuring a dashboard, you can use the default template. Create a new record in the **Template** table if you want to create a custom template.
   - Use the **Access permission** menu to select the profile that can access this dashboard. You can also use the **Is default** property determine whether this is the default dashboard that displays when accessing from the TIBCO EBX® toolbar.
3. After creating a dashboard you need to create at least one section in order to add indicators. From the blank dashboard, select the + icon to add a new section. After it displays next to the all tab, you can double-click to give it a new name.
4. Select the tile with the large plus icon to add an indicator to this section. On the screen that displays enter the required information and select **Add**.

   The options are described in more detail below:
   - **Indicator**: The indicator you want to display on this tile.
   - **D.E.C.**: A Data Element Concept (D.E.C.) represents a specific data asset managed by EBX®. Asset types include, but are not limited to, datasets, tables, fields, and workflows. Since indicators only monitor data of a certain type, only certain indicators can be applied to

each D.E.C. Use the + icon next to this field to select the desired data to monitor by choosing the type and then pointing to the corresponding data model element.

- **Available display modes**: This option determines the types of charts users can select when viewing the indicator.
- **Default display mode**: This option determines how the indicator displays by default when users access a dashboard.
- **Tile size**: Specifies the indicator tile size.

CHAPTER 3

Monitoring your data

This chapter contains the following topics:

1. Overview
2. Dashboard overview
3. Using the Execute and Query service

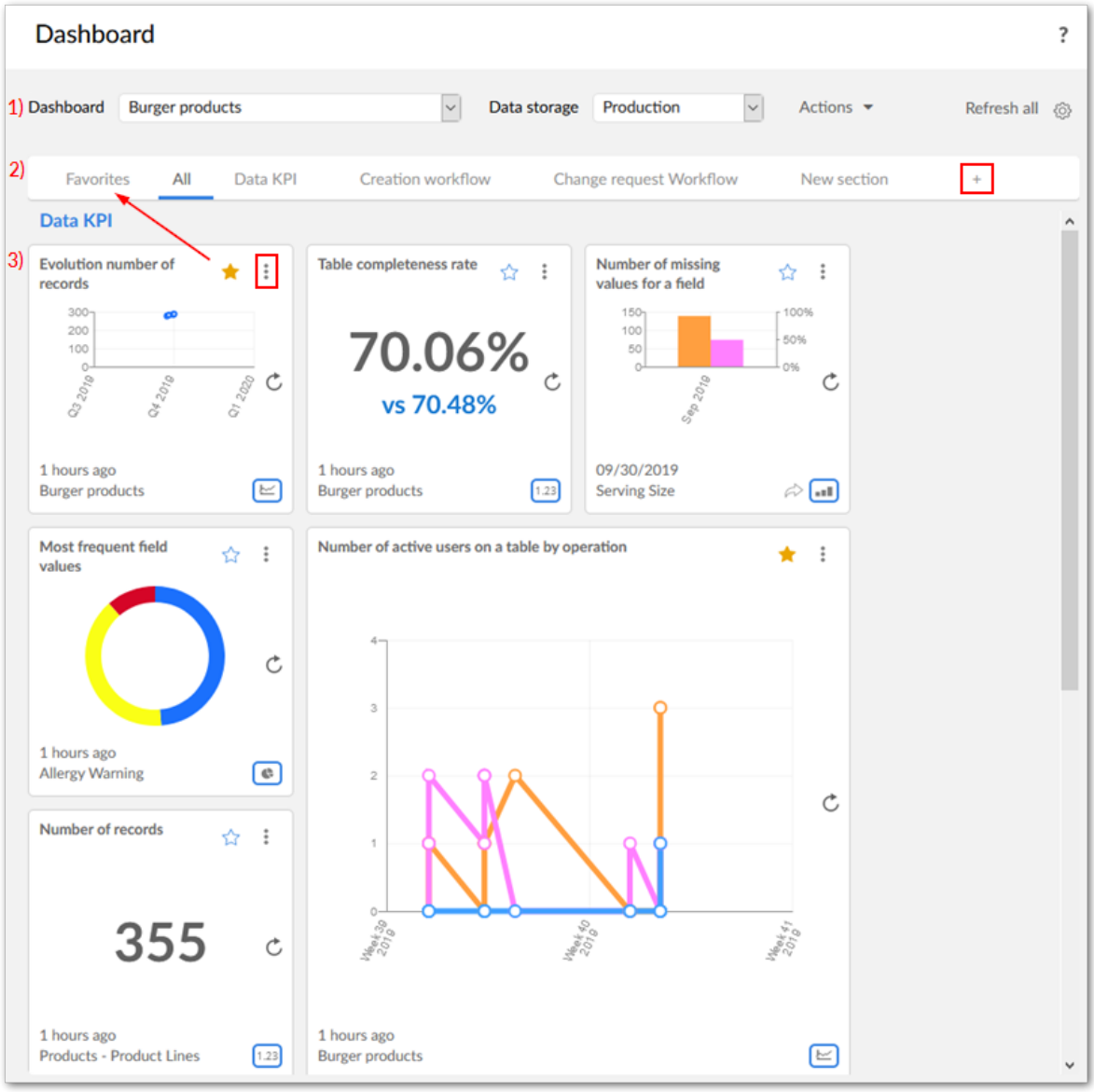
3.1 Overview

Once an administrator has completed configuration, business users can use the add-on to view and analyze data quality statistics. The two main ways that business users interact with the add-on are via the **Dashboard** and the **Execute and Query** services. The dashboard visually presents collections of configured indicators. See Dashboard overview [p 17] for more detailed information about using the dashboard. The **Execute and Query** service allows you to execute indicators, view execution history, and generate reports. For an overview of this service's functionality, see Using the Execute and Query service [p 19].

3.2 Dashboard overview

Depending on configuration options set by your administrator, you can open the dashboard from the main EBX® tool bar, or from a dataspace or dataset or table's Actions menu. Open the menu and in

the **Services** group, select *Insight* > *Dashboard*. The main parts of the dashboard are highlighted in the following image:



The following list describes the sections highlighted above in more detail:

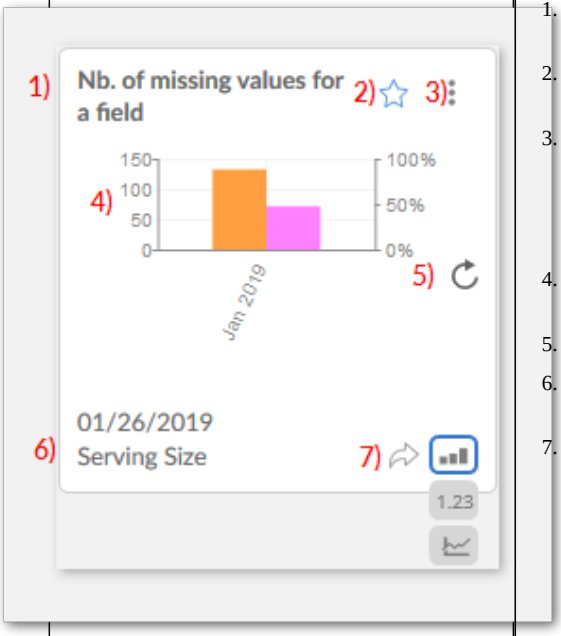
1. From left to right the title displays: the current dashboard configuration and **Actions** menu, from which you can export a PDF of the current dashboard. If enabled, you will also be given the option to select the data storage location for the dashboard.
    - The **Dashboard** menu which lists the currently displayed dashboard and allows you to access others.
    - If enabled, the **Data storage** menu that allows you select the data storage location for the dashboard.
    - The **Refresh all** button refreshes indicator display for the current dashboard. Note that this does not execute indicators. To execute an individual indicator, select the reload icon.

- Administrators can use the settings icon to update the dashboard's configuration.

2. The selectable tabs correspond to sections in the current dashboard. In the image, the **All** tab is selected and displays all sections in the current dashboard. Two tabs of note are the **Favorites** tab and the tab with the + icon. The **Favorites** tab displays all starred tiles from the current dashboard. The + tab displays for users with administrative privileges and enables creation of a new dashboard section. Additionally, administrators can:
   - hover over a tab and select ⊗ to remove it from the dashboard.
   - double-click tab labels to re-name.
3. The image shows examples of large and small indicator tiles. Generally speaking, large tiles work better for graphs, whereas small tiles work well to display smaller charts and data. If you have administrative privileges, you can use the indicator menu to remove it from the section. See the Understanding indicator tiles [p 19] section below for additional information about the actions and features available on the indicators.

Understanding indicator tiles

The way information on an indicator tile displays varies depending on the tile type and data being displayed. The image and list below provide an overview of indicator tile features and the *User Guide* section Expanding dashboard tiles [p 114], provides additional details when viewing expanded chart type indicators:



1. The tile's title corresponds to the indicator's name, or business label if one exists.
2. Toggling the favorites icon determines whether this tile displays in the dashboard's **Favorites** section.
3. If you have administrative privileges, this menu gives you the option to configure an indicator, or remove it from this section. This menu acts as a shortcut and prevents you from having to remove the corresponding records in the add-on's configuration area.
4. Indicator output displays in the center of the tile. Administrators can set the default display mode for indicators.
5. The refresh icon enables on-demand execution of the indicator.
6. The information displayed here shows this indicator's time of last execution (above) and the related D.E.C.'s label (below).
7. If enabled, selecting the arrow allows you to view any linked records. You can use the icon next to the arrow to toggle the display mode—if additional modes are available.

3.3 Using the Execute and Query service

You can run the Execute and query service from dataset and table **Actions** menus. Once you've run the service, you can:

- Execute indicators and view their results.

- Query and obtain information about specific indicators.
- Generate dynamic reports that the add-on executes on only one indicator, but can include multiple D.E.C.s to which that indicator is attached.

The Execution, query and dynamic indicator report [p 35] section in the *User Guide* describes this service's functionality in greater detail.

User Guide

CHAPTER 4

Overview

The TIBCO EBX® Insight Add-on provides a portfolio of ready-to-use indicators to monitor the quality of data over time. This portfolio can be further enriched with custom indicators.

The indicators can be used to assess the quality of any asset known to TIBCO EBX®, such as tables, fields, workflows, dataspaces, datasets, and business rules.

The EBX® Insight Add-on provides a chart framework that allows you to create various types of charts. The provided API allows developers to create charts similar to those used in the analytics service. However, these charts can be created using custom data and options and are independent of the add-on's scope.

Special notation key:	
✔	Important recommendation for the use of the add-on
✘	This feature is not yet available in the current release

CHAPTER 5

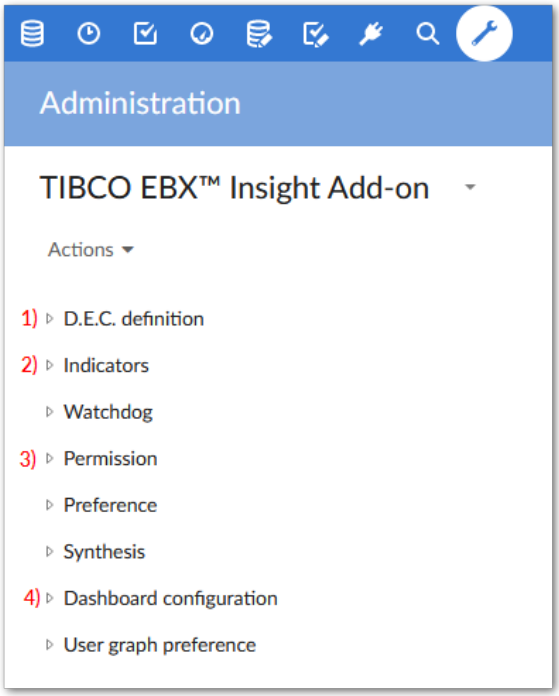
Add-on configuration

This chapter contains the following topics:

1. Configuration overview
2. Example configuration

5.1 Configuration overview

Add-on configuration takes place in the **Administration** area of TIBCO EBX®. Once configuration is complete, user profiles granted sufficient permission can view and execute indicators. See the Example configuration [p 24] section below for steps that describe the configuration process in detail. The following list and accompanying image outline the configuration process:

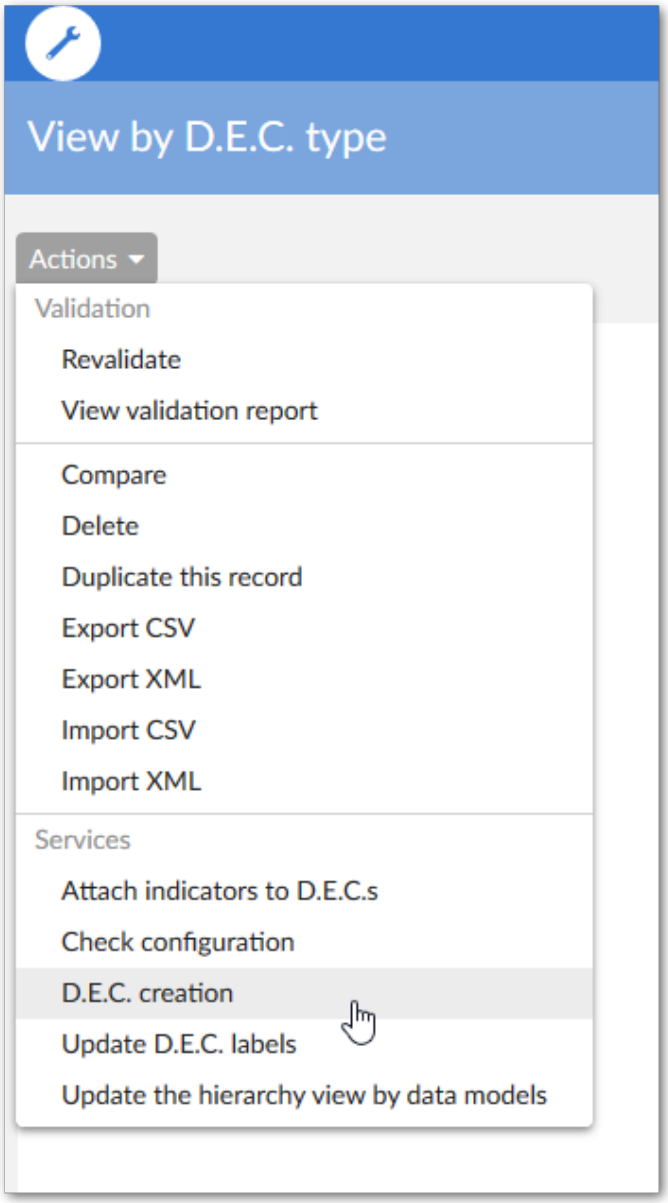
Location	Configuration step
	1. Register Data Element Concepts with the add-on. A D.E.C. refers to a data asset contained in your EBX® repository. Examples of assets are data, workflows, and business rules. 2. Attach indicators to D.E.C.s. This example uses existing indicators. 3. Set permissions that allow users to access add-on functionality. 4. Create a dashboard and sections. Define which indicators are included in sections, add sections to the dashboard, and use permission settings to determine which users can view the dashboard.

5.2 Example configuration

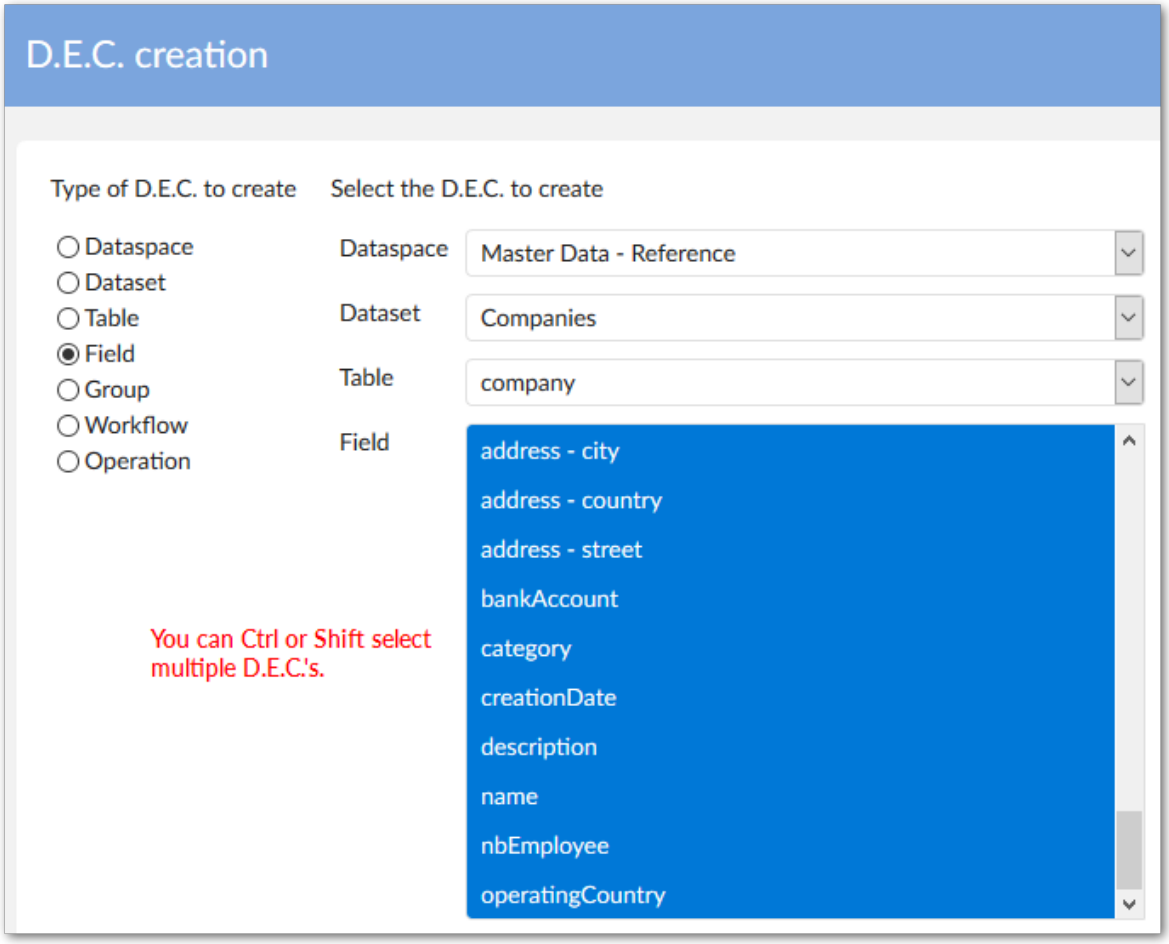
The following steps outline how to configure the EBX® Insight Add-on. The example presents a basic use case and uses indicators included with the add-on's portfolio of indicators. If you have questions about a particular property while configuring, you can open the item's tooltip for more information.

To configure the add-on:

1. Navigate to *Administration* > *Data quality & analytics* > *TIBCO EBX® Insight Add-on* > *D.E.C. definition* > *D.E.C. (Data Element Concept)*. This table contains all D.E.C.s registered with the add-on. The table defaults to displaying a hierarchical view of any registered assets and their related D.E.C. types. In this example we'll create new table and field D.E.C.s.
2. From the table's **Actions** menu, select **D.E.C. creation**.

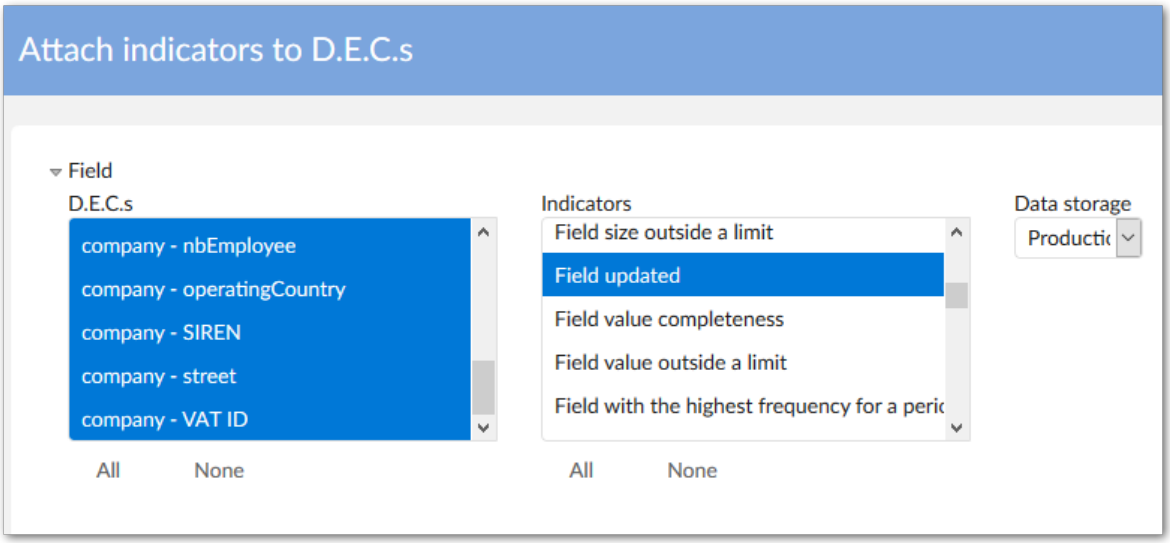


3. On the D.E.C. creation page, use the radio buttons on the left to select the D.E.C.'s type and the dropdown lists on the right to point to the asset location. After clicking **Execute**, the add-on registers the D.E.C. and returns you to the creation screen where you can continue to register D.E.C.s.

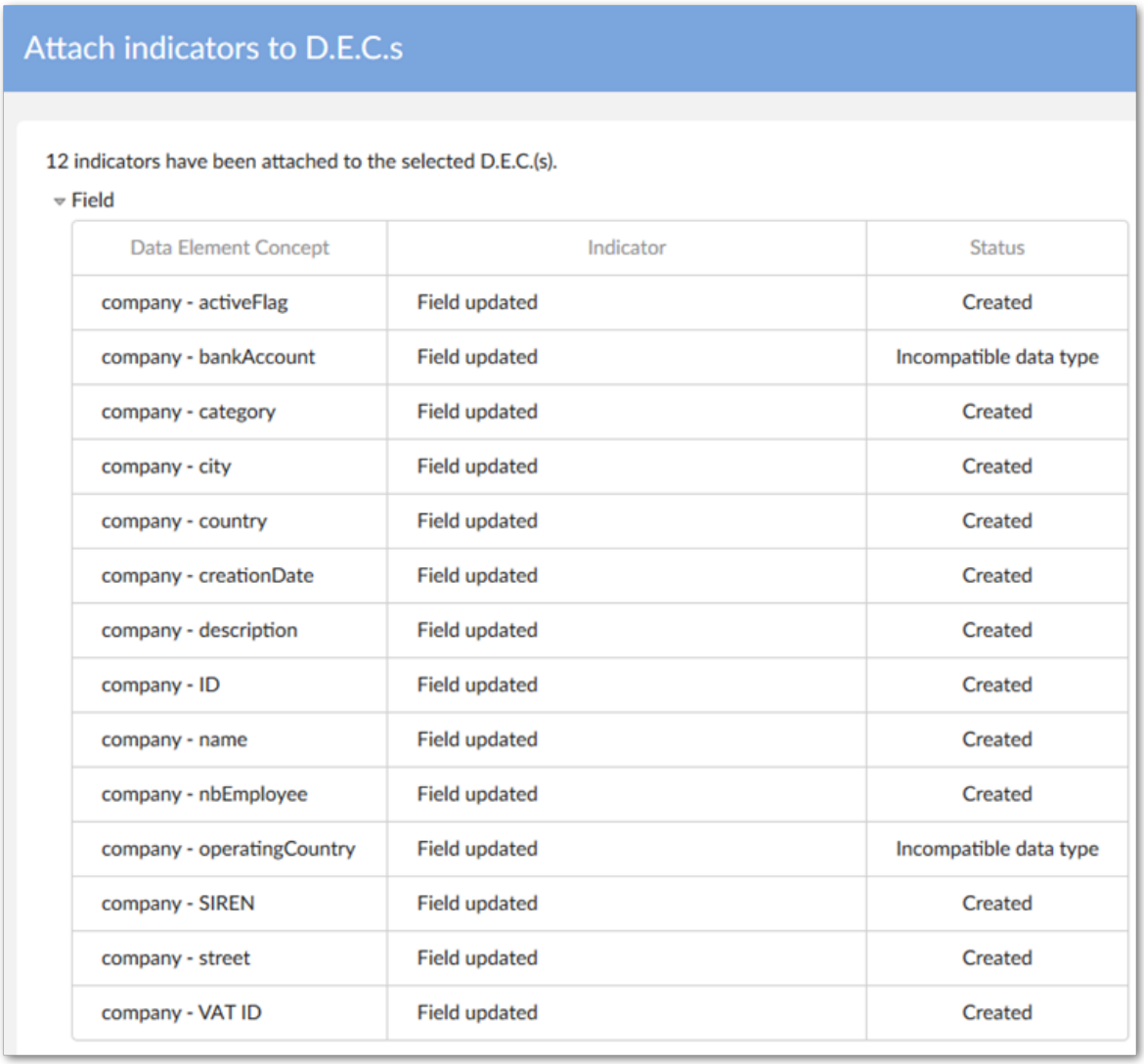


4. After creating and registering them, you can attach indicators to D.E.C.s. From the **D.E.C. (Data Element Concept)** table's **Actions** menu, select **Attach indicators to D.E.C.s**. In the page that displays you can select which indicators you want to attach to which D.E.C. As shown in the image below, the D.E.C.s are grouped according to type on the left of the page and the indicators

available to attach to each type are located on the right. Note that you can Ctrl, or Shift + Click to select multiple indicators.



After clicking **Execute**, a results page displays. At this point you can go back and continue attaching indicators, or exit out.



Attach indicators to D.E.C.s

12 indicators have been attached to the selected D.E.C.(s).

Field

Data Element Concept	Indicator	Status
company - activeFlag	Field updated	Created
company - bankAccount	Field updated	Incompatible data type
company - category	Field updated	Created
company - city	Field updated	Created
company - country	Field updated	Created
company - creationDate	Field updated	Created
company - description	Field updated	Created
company - ID	Field updated	Created
company - name	Field updated	Created
company - nbEmployee	Field updated	Created
company - operatingCountry	Field updated	Incompatible data type
company - SIREN	Field updated	Created
company - street	Field updated	Created
company - VAT ID	Field updated	Created

> **Note**
>
> In the next couple of steps, we demonstrate creating a dashboard. However, a dashboard isn't required for users to run the **Execute and query** service. If you've already attached indicators to D.E.C.s, and you don't want to create a dashboard, you can skip to the step below that describes enabling access via permissions.

5. To create a dashboard, open the **Dashboard configuration** group, select the **Dashboard** table and create a new record. You'll need to supply a name and can optionally apply a custom template and change indicator output colors.
6. Indicators are grouped in sections in dashboards. So you can use the following to:
   - **Section** table — Create sections to add to dashboards.
   - **Indicators in section** table — Add indicators to the sections. In this table, take note of the **Available display modes** property. This property determines which display modes users can

access when viewing the indicator. You can also specify the default display mode using the so named property.

- **Sections in dashboard** table — Add sections to your dashboard(s).

7. To provide users access to add-on functionality, you can specify the appropriate permissions in the **Permission** group's **Default permission** table. Note that permissions here only enable users to access the **Execute and query** service. To enable users to access the dashboard, you'll also need to update the **Dashboard configuration** group's **Permission** table. You have fine-grained control over permission levels. For example, you can specify that users who don't have access to the data measured by the indicator can still execute the indicator and view any feedback. The *User Guide* contains detailed information on setting permissions.

CHAPTER 6

Indicator declarations

The EBX® Insight Add-on is based on a configuration module that declares which indicators are applied to which assets (table, field, group of fields, workflow, dataspace, etc.) in EBX®.

These assets are referred to by the generic name **Data Element Concept (D.E.C.)**. This vocabulary comes from the ISO-IEC standard 11179 used to manage data registries (The ISO-IEC 11179 standard is used by the TIBCO EBX® Information Governance Add-on to manage meta-data on EBX® data elements such as a business glossary).

Special notation:	
✔	The list of prebuilt indicators provided by the add-on is described in the *Indicator Portfolio Reference* document.

The indicators portfolio is automatically loaded through an 'introspection' of the Java implementation of the indicators. To perform this introspection, every indicator is published using a well-defined Java interface (see the *Java API documentation*).

The configuration allows you to adapt indicator execution using a set of properties:

- the periodicity of control defines the amount of time during which an indicator must enforce a predefined result. For example, the indicator **Table updated** can use a daily or yearly periodicity of control. During this period, the configuration uses a watchdog to monitor for a minimum (and/or maximum) number of modifications that should occur. Periodicity of control configuration can be modified for the table on which this indicator is applied,
- the computation frequency defines when the indicator must be executed: in real-time, using a scheduler, or on demand,
- watchdogs are used to automatically monitor thresholds. For example, the indicator **Field updated** can define a watchdog named **Maximum of days without modification**. The add-on will report an alert as soon as this threshold is reached,
- an indicator's result can be saved with only its final value, or with its history to allow future statistical analysis. Other properties allow you to choose where to store the data and the EBX® data views to use when a query for the result is performed, etc.
- Etc.

The configuration process is as follows (also see figure below):

- the indicators portfolio is loaded automatically by a Java introspection process that is completely transparent to the user responsible for the configuration,

- each indicator can be simultaneously configured multiple times with different property values,
- a configured indicator is associated with one or multiple Data Element Concepts.

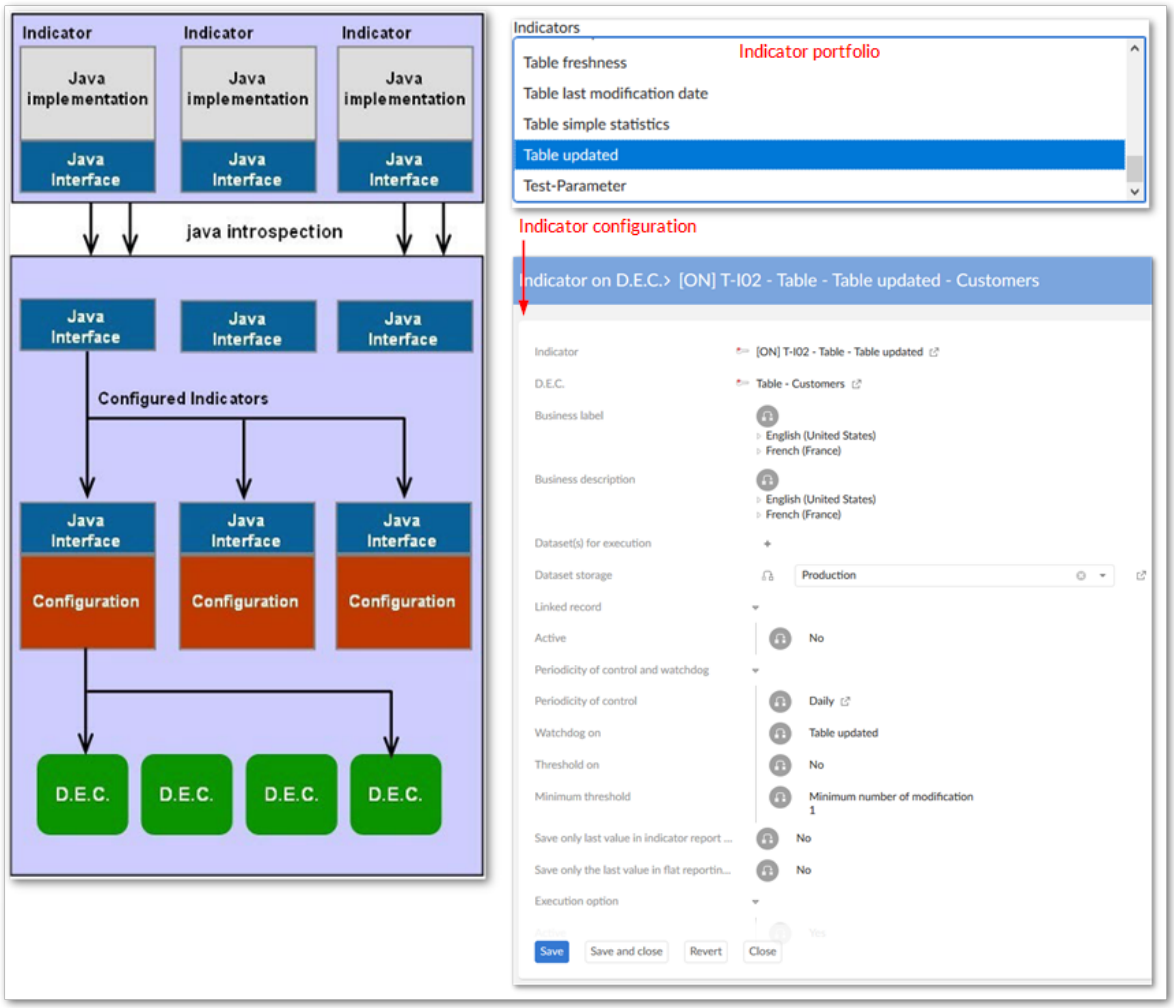


Table 1: Overview of the indicator configuration process

In the figure, a single indicator is configured three times. The first configuration is attached to two Data Element Concepts. There is no limit on the number of indicator configurations created from the same indicator definition for the portfolio.

The storage location can be customized at the indicator configuration level, but also when it is attached to a specific D.E.C. An organization can then fully enforce its own best practices for configuring and executing indicators applied to EBX® data elements.

CHAPTER 7

Result storage

This chapter contains the following topics:

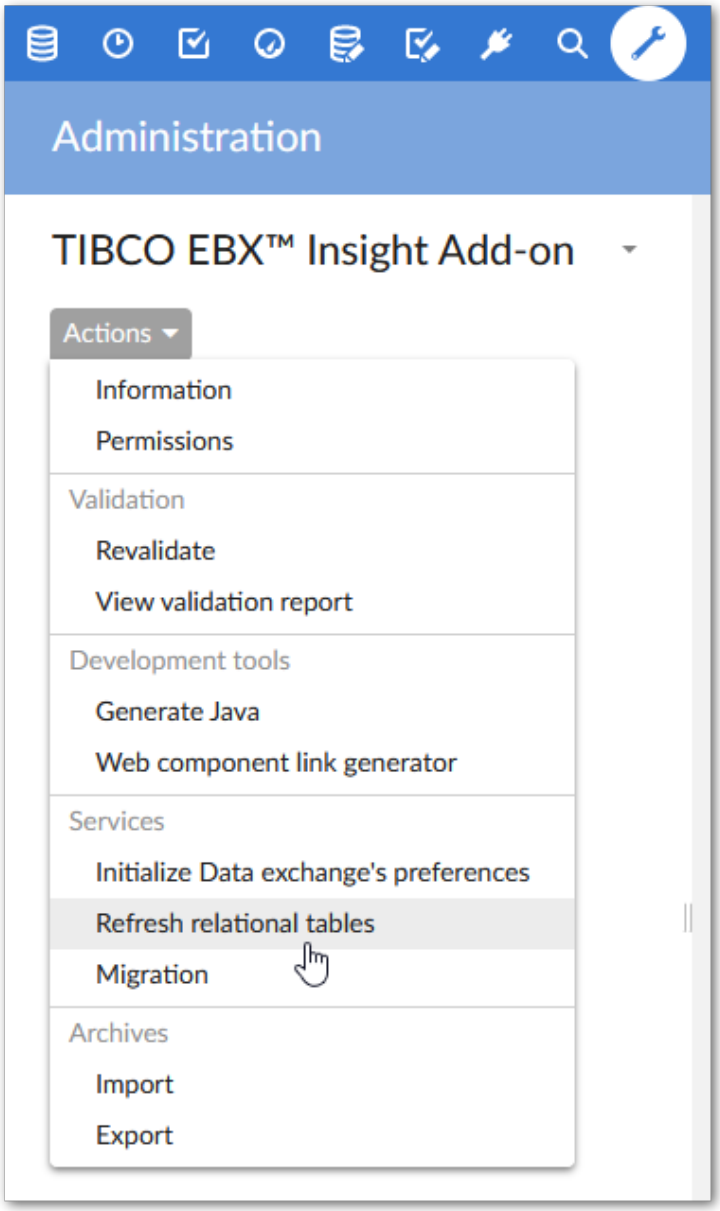
1. Data structure for saving indicators results
2. Storage with history
3. Data storage localization

7.1 Data structure for saving indicators results

Every indicator saves its results in two different data structures that are compliant with the relational persistence mode of EBX®. This means that these tables can be accessed directly through SQL by third party tools, bypassing access to the semantic datasets.

- The first data structure, named **Flat data report** (which has replaced **Big data report** since v2.0.0), is fully de-normalized. This is a 'flat' data model that allows you to easily query the data without enforcing join table statements. The **Flat data report** table is used by EBX® to provide ready-to-use integrated reports by defining data views that are applied on the indicators. These data views can be modified through a simple configuration in EBX®. Because dynamic field labels and descriptions have been added, there is no need to extend the **Flat data report** table each time you create a new indicator. This table also permits business operations, such as sending an email at the record level.
- The second data structure is less de-normalized than the **Flat data report** .It relies on the **Indicator report** and **Indicator value** tables. To query these tables, a join statement is required, in a process that is more complicated than the **Flat data report** table. However, this data structure still remains stable when a new indicator is created, as it is more generic than the **Flat data report** structure. EBX® does not provide any ready-to-use reports on these tables. An organization must use its own reporting tools to query the data.

The add-on systematically saves the results of the indicator execution into both data structures (see also appendix *Report data structures*).



To ensure that access to only these two data structures is sufficient for building any report, some data values must be replicated from the semantic configuration (such as periodicity of control, computation frequency, part of D.E.C. and indicator data). This replication is performed automatically whenever a modification is applied to the configuration. However, in case of archive imports directly into the configuration, it is necessary to force a refresh of the replicated data. To do so, the **Refresh relational tables** service, is available at the level of the configuration of the add-on (see figure).

The **Removed** boolean value allows you to state that a D.E.C. or and an indicator has been removed from the configuration. This deleted asset remains in the reporting data model until it is manually deleted or cleaned up through a purge.

Special notation:	
✔	The **Big data report** table will not be available if you start directly with v2.0.0 or a higher version of the EBX® Insight Add-on. This table will no longer be supported in the future. It is recommended to adapt your custom indicator implementations and run the **Migrate to the "Flat data report" table** service after upgrading from a version older than v2.0.0.

7.2 **Storage with history**

You can specify whether or not to store result history for each data structure and indicator. See the **Save only last value in indicator report table** and **Save only last value in flat reporting table** properties applied on the indicator definition.

Special notation:	
✔	The option of saving a new measure every time an indicator is executed allows you to collect row information for data analytics operations.

7.3 **Data storage localization**

The results storage (data schema) location is configured when defining an indicator with a dataspace and dataset selection. When an indicator is attached to a Data Element Concept, it is possible to override this information if necessary by selecting another dataspace and dataset.

Special notation:	
✔	Two ready-to-use data storages are provided. Their dataspaces and datasets are named by the add-on and they can not be changed. A business label is available to provide a custom business name: • Insight - Reporting • Insight - Integration

CHAPTER 8

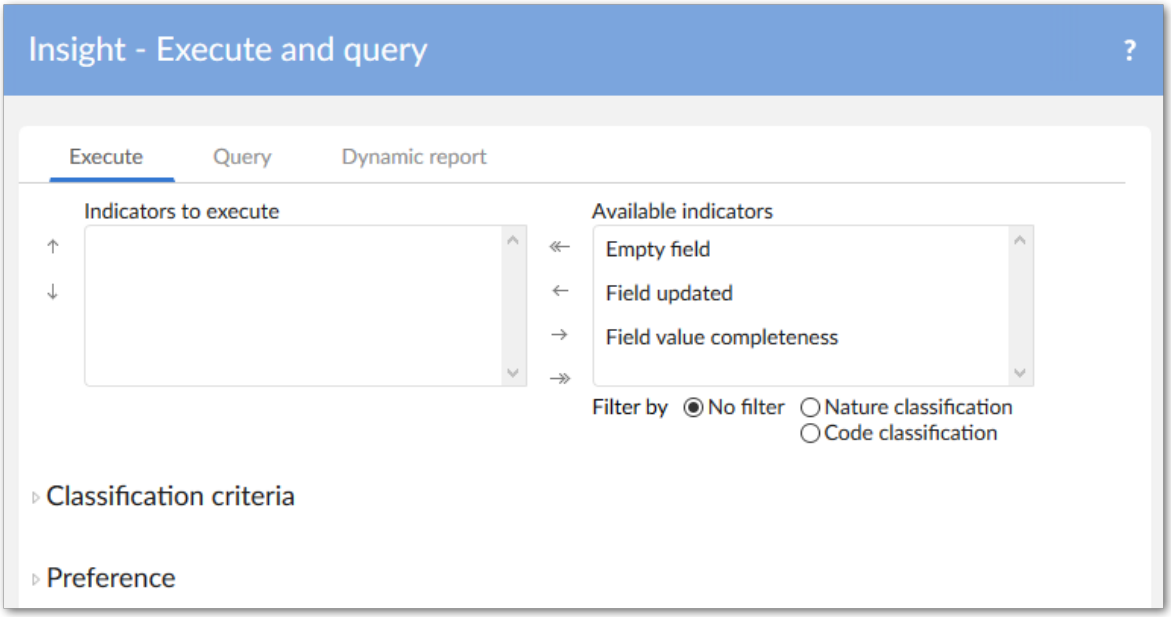
Execution, query and dynamic indicator report

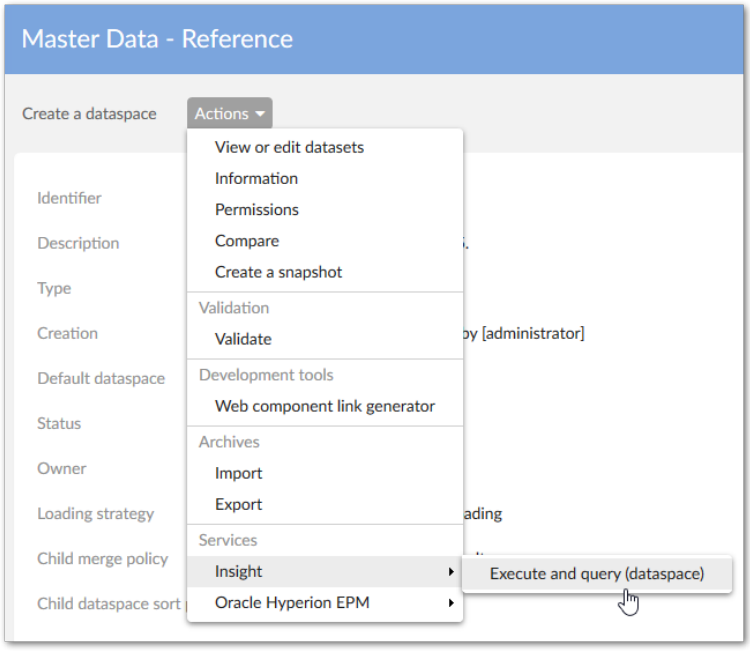
This chapter contains the following topics:

1. Integrated user interface
2. Execution
3. Query and data views
4. Related records
5. Filtering by dates
6. Data analytics and chart types
7. Dynamic report
8. Indicator applied to a workflow
9. Indicator applied to an operation
10. Indicators preferences management
11. Indicators classification management
12. Viewing linked records
13. Display rules
14. Synthesis view
15. Correlated watchdogs

8.1 **Integrated user interface**

A user interface allows executing, querying indicators and generating dynamic reports for an indicator either on a specific dataspace or a whole dataset or on a specific table.



Service location	
	Access at the level of a dataspace

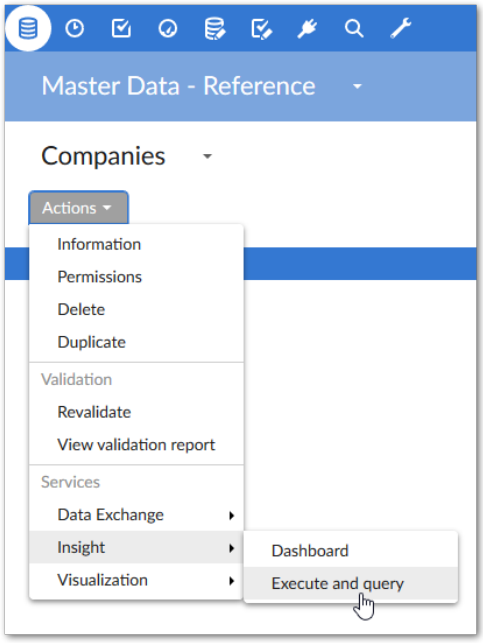
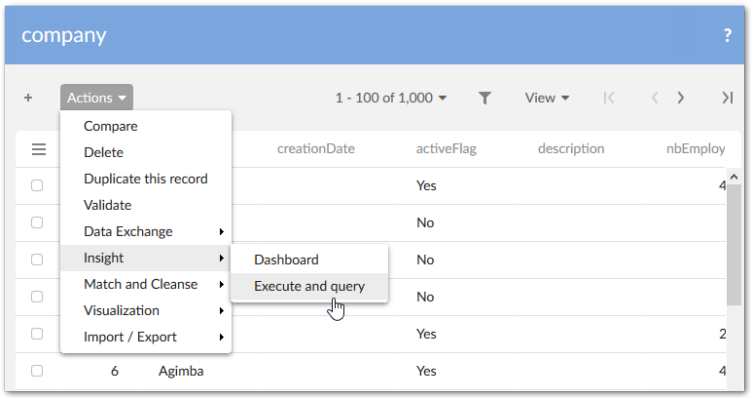
Service location	
	Access at the level of a dataset
	Access at the level of a table

Table 2: Execute and query - Access levels

8.2 **Execution**

Two indicator execution modes are possible. They are found under **Computation frequency** in the configuration:

- **Real time**: The indicator is executed in real-time when data changes. This indicator is associated with a probe, such as a trigger on a table or a listener.
- **On demand**: The indicator is executed manually through the user interface in EBX®.

The following policy applies to indicator execution and includes permission rules (refer to the *Permission* section):

- Only indicators with the **Is active** property set to **`Yes`** can be selected.

- At the repository level, all indicators that are attached to workflows or Monitoring operations can be selected for execution.
- At the dataspace level, all indicators that are attached to the current dataspace can be selected for execution.
- At the dataset level, all indicators in **on demand** mode that are attached to a Data Element Concept in the current dataset can be selected for execution.
- At the table level, all indicators in **on demand** mode that are attached to the current Data Element Concept can be selected for execution.
- One or many datasets that share the same data model can be configured for an indicator to execute at the dataset level and the table level. Please refer to the *Indicator on D.E.C.* table for more information.

Special notation:	
✔	An API is available to execute indicators from an external scheduler.

8.3 **Query and data views**

The integrated query in EBX® allows you to obtain a data view, for the indicator results, based on the **Big data report** table. You can execute the query at the repository, dataspace, dataset or table level.

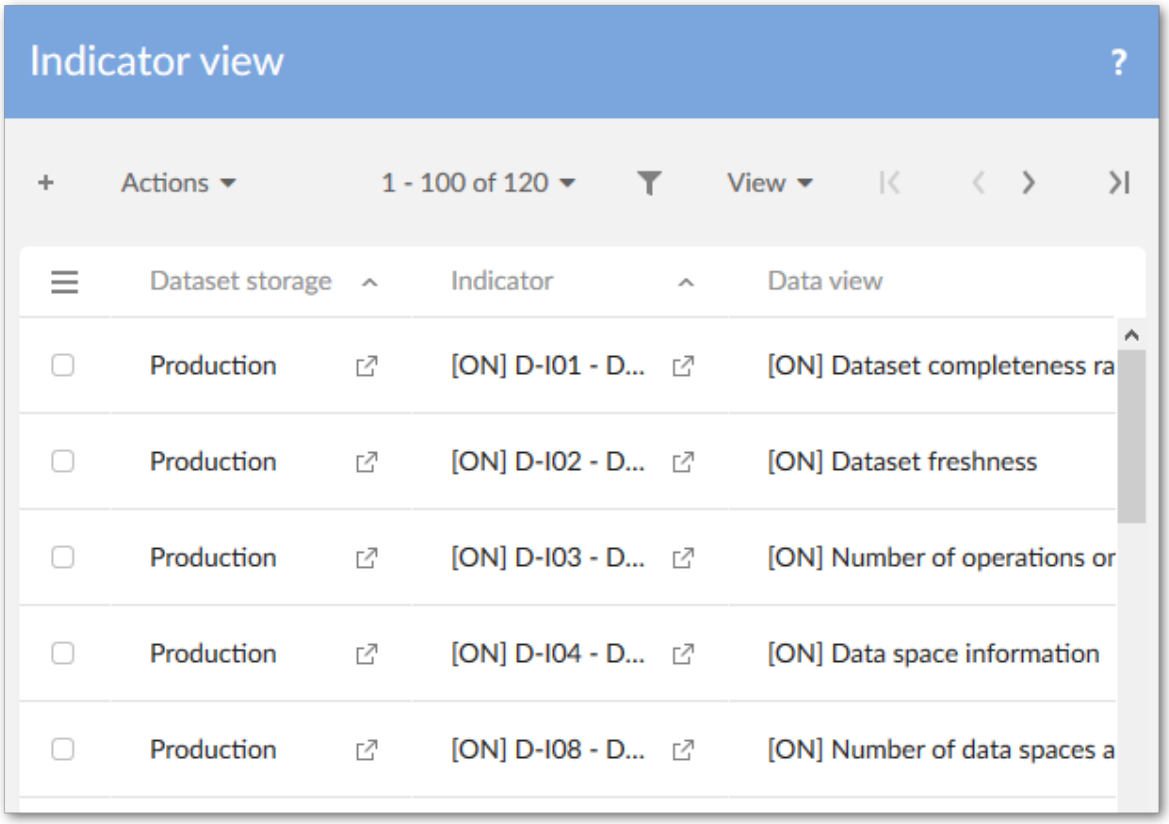
The following rules are applied and enriched with the permission rules (refer to the section *Permission*):

- All indicators can be selected, regardless of their computation frequency and their activation status.
- The list of indicators available to query is made up of all indicators attached to the D.E.C.s of the current access level.
- Users must select a date filter and the targeted data storage to query. Only the data storage used in the associations between the Data Element Concepts (D.E.C.) and the indicators display (**Indicator on D.E.C.** table in the add-on configuration area).
- At the dataspace level, the results are filtered by the current dataspace.
- At the dataset level, the results are filtered by the current dataset.
- At the table level, the results are filtered by the current dataset and the current table.

The add-on provides one prebuilt data view by indicator. These data views can be listed in the administration part of EBX® **Views configuration** dataset (they are also documented in the **Indicators portfolio** guide).

The data view displayed by the indicator can be changed. This means that an organization can change the default data views provided by the add-on. The attachment of a view to an indicator is done by

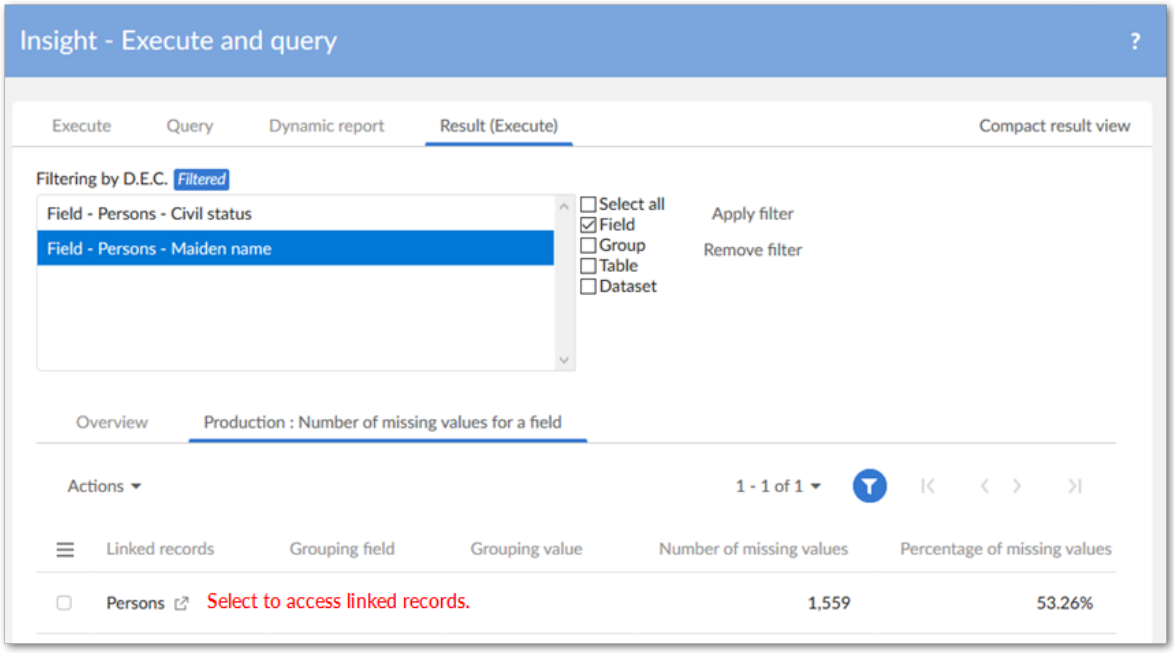
dataset storage where the flat reporting table (either the **Flat result** table or the **Big data report** table) is located (refer to next section about the configuration of the add-on):



Special notation:	
✔	The data views provided by the add-on must not be modified directly because they are set up during the upgrade process. To customize them, you need to copy the views and then apply the modification on these copies.
✔	The data view must filter the results of the big data reports by the indicator code on which it is applied. This means that the correct code indicator must be used to filter the data view depending on this indicator. When you create a new **Indicator definition**, you must configure the data view by using a filter applying the code of this **Indicator definition**. The default data views provided by the add-on apply this filtering by using the indicator code **`[ON]---`** (refer to the block *Filter* of the data view configuration).

8.4 Related records

Some indicators support storage of related, or linked records for each execution. For example, the **Number of missing values for a field** indicator saves a list of records that have an empty value in the specified field. As shown below, you can access these related records in the indicator's result view:



If the indicator supports multiple related records, you can filter these records using the options in the **Select a linked record option** list.

Related records for indicators are not activated by default. Refer to the *Indicator definition* section for configuration information.

Special notation:	
✔	**Related records** may also be referred as **linked records** in some screens and documents.

8.5 Filtering by dates

The **Date of the report** filtering allows you to select a date based on these options:



Depending on the selection, the results are filtered as follows:

	Date with time <> = 00:00:00	Date with time = null	No date value provided
All	na	na	All results
Most recent	na	na	1 result
Oldest	na	na	1 result
Exact date	1 result with the exact time	All results for the date whatever the time	impossible
Nearest date	1 result in the nearest date and time past	All results in the nearest past date for all times	impossible
From date	All results from the date and the time	All results from the date including all times for this date	impossible
To date without from date	All results from the beginning up to the date	All results from the beginning up to the date and the time	impossible
To date with from date	All results between the dates (from, to)	All results between the dates (from, to) including the times	impossible

Those indicators that supports periodicity control also apply special rule to filter result by date except for the **All** and **Exact** filters. Period start date, end date and execution date are used to perform comparison logic.

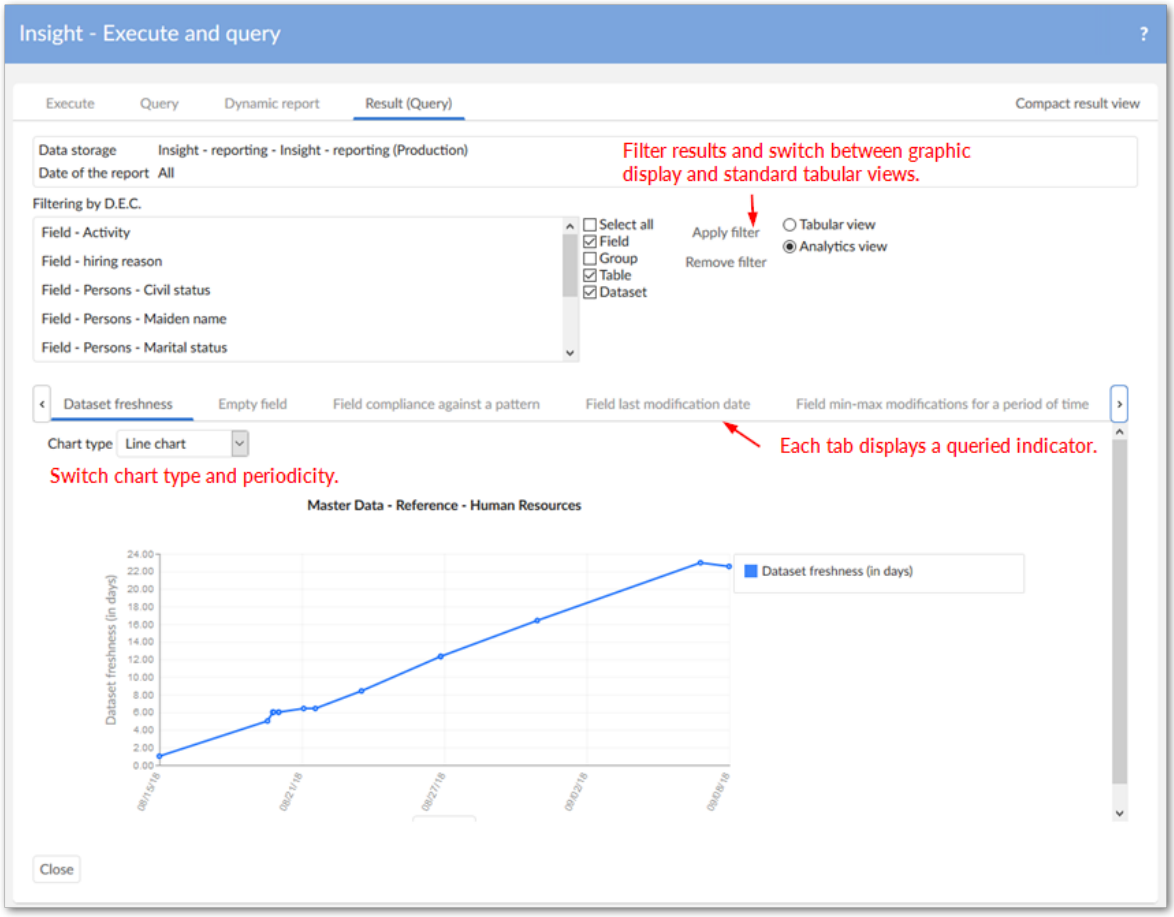
- Most recent filter: using period end date and execution date for comparison.
- Oldest: using period start date and execution date for comparison.
- Nearest: using period end date and execution date for comparison.
- Interval: using execution date for comparison. Therefore indicators result can be retrieved if and only if specified interval covers the period in which indicators are executed. For example, suppose an indicator I1 with monthly period executed in July 2017. If users select interval from *[05/07/2017 to 04/08/2017]* then no result obtained because indicator's period is *[01/07/2017 - 31/07/2017]* which is not fully covered by selected interval. However when they change interval's from date to 01/07/2017 or any day before that they can get correct result.

The **Exact** filter applied on indicators with periodicity still uses execution date for comparison.

Special notation:	
✔	The **Exact filter** for indicators with periodicity may no longer use execution date to perform comparison in the future.

8.6 **Data analytics and chart types**

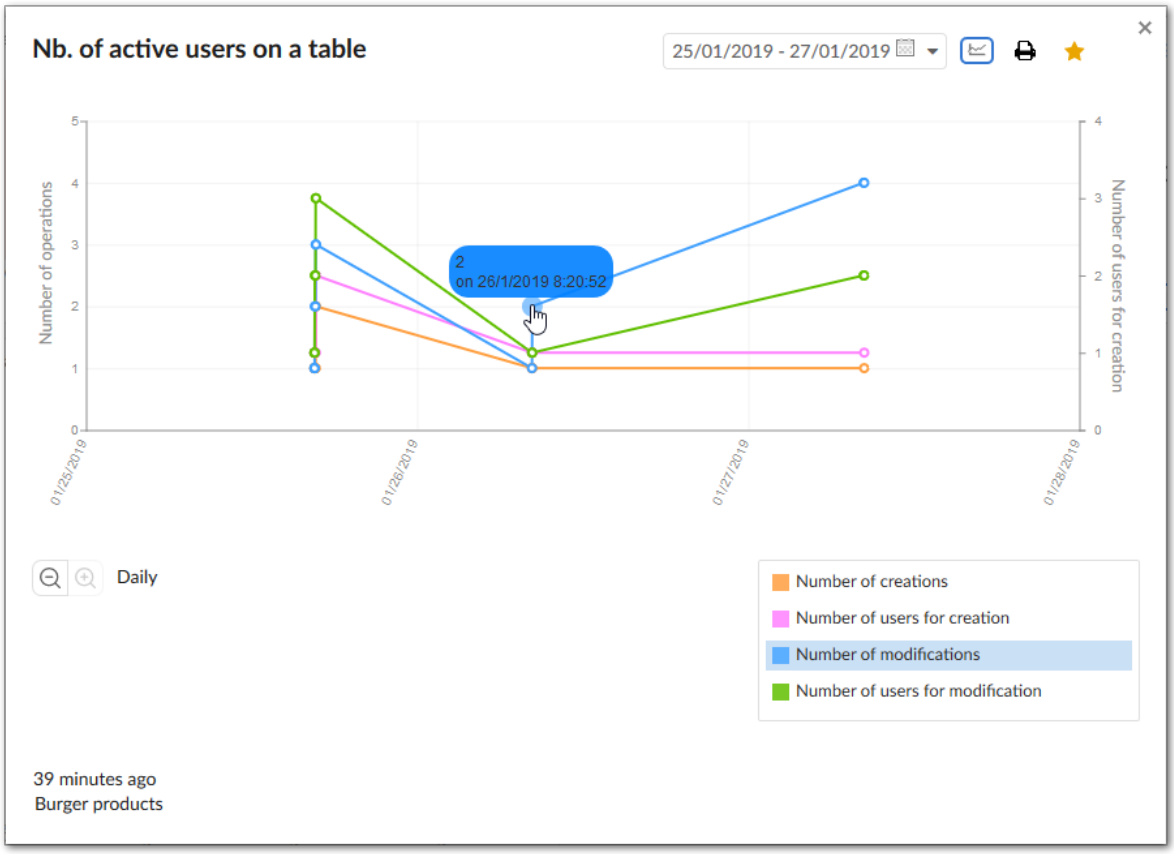
An indicator can be associated to graphical views and, after running a query, you can display the graphs using the **Analytics view** radio button. The image below highlights some additional options, and the following sections highlight available chart types:



Special notation:	
✔	To get complete graphs, it is recommended to set the **Save only last value** properties to `False` so that the results of the indicators are kept over time.

Line charts

Line charts work well to display results from monitoring data, or activity over a period of time. The image below highlights some of the line chart features:

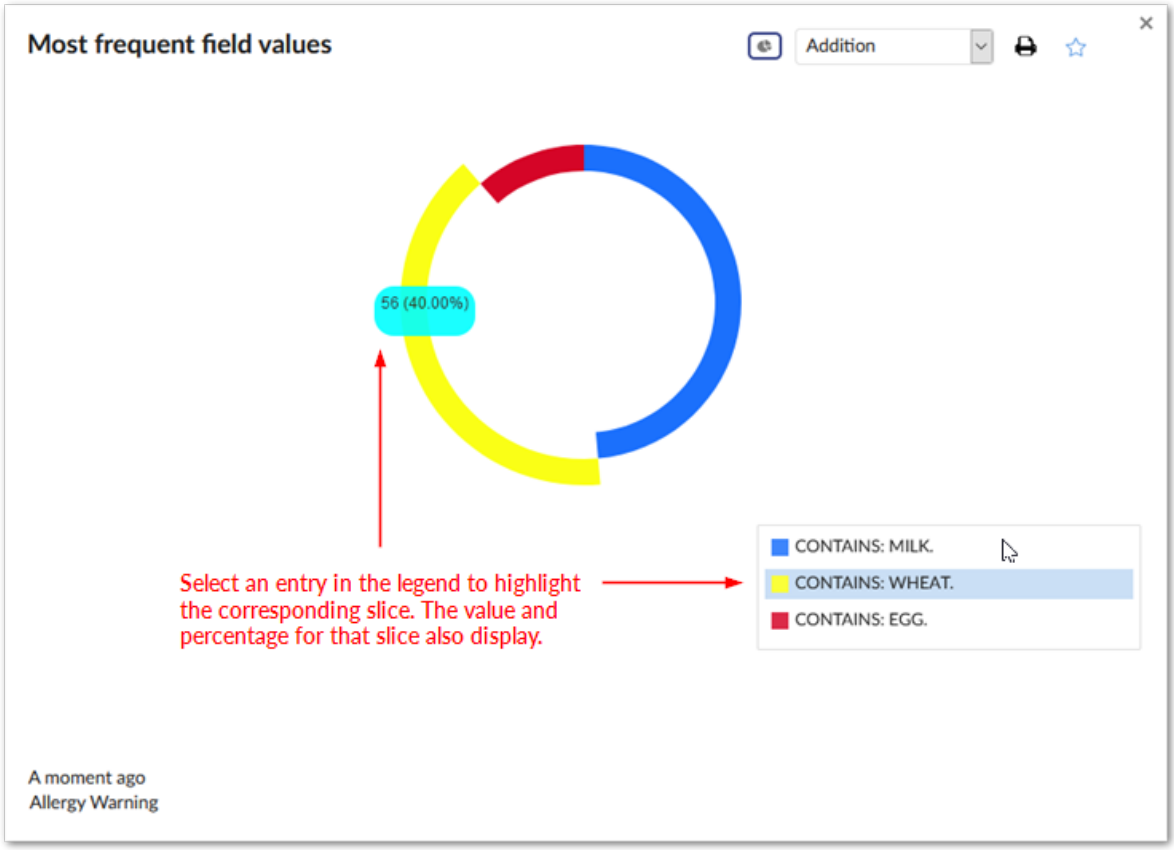


Pie charts

You can view this chart type when an indicator has more than one output parameters. This means, for example, that an indicator providing just one measure that is an integer cannot benefit from a pie chart representation. When a bespoke indicator is implemented, the API provided by the add-on allows you to configure how the output parameters must be used to create suitable axis on the charts (refer to Java doc).

The standard chart gives the trend of the indicator over time whereas the pie chart provides a consolidated view of the results.

You can choose to display pie charts from either the latest results (**Only last measure**) or accumulative results over time (**Addition** or **Average** - Boolean outputs don't support the **Average** mode). The default pie chart mode is configurable for each indicator (refer to the *Indicator definition table* section).

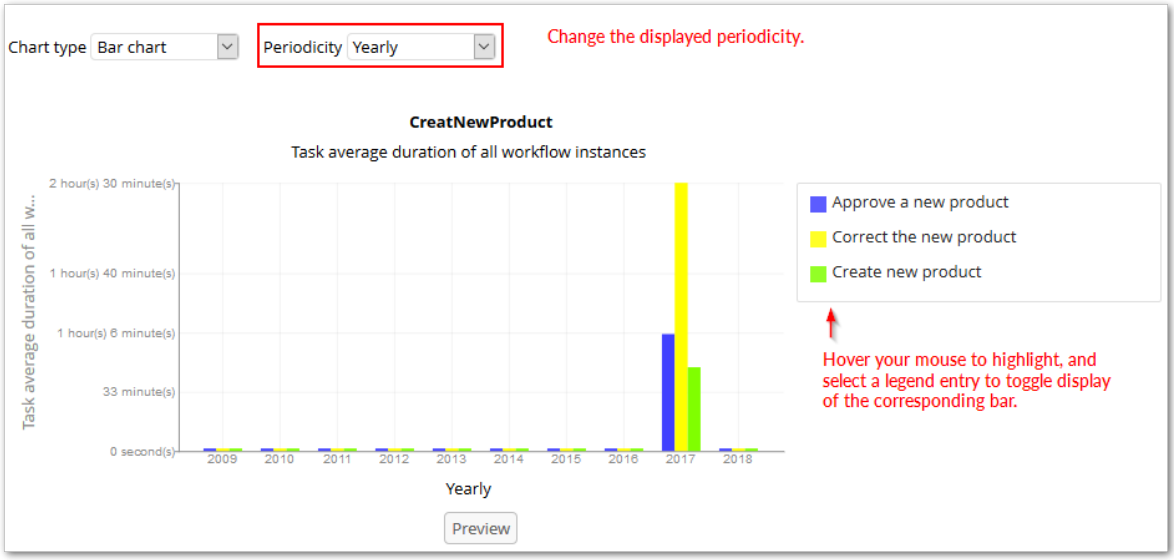


> **Note**
>
> An indicator may have more than one pie chart displayed at the same time depending on its output parameters. To ensure best visual experience, the maximum number of displayable categories is 10. If there are more than 10 groups, the 10th would be constituted by the remaining groups.

Bar charts

This chart type is available when an indicator has at least one numeric output parameter. A time slice option must be selected to display the averages of indicator results periodically, such as days in week,

months in year, etc. The default periodicity is configurable for each indicator (Refer to the **Indicator definition** table).



It depends on the indicator that all the numeric output parameters are included in a single bar chart or divided into separate bar charts.

Bar chart display reference

The following matrix shows how bar charts display results depending on the periodicity and selected chart mode display type:

Chart display mode	Display based on periodicity of control					
	Daily	**Weekly**	**Monthly**	**Quarterly**	**Semester**	**Yearly**
Daily	The last execution from the day. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.					
Weekly	The sum of the last execution of each day during the week.	The last execution of the week. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.				
Monthly	The sum of the last execution of each day during the month.	The sum of the last execution of each week during the month.	The last result from the month. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.			
Quarterly	The sum of the last execution	The sum of the last execution	The sum of the last execution	The last quarterly execution		

Chart display mode	Display based on periodicity of control					
	of each day during the quarter.	of each week during the quarter.	of each month during the quarter.	result. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.		
Semester	The sum of the last execution of each day during the semester.	The sum of the last execution of each week during the semester.	The sum of the last execution of each month during the semester.	The sum of the last execution of each quarter during the semester.	The semester's last execution result. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.	
Yearly	The sum of the last execution of each day during the year.	The sum of the last execution of each week during the year.	The sum of the last execution of each month during the year.	The sum of the last execution of each quarter during the year.	The sum of last execution of each semester during the year.	The year's last execution result. This is also the displayed value when no periodicity of control is available for an indicator, or it is set to **Any**.

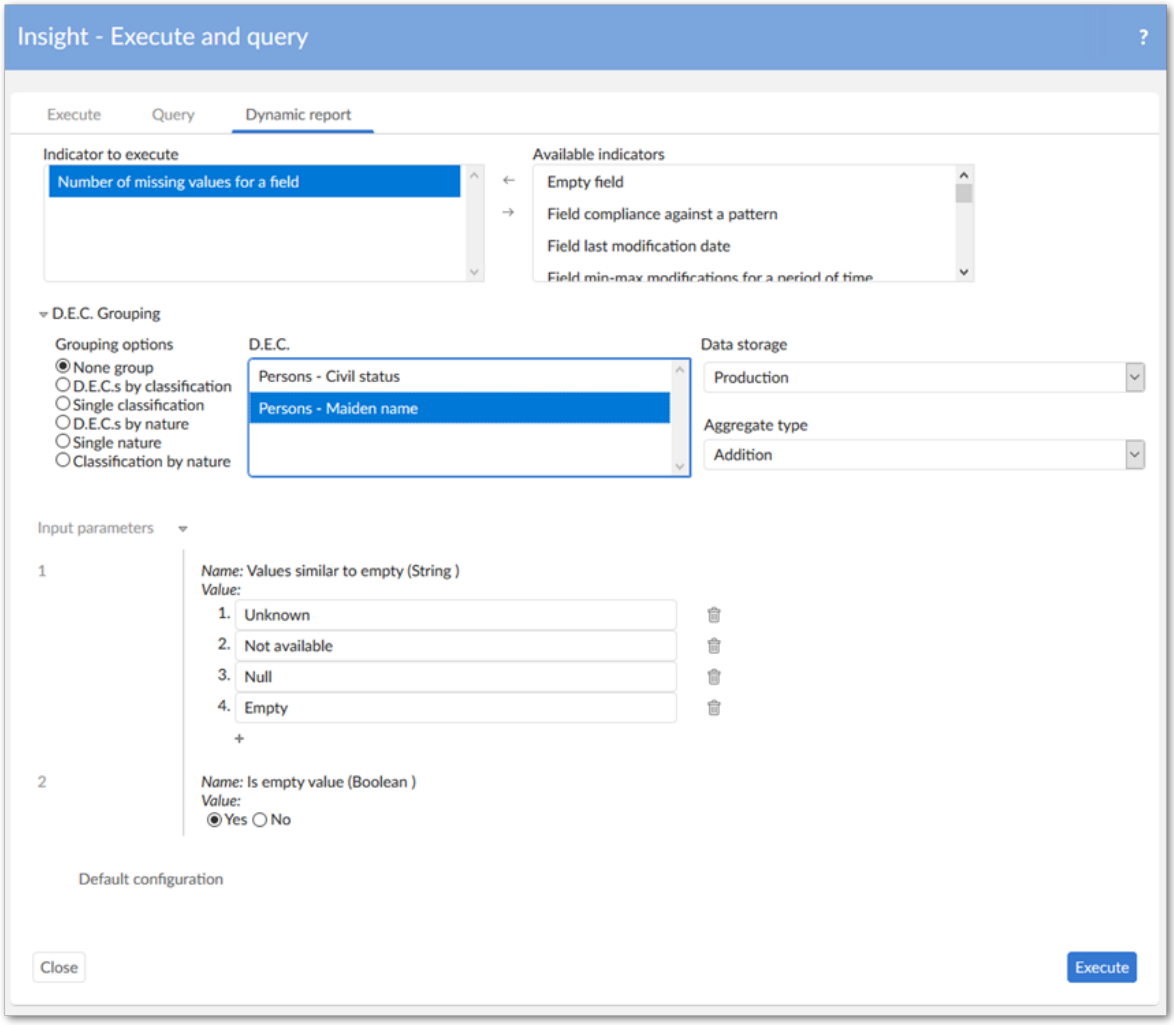
Sparkline charts

Sparkline charts are available for indicators with numeric outputs. The image below shows an example:



8.7 **Dynamic report**

Dynamic report service permits to calculate and merge indicator result for several D.E.C.s and retrieve result in the past for indicators supporting periodicity. After clicking on the **Execute and Query** item you will see new tab labeled **Dynamic report**.

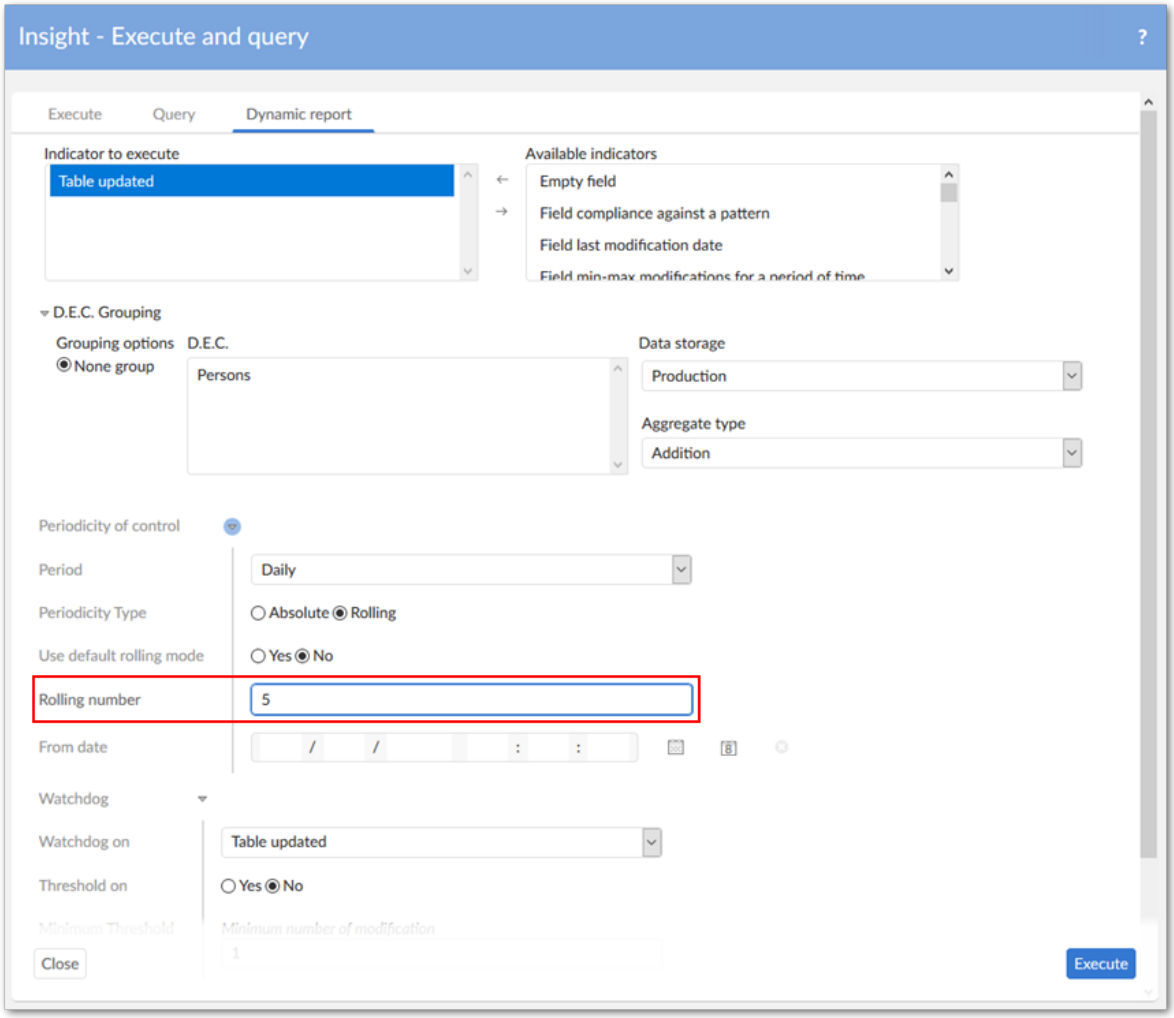


While the **Execution and Query** services can process several indicators at a time, the **Dynamic report** service can only execute one on one but it offers much of flexibility:

- The ability to obtain result for multiple D.E.C.s to which the indicator is attached. Result for several D.E.C.s can be additive or average - this is called aggregated result.
- All D.E.C.s are loaded by default but can be filtered using several options. After D.E.C.s are loaded, you can also limit the result by highlighting the desired D.E.C.s. For example, in the picture above even when there are two D.E.C.s for the **Number of missing values for a field** indicator, only the result of the **Description** field on the **Business** table (highlighted D.E.C.) is shown upon clicking on the **Execute** button.
- Options for filtering D.E.C. are described below:
  - None group: all D.E.C. are loaded.

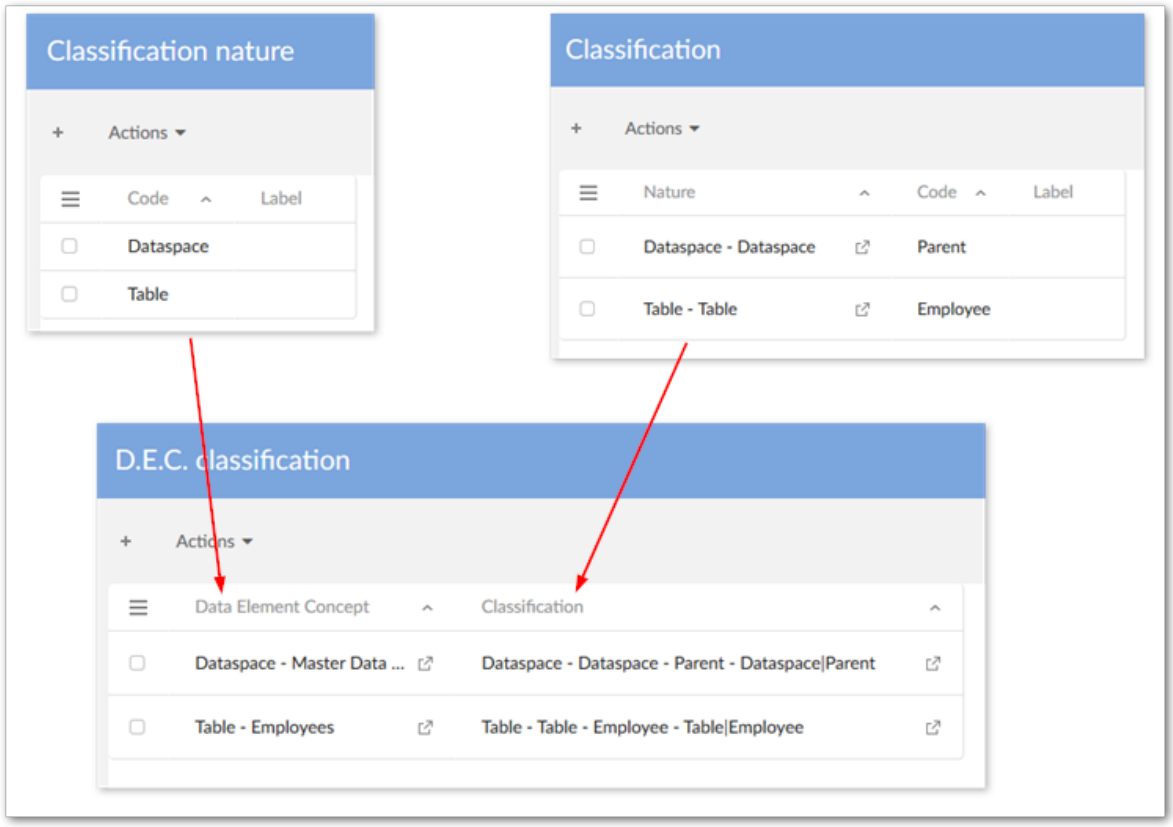
- D.E.C.s by classification: D.E.C. classifications that D.E.C.s belong to will be loaded. Result for D.E.C.s and classification is shown.
- Single classification: Same as above but D.E.C.s result is grouped by classification.
- D.E.C.s by nature: D.E.C. nature will be loaded to the box. Result for D.E.C.s and classification nature is shown.
- Single nature: Same as above but result is grouped by D.E.C. nature.
- Classification by nature: two boxes are shown; you have to choose exactly one D.E.C. nature first then all classifications belonging to this selected nature will be loaded. Result for the selected nature will be merged by its selected classifications.

- The ability to alter input parameters: if the selected indicators have input parameters, then they can be modified in the context of the **Dynamic report** service. This feature allows you to adjust input parameters based on their business logic assessment. At any time you can restore the default value for these parameters by clicking on the **Default configuration** button. These custom settings are only applied within a dynamic report execution context and will not affect the default configuration of the indicator.
- The ability to obtain result in the past for indicators supporting period parameters. As usual while executing these indicators (**Execution** service), the result will be computed based on the execution date. This service is more flexible, because it allows you to select any point of time.



As shown in the figure, you can choose the date from which result will be computed and the unit of time that result will be based on. In addition, you can always select previous mode by setting **Periodicity of control** to `Absolute`. The rolling number is an additional validation that controls the value of this attribute to avoid an excessive number and a drop in performance. Currently, the maximum value allowed is 30 if you enter any value greater than 30, an error message will display asking you to correct this value before launching the service.

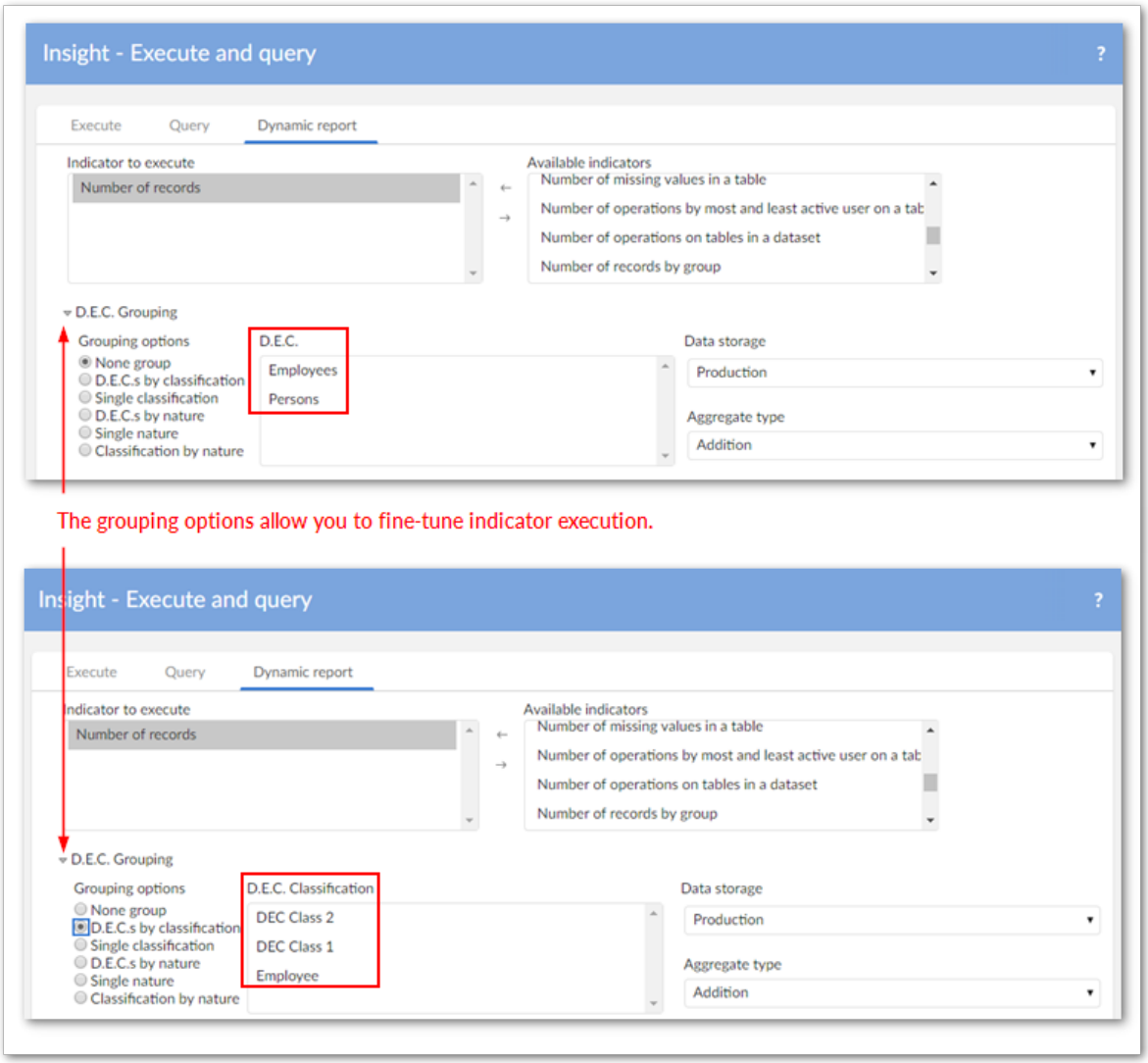
The elements in *D.E.C. Grouping* section are handled in the administration area of the EBX® Insight Add-on located under the *D.E.C. definition* section. The figure below shows the relationship between them.



This configuration conveys following information:

- There are two entries in classification nature: **DEC Nature 1** & **DEC Nature2**.
- There are two entries classification: **DEC_Class1** and **DEC_Class2**. **DEC_Class1** belongs to **DEC Nature 1** and **DEC_Class2** belongs to **DEC Nature 2**.
- The **Articles** table belongs to **DEC Nature 1**.
- The **Businesses** table belongs to both **DEC Nature 1** and **DEC Nature 2**.

Therefore, different D.E.C. grouping options show different initialization parameters as illustrated below:



Because the **Number of records** indicator is defined for both D.E.C.s Table - **Articles** and Table - **Businesses**, so when **Grouping option** is none, these D.E.C.s will be loaded into the filter box on the right of the **Grouping options** window. However, when the Grouping option **D.E.C.s by classification** is selected, this filter box is filled with classification entries that D.E.C.s belong to - in this example **DEC_Class1** and **DEC_Class2**. Execution result will be displayed based on D.E.C.s and classifications.

Indicator result has two main parts: one is aggregated result in tabular form and the other is graphical representation. You can view separate result by checking the **Display table of separated results** option. Too many graphical figures in the result may cause visibility issue, you can click on the **Preview** button to open them in a new pop-up window. The result of the **Dynamic report** service is initially stored in memory rather than in the configured storage location. To save it in physical storage - simply click on the **Save** button.

8.8 Indicator applied to a workflow

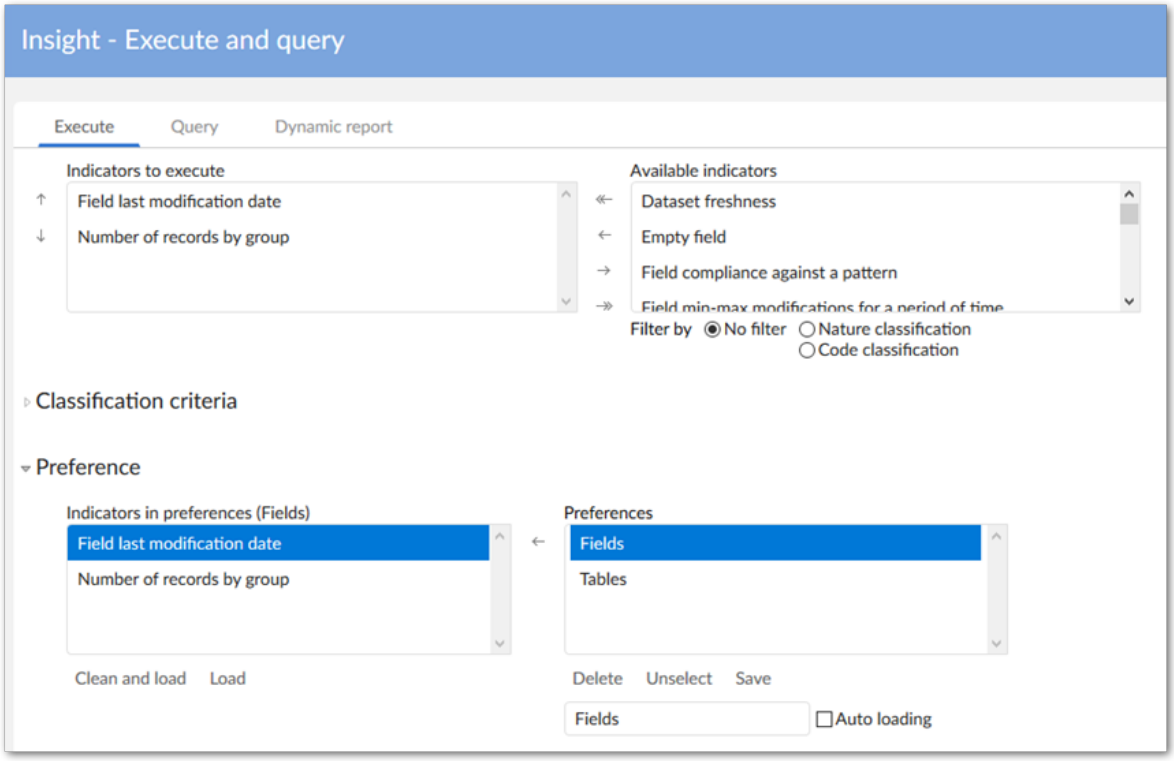
The indicators that are related to a workflow are available at the **Reference dataspace** level. They are not available at the dataset level and the table level.

8.9 Indicator applied to an operation

The indicators that are related to an operation are available at the **Reference dataspace** level only. They are not available in other dataspaces or at the dataset level and the table level.

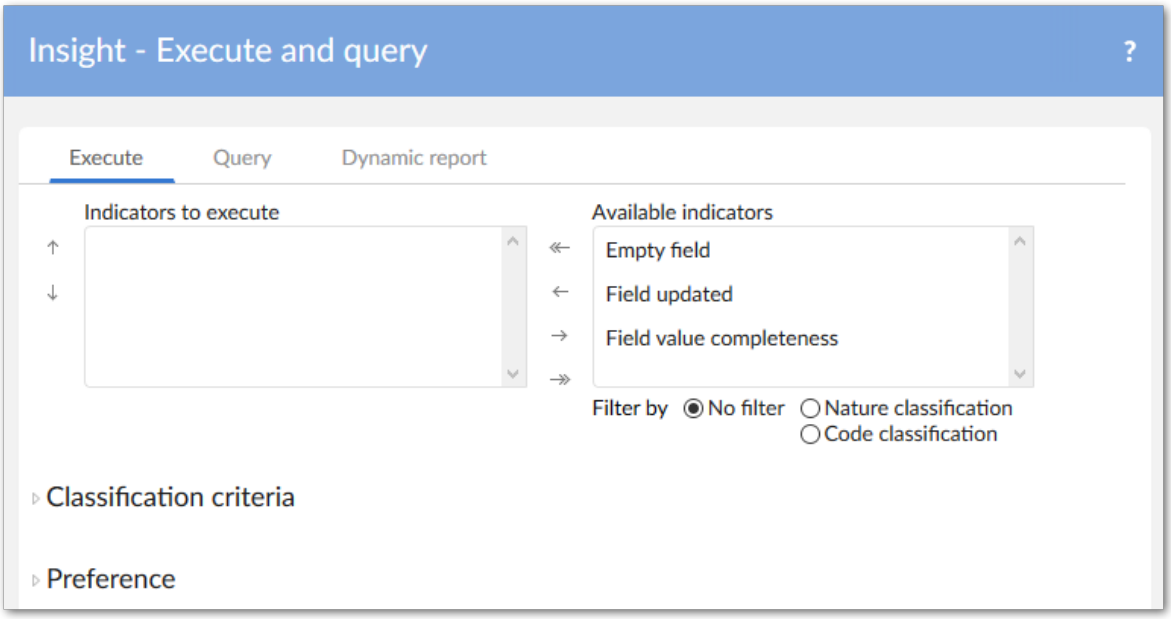
8.10 Indicators preferences management

A preference is used to group one to many indicators that are ready-to-use for the query and the execution. The snapshot below illustrates three preferences that group indicators on different topics. For instance, the preference **Indicators on boolean field** contains these indicators:



A preference is owned by the user-profile who created it. It is not applied to a role. A user-profile can configure as many preferences as needed. Included in these preferences, is the **Auto-loading** preference. Auto-loading enables the automatic load of indicators upon the display of the execute and query UI (respectively the list **Indicator to execute** and **Indicator to query**).

8.11 **Indicators classification management**



It is possible to filter the list of indicators (execute and query) by nature of classification or code of classification. It allows you to easily obtain a subset of indicators for a certain classification (refer to the add-on configuration for the classification scheme).

8.12 **Viewing linked records**

Users can be allowed to view records linked to chart values. Depending on the chart type, they can access this service when:

- Pie charts: selecting a section to highlight it. Then, right-click the section and select the service.
- Bar charts: right-clicking on a bar and selecting the service.
- Line charts: right-clicking a value point and selecting the service.
- Sparkline charts: hovering your cursor on the chart until the value displays. Then, right-click and select the service.

To enable this feature if you are an administrator:

1. In the configuration area, open the **Indicator on D.E.C.** table and select the indicator on which you want enable linked record viewing.
2. Set the **Linked record** field to **Yes**.
3. Save and close.

8.13 **Display rules**

The table below gives the display rules applied to make available the indicators in the **Execute and query** service depending on the user context.

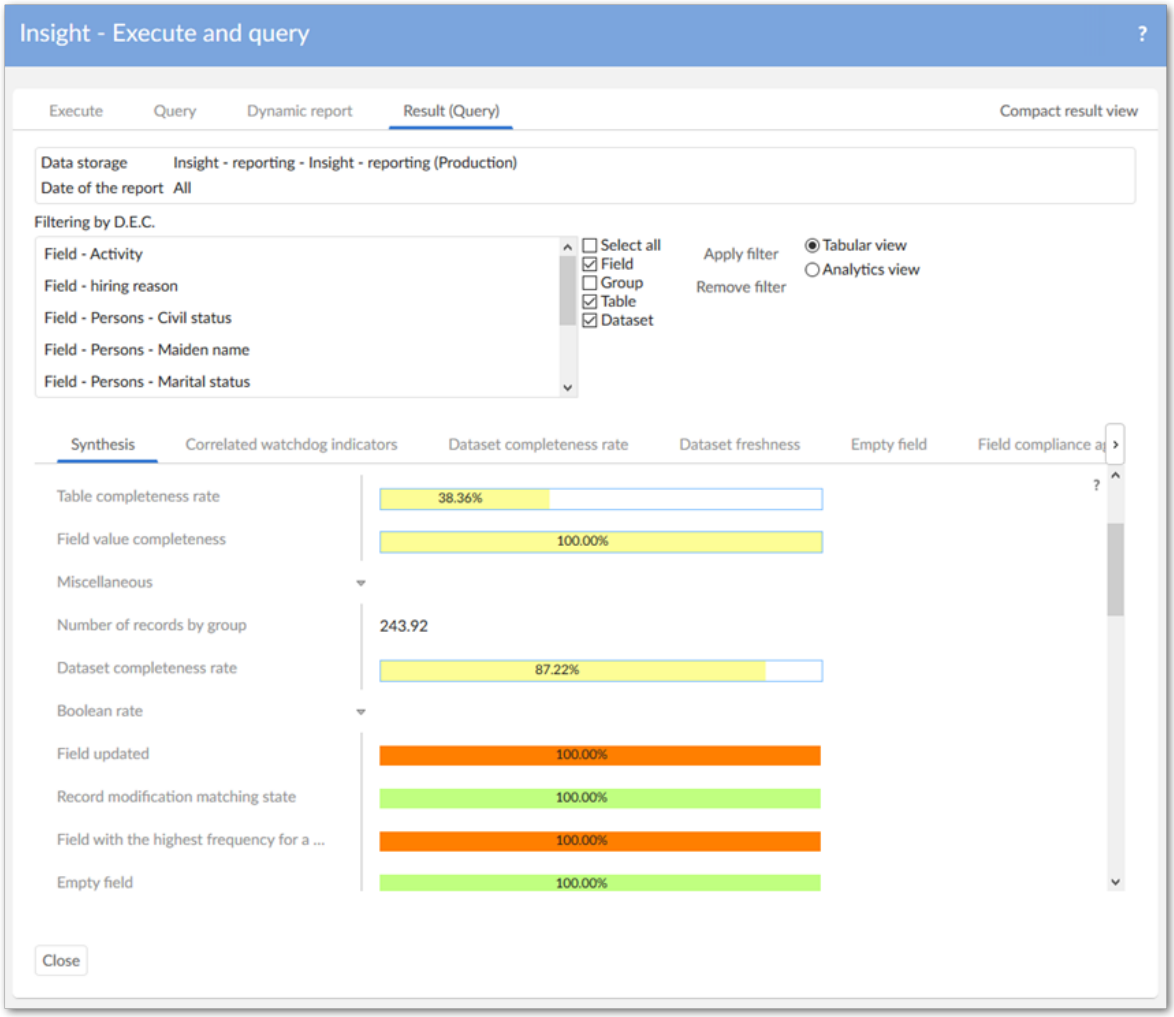
User context				Display rules				
Dataspace reference	**Dataspace**	**Dataset**	**Table**	**Dataspace indicator**	**Dataset indicator**	**Table indicator**	**Field indicator**	**Workflow indicator**
	X			Of the selected dataspace	No	No	No	No
		X		No	Of the selected dataset and all that are based on the same data model	Yes on all tables of the dataset	Yes on all fields of the tables	No
			X	No	No	Yes on the table	Yes on the fields of the table	No
X				Of the repository level	No	No	No	Yes all workflow

Table 4: Synthesis of the display rules for the execution and query depending on the user context

8.14 **Synthesis view**

The **Synthesis view** UI allows you to display indicator results as a condensed computation. For instance, if the **Number of records** indicator is queried on three tables, the synthesis view displays the

average of the three results. The synthesis displays in a condensed view the digital results (number) the boolean, the percentage (graphical bars) and the dates.



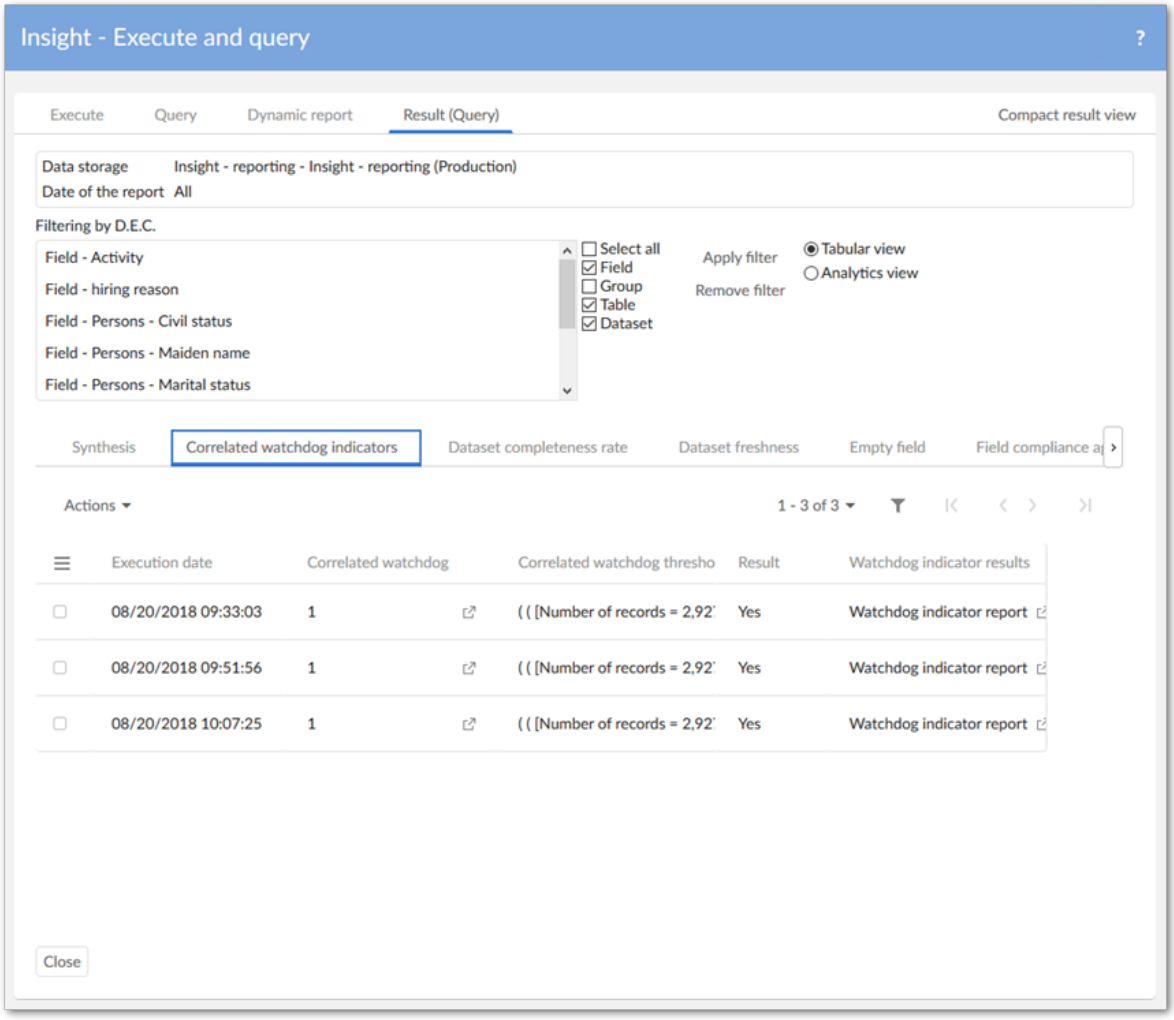
You must configure this view before using it. Please refer to the *Synthesis configuration* section.

8.15 **Correlated watchdogs**

Apart from using the default watchdogs of indicators, which are only available for boolean outputs, it is possible to define watchdog indicators via expressions on all types of outputs and combine two or more watchdog indicators into a correlation.

For instance, you can define a watchdog to inform you when the **Number of records** is greater than a certain threshold, then define another watchdog to be raised when the **Most frequent value** contains `John Smith`, and combine those conditions to alert you when both of them are true.

The watchdog indicators and correlated watchdog indicators are executed right after the indicator execution and displayed in the respective tabs as illustrated below.



You must configure watchdog indicators and correlated watchdog indicators before using them. Please refer to the section *Configuration* of the *Correlated watchdog configuration*.

CHAPTER 9

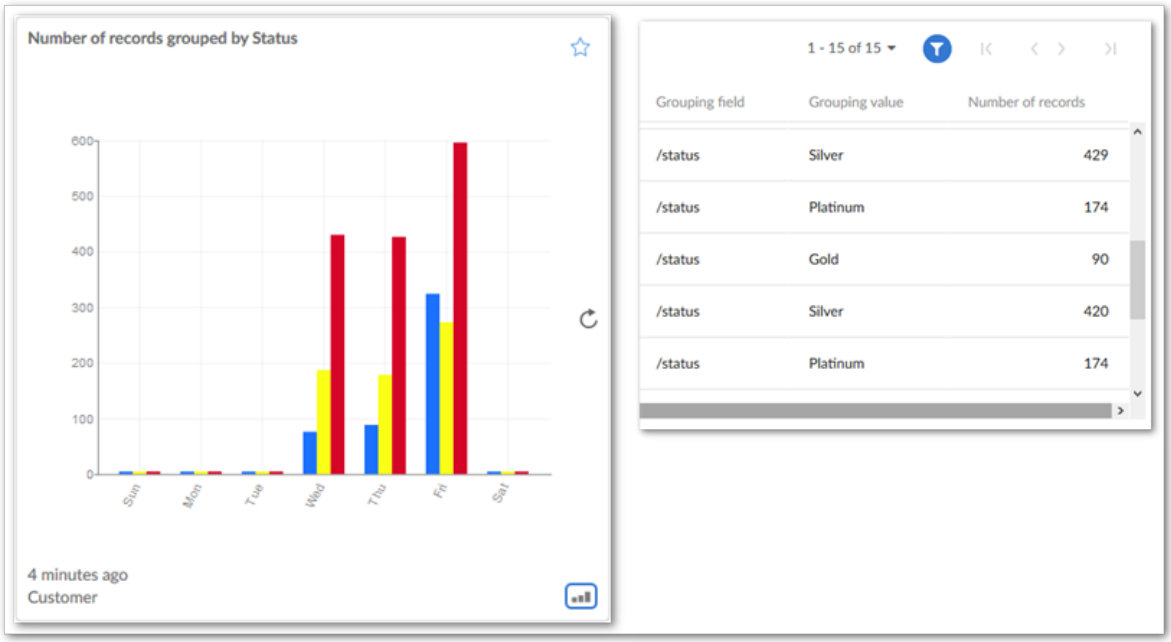
Grouping indicator results

This chapter contains the following topics:

1. Overview of grouping values
2. Configuring group display

9.1 Overview of grouping values

The EBX® Insight Add-on permits grouping of indicator results based on field values. Grouping can shed additional light on data displayed in indicators. For example, instead of just showing how many records a table contains, grouped results can show how many records contain particular values. The image below demonstrates this by displaying how many members hold a particular status. The image highlights: a dashboard tile (left); query results over time (right):



Administrators configure grouping options on individual indicators. When enabling grouping from the **Indicator definition** table, grouping is active each time the indicator is associated with a D.E.C. You can adjust all configuration options from the **Indicator on D.E.C.** table when associating indicators with D.E.C.s. Note that grouping is only available for select indicators. See Grouping availability [p 62] for a list of available indicators.

When enabling the grouping feature, you can also:

- Determine how groups display in charts: stacked or separated.
- Set a limit on the number of groups that display. Any group(s) that do not display individually get included in an "Other" bar/line. When limiting groups, you can specify the order in which groups display.
- Apply an **Order by** value to sort grouped records by a field value.

9.2 Configuring group display

The following instructions assume that a D.E.C exists, or that you have existing indicators attached to D.E.C.s. To configure group display of indicator values:

1. Navigate to *Administration* > *Data quality and analytics* > *TIBCO EBX® Insight Add-on* > *Indicators*.
2. From the **Indicator on D.E.C.** table open an existing record, or create a new record to add an indicator to a D.E.C.
3. Activate the **Enable grouping** option and save, but do not close the record.



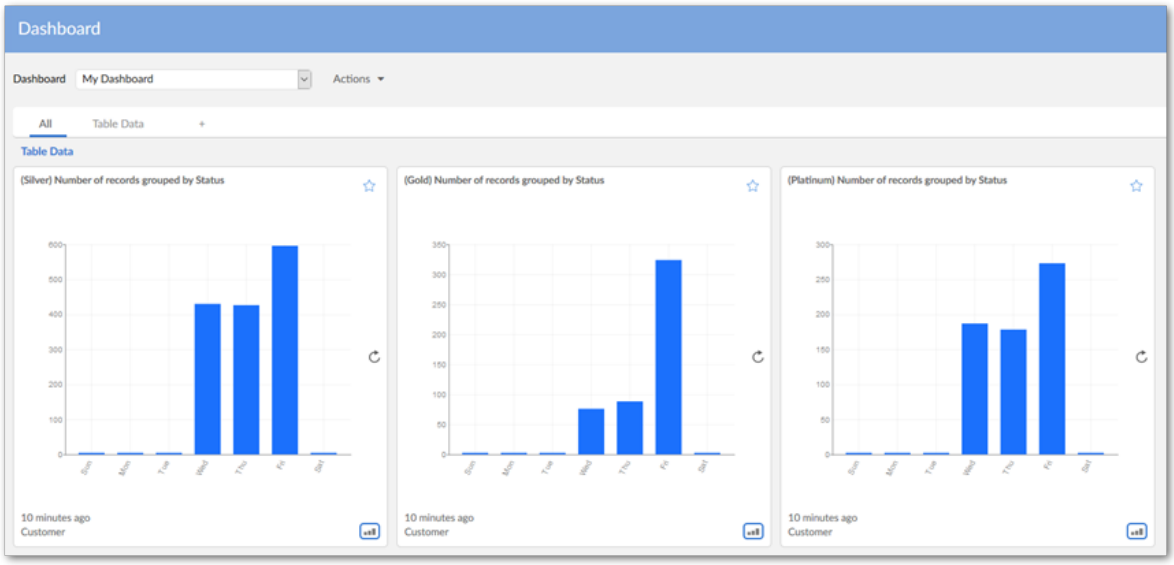
4. Set the following properties as required (not all options may display, depending on the indicator):
   - **Group by value**: Set which field contains the values you want to group. Groups of values display as lines/bars in charts.

- **Order by**: Optionally, indicate which field is used to sort the groups. When viewing a tabular view of linked records, they will be sorted according to this value.
- **Maximum number of groups**: Optionally, specify how many groups display in the chart. All remaining groups are combined. The value also specifies the number of corresponding entries in the indicator's legend.
- **Group priority**: Determine the order in which groups display. You can choose whether the order begins with groups containing the highest, or lowest number of records.
- **Other group name**: Optionally, specify the name for the combined groups.
- **Display option**: Specify how charts display the groups.

5. Save and close. The results will be available to users who can query, execute, and view this indicator.

Separating groups into individual dashboard tiles

Groups can be separated so that they each display in a different tile. This can be useful to see the development of a single value over time. For example, how the number of Gold level subscribers fluctuates quarterly. If you have administrative access, you can activate this functionality in the **Indicator in section** table by enabling the **Separate tiles by group** option.



Grouping availability

The following table lists the indicators where grouping functionality is available:

Indicator application	Grouping availability
Tables	• T-I03: Number of records • T-I04: Table completeness rate
Fields	• F-I18: Number of missing values for a field • F-I20: Number of records by group • F-I31: Field value completeness
Groups	• F-I13: Group of fields' completeness

CHAPTER 10

Permission management

This chapter contains the following topics:

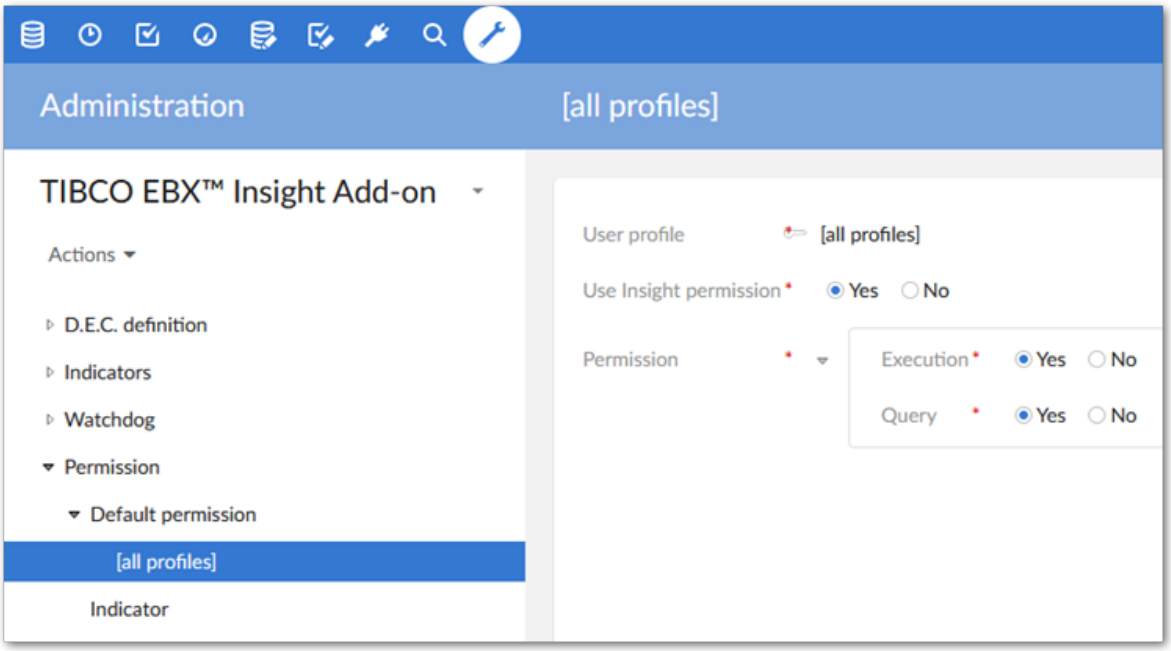
1. Global view
2. Applying EBX® permissions only
3. Permissions extended by the add-on

10.1 Global view

The add-on is configured to manage permissions using one of the following modes:

- Based on the EBX® permissions applied to the data, or
- Based on additional permission management provided by the add-on.

The mode is configured in each user profile, as illustrated below.



Special notation:	
✔	When a user profile is not configured in the **Default permission** of the add-on, then that user cannot access the add-on's services. It is possible to configure whether execution and query operations are permitted.

When the add-on is configured with only EBX® permissions, a user cannot execute or query the indicators applied to data that are restricted by EBX® (that is, if the user has neither **read** nor **read-write** rights). For example, if a user has no rights on an **Employee** table, that user cannot execute or query any of the indicators on this table. However, in certain cases, by using the permissions provided by the EBX® Insight Add-on, access restrictions on a data do not necessarily mean that the user cannot execute indicators and query the results on this data.

Special notation:	
✔	The EBX® permission is used to configure the rights applied to the reporting tables **Big data report**, **Indicator report** and **Indicator value**.
✔	The indicators executed by triggers don't need to be constrained by user permission rules.

10.2 **Applying EBX® permissions only**

To use only EBX® permissions, the **Use Insight permission** property is set to `False` in the **Default permission** table. With this configuration, the ability to query and execute indicators is as follows:

Operation	Permission
Query	All indicators are available through the UI query and the results are filtered depending on user rights. When the user has neither 'read' nor 'read-write' on a Data Element Concept (D.E.C.), then the related results are not displayed. For indicators of type Workflow they are systematically offered at the level of the reference dataspace.
Execute	An indicator is available to be executed by a user with 'read' or 'read-write' permissions on the related Data Element Concept (D.E.C.). For indicators of type Workflow they are systematically offered at the level of the reference dataspace. To execute the indicator on a workflow, the user must be at least a participant in this workflow.

Table 5: Execute and query - Applying EBX® permissions

10.3 **Permissions extended by the add-on**

To extend the EBX® permissions, the **Use Insight permission** property is set to `True` in the table **Default permission**.

With this option, the EBX® permissions applied to the Data Element Concept (D.E.C.) are extended with the permission declared through the add-on. This means that a user who has no rights on a D.E.C. can be authorized to execute and query indicators on this D.E.C..

This procedure does not bypass EBX® permissions with regard to the ability to read and write the data belonging to this D.E.C., only the right to execute the indicator on the D.E.C. and to query the results. The results are then displayed by regular views in EBX®, which take into account standard permissions (**Big data report**, **Indicator report** and **Indicator value**).

For example, a user **User01** has no rights on the **Employee** table. This user cannot modify or read any data in this table. In the add-on, the **Number of working hours per month** indicator is applied to the **Employee** table. The permissions defined in the add-on then extend the EBX® permissions to allow **User01** to execute and query the results of the **Number of working hours per month** indicator on the **Employee** table. This permission at the add-on level does not change the fact that the user **User01** cannot access the **Employee** table data.

With this configuration, the query and the execution of the indicators is as follows:

Operation	Permission
Query	Only the indicators that are configured with the permission 'Query' = 'Yes' are available through the UI query. For indicators of type Workflow, the configuration 'Indicator permission by D.E.C.' is not applied since these indicators are not reliant on D.E.C.s.
Execute	Only the indicators that are configured with the permission 'Execute' = 'Yes' are available through the UI query. For indicators of type Workflow: • The configuration of 'permitted datasets' in the table 'Indicator permission' is not used since these indicators are not reliant on datasets. • The configuration 'Indicator permission by D.E.C.' is not applied since these indicators are not reliant on D.E.C.s. To execute the indicator on a workflow, the user must be at least a participant in this workflow.

Table 6: Execute and query - Applying add-on permissions

The configuration is based on two concepts highlighted in the table below.

The two configuration concepts for the permission management	
Indicator ('Indication permission')	When an indicator is not configured, its permissions are the ones defined by 'Default permission'. For example, the user-profile 'UPF01' is configured with 'Query' = 'Yes' and 'Execute' = 'No'. If the 'Number of records' indicator is not configured under permissions management, this indicator is available to query but not to execute. When an indicator is configured, its permissions are no longer the default permissions. For example, for the same user profile as above, if the 'Table last modification date' indicator is configured with 'Query' = 'Yes' and 'Execute' = 'Yes' with a restriction on the dataset 'DS01', this indicator is available to query and can only be executed in the dataset 'DS01'.
Indicator by D.E.C.	For an 'Indicator permission', it is possible to restrict permissions to one or multiple Data Element Concepts (D.E.C.). When no 'Indicator by D.E.C.' is defined for an 'Indication permission', all D.E.C.s are permitted.

Table 7: Execute and query - The configuration concepts for the permission management

CHAPTER 11

Sending results by email

This chapter contains the following topics:

1. Overview
2. Enabling email of indicator results

11.1 Overview

The indicator results can be sent by email either manually from the reporting UI or automatically when a watchdog is raised:

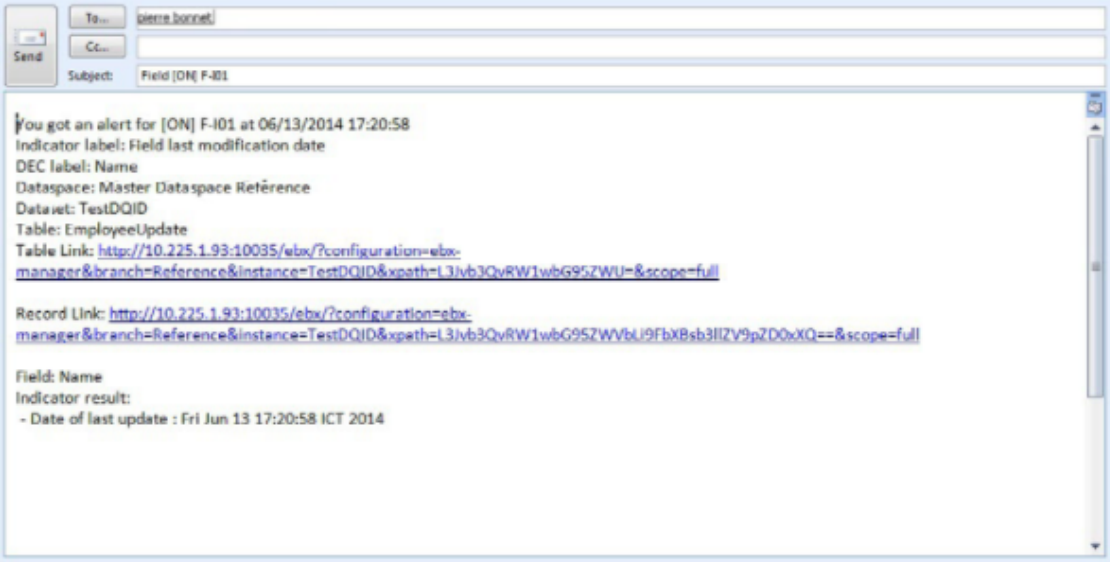
- If sent manually, the sender is the user connected to EBX® and the recipients are the owners of the Data Elements Concepts (D.E.C.).
- If sent automatically, the sender is configured with the 'Email sender' property in the 'Configuration' table. This table is located in the 'Indicators' 'Reference data'. The recipients are declared in the 'Indicators email subscription' table.

The reporting UI includes a pop-up menu **Operation** that allows one to create an email with the indicator results to be sent to the owners of the related D.E.C.

The email is made of a header of data results and a text that is configured (refer to the table **Email template**).

A template can be enriched by pre-defined variables to include for example: **`${table} (current table's label in execution time), ${field} (current field's label in execution time),`**

`${workflow} (current workflow's label in execution time)`. The add-on is provided with some email templates by type of D.E.C.



The full list of predefined variables is as follows:

- **`${dataspace}`**: current dataspace's label in execution time.
- **`${dataset}`**: current dataset's label in execution time.
- **`${table}`**: current table's label in execution time.
- **`${field}`**: current field's label in execution time.
- **`${workflow}`**: current workflow's label in execution time.
- **`${operation}`**: current operation's label in execution time.
- **`${indicator.code}`**: indicator's code
- **`${indicator.label}`**: indicator's label
- **`${indicator.result}`**: indicator's result
- **`${dec.label}`**: D.E.C.'s label
- **`${dec.businessCode}`**: D.E.C.'s business code
- **`${link.table}`**: link to the table (a.k.a permalink)
- **`${link.record}`**: link to the record
- **`${system.time}`**: system time
- **`${system.date}`**: system date
- **`${system.datetime}`**

Watchdog indicator results and correlated watchdog indicator results are sent automatically when they are raised.

> You got an alert for the correlated watchdog indicator Correlation between D-I01 and D-I03 - All1 at 08/31/2015 10:58:14
>
> Correlated watchdog threshold: (not ([Data set completeness rate = 32.84%] less than or equals 17.30%)) and (([Total number of modification = 44] greater than [Average number of creation = 6]))
>
> Watchdog indicator results:
> - 08/31/2015 10:58:14: NDI01 - Dataset completeness rate - Master Data - Reference - AT-Emp: not ([Dataset completeness rate = 32.84%] less than or equals 17.30%): true
> - 08/19/2015 09:13:43: NDI03L1 - Number of operations on tables in a dataset - Master Data - Reference - Employee: ([Total number of modification = 44] greater than [Average number of creation = 6]): true

Like indicator results, you can also define templates for watchdog results in table **Email template** of domain **Watchdog** with the following variables:

- **`${watchdog.code}`**: a watchdog indicator's code.
- **`${watchdog.label}`**: a watchdog indicator's label.
- **`${watchdog.expression}`**: a watchdog indicator's expression.
- **`${correlatedWatchdog.code}`**: a correlated watchdog indicator's code.
- **`${correlatedWatchdog.label}`**: a correlated watchdog indicator's label.
- **`${correlatedWatchdog.expression}`**: a correlated watchdog indicator's expression.
- **`${correlatedWatchdog.watchdogResults}`**: all the watchdog indicator results of a correlated watchdog indicator's.

Other variables related to indicator results can also be included:

- **`${indicator.code}`**: indicator's code
- **`${indicator.label}`**: indicator's label
- **`${dec.label}`**: D.E.C.'s label
- **`${system.time}`**: system time
- **`${system.date}`**: system date
- **`${system.datetime}`**

The configuration email in *ebx.properties* is as follows:

#USING GMAIL and TLS

ebx.mail.activate=true

ebx.mail.polling.interval=1

ebx.mail.smtp.starttls.enable=true

ebx.mail.smtp.starttls.required=true

ebx.mail.smtp.host=smtp.gmail.com

ebx.mail.smtp.port=587

ebx.mail.smtp.login=example@gmail.com

*ebx.mail.smtp.password=*****

#USING GMAIL and SSL

ebx.mail.activate=true

ebx.mail.polling.interval=1

ebx.mail.smtp.ssl.activate=true

ebx.mail.smtp.ssl.provider=com.sun.net.ssl.internal.ssl.Provider

ebx.mail.smtp.ssl.factory=javax.net.ssl.SSLSocketFactory

ebx.mail.smtp.host=smtp.gmail.com

ebx.mail.smtp.port=465

ebx.mail.smtp.login=example@gmail.com

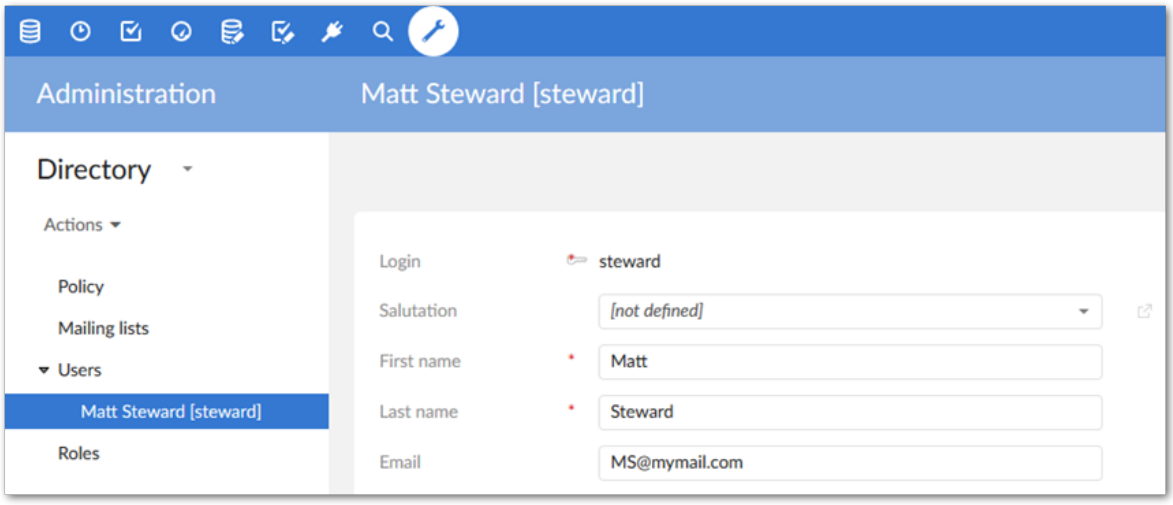
*ebx.mail.smtp.password=*****

The **Base URI** property in the configuration table is mandatory to use the two predefined variables: **`${link.table}`** and **`${link.record}`**.

11.2 Enabling email of indicator results

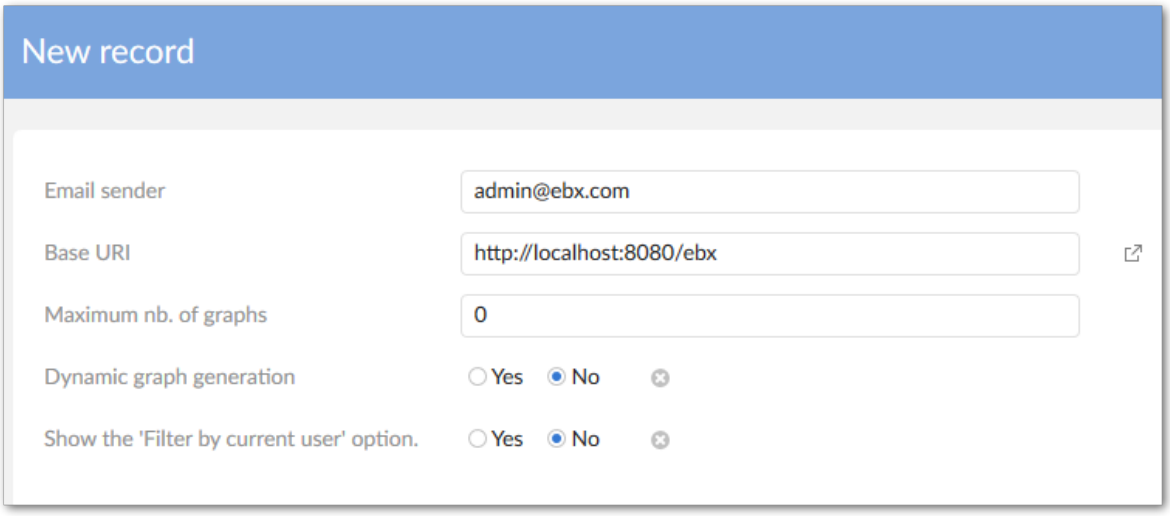
To enable emailing of indicator results:

1. Register the desired email address with EBX® under *Administration* > *Users, roles and preferences* > *Directory*.

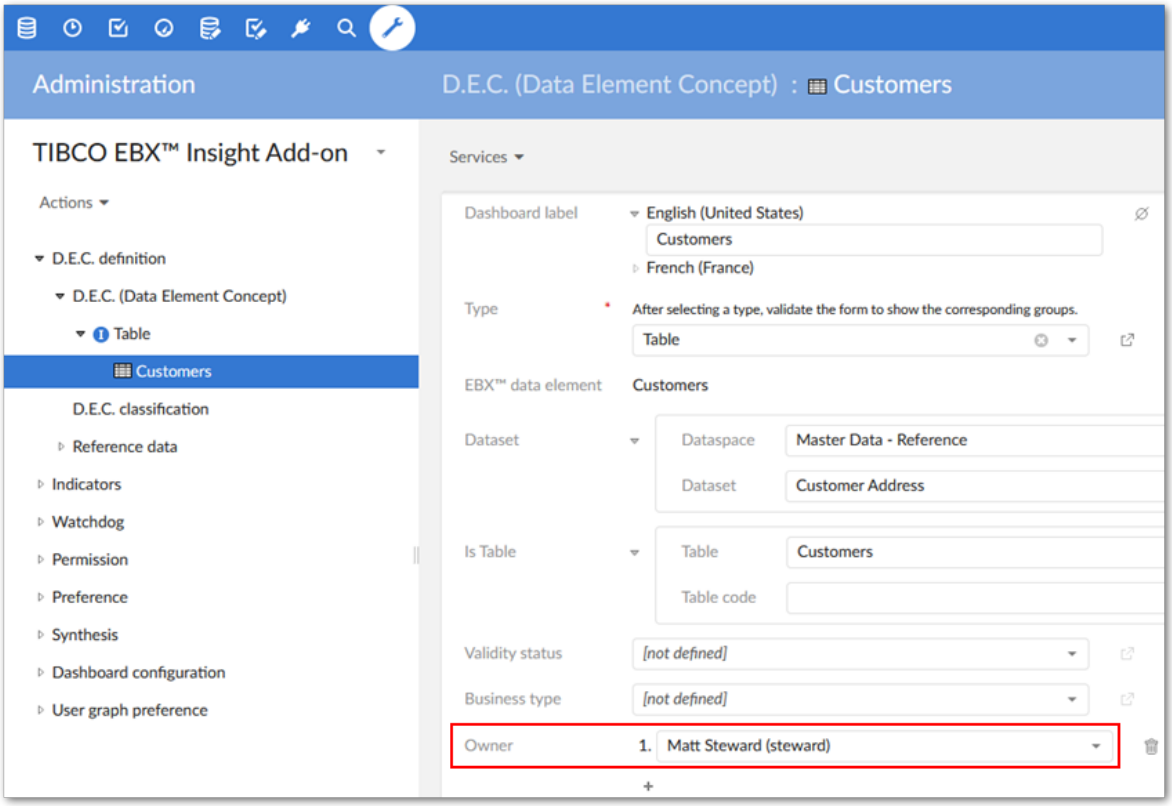


2. Navigate to *Administration* > *Data quality and analytics* > *TIBCO EBX® Insight Add-on* > *Indicators* > *Reference data* and create a new record in the **Configuration** table.

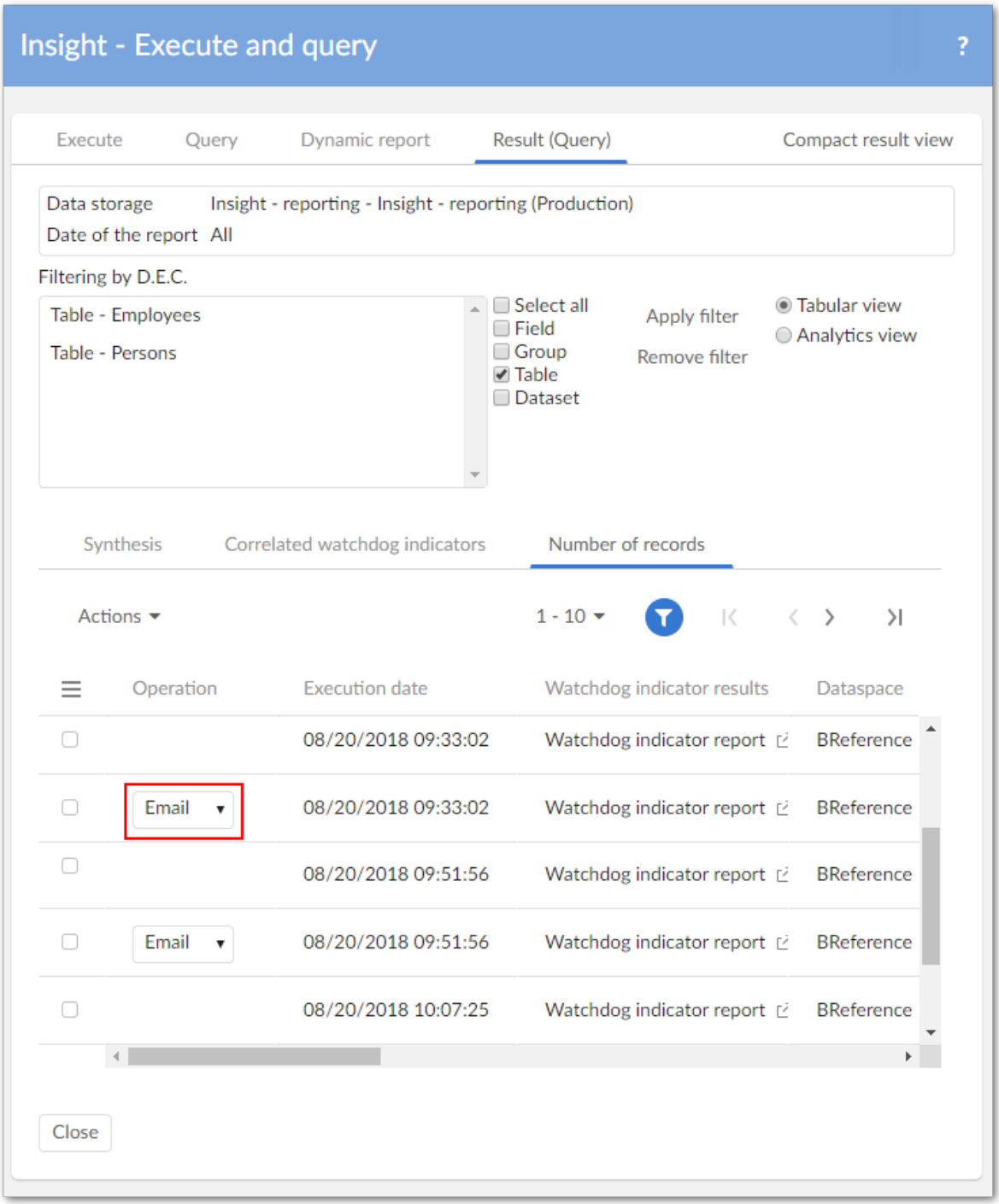
3. Specify the sender and what the base URI path will be. The path is used to build the required links.



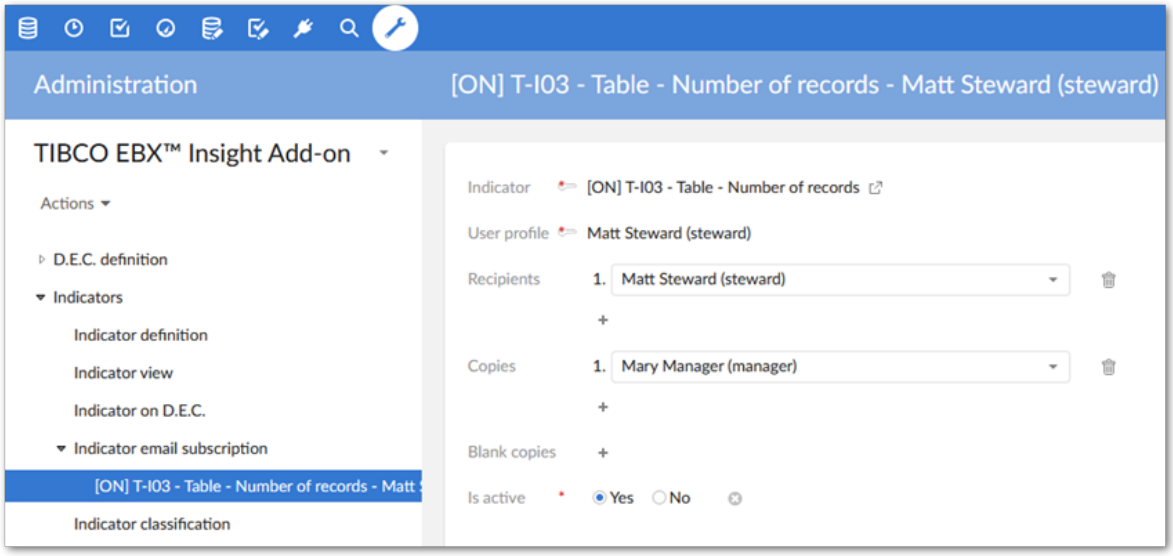
4. Register the email recipient as an owner of the related D.E.C. using the D.E.C.'s **Owner** field.



The option to email a recipient is available after executing or querying indicators:



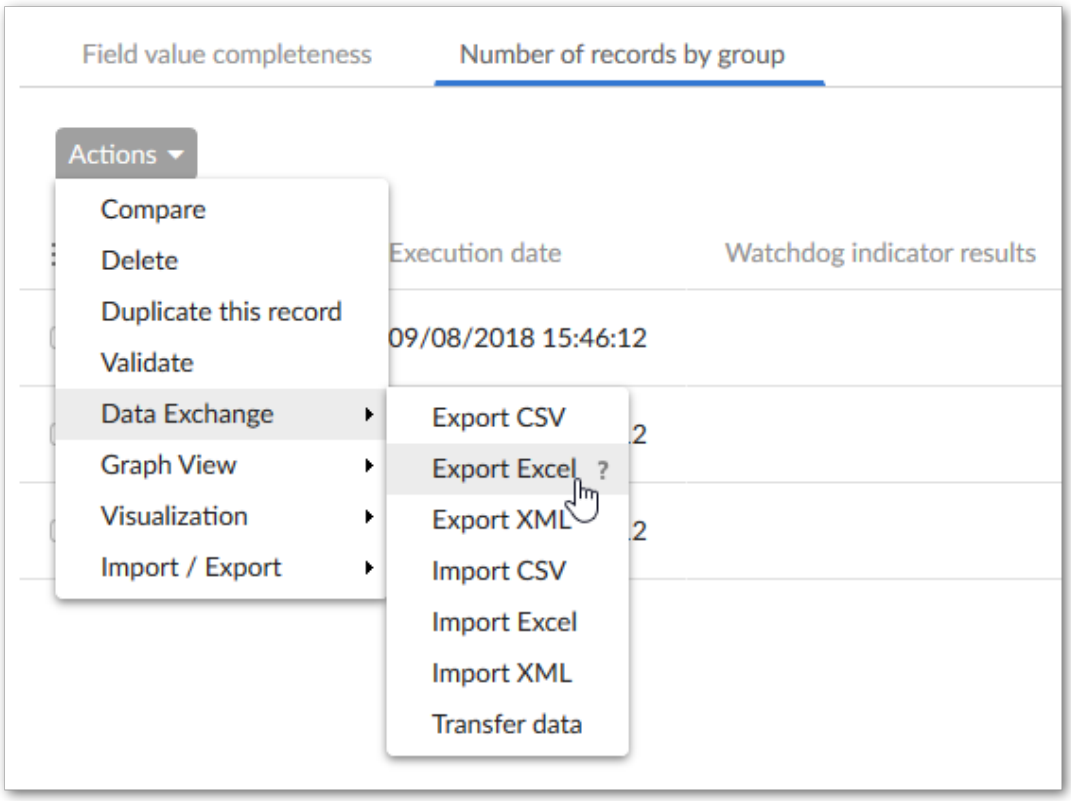
5. Optionally, users can be added to a subscription list to receive automatic emails when indicator watchdogs are raised.



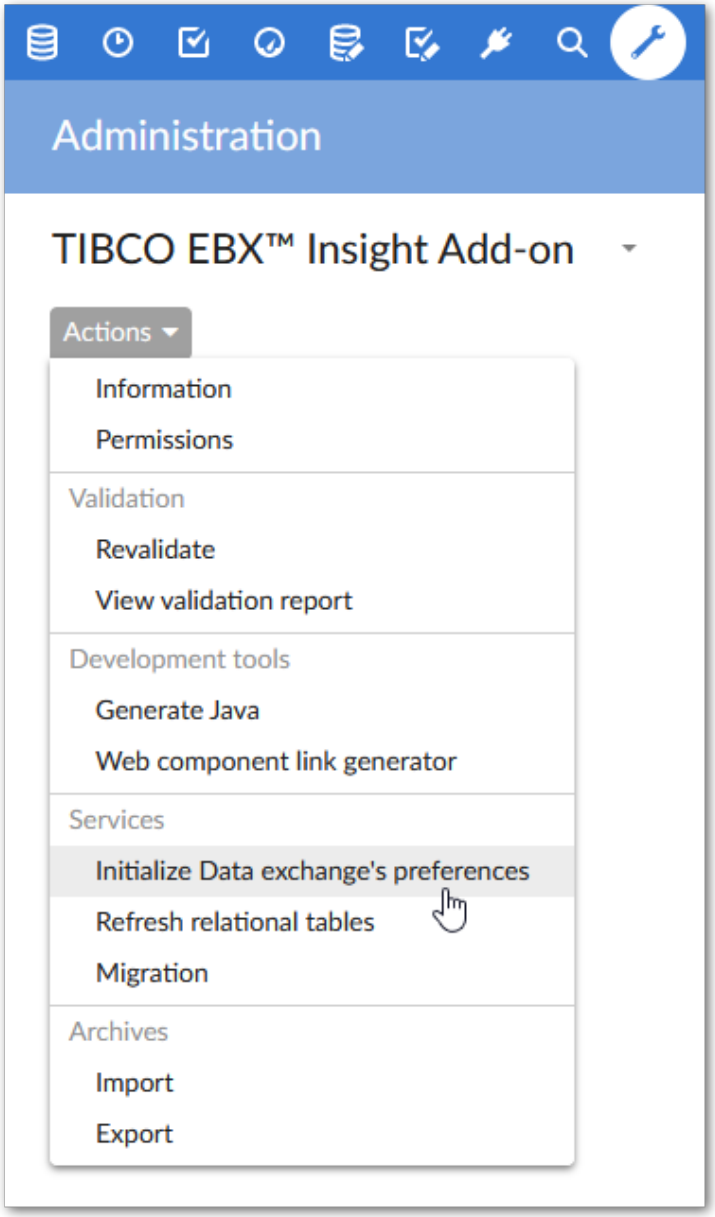
CHAPTER 12

Exporting to Excel format

In a data view applied to the flat reporting tables, you can launch the TIBCO EBX® Data Exchange Add-on to obtain an Excel file containing indicator results.



When the EBX® Data Exchange Add-on is installed, then a service allows you to import the preferences used by indicators to generate the Excel files. The **Initialize Data exchange's preferences** service is located in the **TIBCO EBX® Insight Add-on** dataspace.



CHAPTER 13

Indicator configuration

This chapter contains the following topics:

1. Global view
2. Data element concept definition
3. Indicators
4. Permission
5. Preference

13.1 Global view

The **TIBCO EBX® Insight Add-on** data model, located in the **Administration** area, is used to configure indicators.

The first sub-domain, **D.E.C. definition**, allows declaring the MDM assets on which it will be possible to configure indicators. A D.E.C. or **Data Element Concept** is used to define any information assets known to EBX®, such as tables, fields, group of fields, dataspaces, datasets, workfows and rules.

The **Indicators** sub-domain contains all the properties needed to define the behavior of any indicator. It also includes the definition of the relationship between the indicators and the D.E.C.

The **Permission** sub-domain is used when additional permissions are applied to complement with the EBX® standard permissions.

The **Preference** sub-domain is used to save the **Indicators preferences** used as groups of indicators to facilitate the execution and query.

Please refer to the *Dashboard* section for the configuration of this domain.

13.2 Data element concept definition

A Data Element Concept (D.E.C.) is a meta-representation of any type of MDM asset known to EBX®. The term D.E.C. comes from the ISO-IEC 11179 standard. This standard provides a specification for defining metadata for registries. It is also used by other EBX® add-ons such as the EBX® Information Governance Add-on.

Data Element Concept (D.E.C.)

The configuration of a Data Element Concept relies on an association with an EBX® data element, such as a table, field, workflow, etc. Usually, this EBX® data element is reachable by identifying a dataspace and a dataset.

Some metadata is used to facilitate the configuration of meta-Data Element Concepts such as the definition of a D.E.C. that represents tables directly or all the datasets within a dataspace.

Special notation:	
✔	Some fields are dependent on each other. With an EBX® version below 5.3, the user must submit forms in the UI to see dependent fields refreshed.

Property	Definition
D.E.C. code	The identifier of the D.E.C., cannot be changed.
Business code	This business code can change over time. It is used for information only.
Label	The short name of the D.E.C. When it is not provided by the user, the add-on automatically provides a default name once the associated data element is identified (through the selection of the D.E.C. type and its data element).
Description	Short and long descriptions of the D.E.C.
Dashboard label	The label used for the dashboard display.
Type	Possible type are as follows: Table, Field, Group (of fields), Operation, Business rule, Permission rule, Workflow, dataspace, dataset. Depending on the type value, different properties are available to configure the D.E.C.
EBX® data element	Associated EBX® data element, such as a table or a field. A tool-tip on the field gives the full path with the dataspace and the dataset.
Dataset	This group of fields allows configuring a dataspace and a dataset. This special value is possible: [All dataspaces] when an indicator is executed on all dataspaces and/or on the repository by itself. Note: When the D.E.C. is a table (or field) the dataset is used to reach the table definition only (data model). This means that the table (or field) is then declared for any datasets that can exist in the repository at execution time. For instance, a D.E.C. 'Employee' table in the 'DS01' dataset is declared. An indicator INDIC-01 is attached to this table. This means that the 'Employee' table is under the control of the INDIC-01 indicator in all datasets that can exist in the repository, not only the DS01.
Is table	The name of the table considered as the D.E.C. This value is required if the D.E.C. type is Table or Field. Table code: any business code value
Is group	The name of the group of fields considered as the D.E.C. Group code: any business code value
Is field	The name of the field considered as the D.E.C. This value is required if the D.E.C. type is Field. Primary key: boolean value to state whether the field is a primary key ('True') or not ('False') Field code: any business code value
Is operation	The name of the operation considered as the D.E.C.

Property	Definition
	This value is required if the D.E.C. type is Operation.
Is business	The name of the business rule considered as the D.E.C. This value is required if the D.E.C. type is Business.
Is permission rule	The name of the permission rule considered as the D.E.C. This value is required if the D.E.C. type is Permission rule.
Is workflow	The name of the workflow considered as the D.E.C. This value is required if the D.E.C. type is Workflow. Special value: [All workflows publications] when an indicator is executed on all workflow publications and/or on the workflow repository by itself.
Validity status	This status is managed according to organizational needs. It is not used for the computation of indicator results.
Business type	This business type is managed according to organizational needs. It is not used for the computation of indicator results.
Owner	One or many users that are owners of the D.E.C. in the organization.
Administrator	One or many users that are administrators of the D.E.C. in the organization.
Creation date	The D.E.C. can be documented with its creation date. It is not used for the computation of indicator results.
Validity start date	The D.E.C. can be documented with its validity start date. It is not used for the computation of indicator results.
Validity end date	The D.E.C. can be documented with its validity end date. It is not used for the computation of indicator results.
Expiration date	The D.E.C. can be documented with its expiration date. It is not used for the computation of indicator results.

Table 8: D.E.C. definition - Data Element Concept (D.E.C.)

Special notation:	
✕	**Is business** and **Is permission rule** are not managed.

D.E.C. classification

A classification scheme is available to manage the D.E.C. information.

A classification is defined using a classification nature and a set of reference values based on a code and a label.

This classification is not used to compute indicator results. It is mainly used for configuring aggregated reports to define which D.E.C.s will be considered in indicator computation.

D.E.C.s are classified into hierarchy. Classification nature is conceptually at highest level and each classification nature can have several classification items. Both these data types are defined under the **Reference data section** of **D.E.C. definition**. D.E.C. classification is handled based on these types. This organization mechanism allows you to filter D.E.C. easily while dynamically producing indicator result.

Property	Definition
Data Element Concept	The D.E.C. to classify.
Classification	The classification scheme used to associated the D.E.C. A D.E.C. can be associated with an unlimited numbers of classifications.

Table 9: D.E.C. definition - D.E.C. classification

Reference data tables

Table	Definition
D.E.C. Type	List of Data Element Concept types
Classification	Classification scheme for the D.E.C.
Classification nature	Classification scheme for the D.E.C.
Validity status	Status values applied to the D.E.C.
Business type	Business types applied to the D.E.C.

Table 10: D.E.C. definition - Reference data tables

13.3 **Indicators**

It is possible to create any number of indicators based on the same indicator definition. This type of declaration is useful when a company wants to manage the same indicator with varying property values depending on different execution contexts, or to apply different configurations to the same indicator over time.

Special notation:	
✔	Some fields are dependent on each other. With an EBX® version below 5.3, the user must submit forms in the UI to see dependent fields refreshed.

Indicator definition

Property	Definition
Code	The identifier of the indicator. This value cannot be changed. The indicators provided by the add-on use a naming convention with the '[ON]' prefix.
Implementation	These properties are automatically retrieved by the introspection procedure into the indicator definition Java classes. Definition • List of the indicators names from the Java implementation. • To declare a new indicator, it is mandatory to select one name in this list. Output parameters • For information only. It shows the data structure and data type of the output parameters for the selected indicator. Input parameters • Shows the list of existing input parameters that can be configured to modify the behavior of the indicator. Storage procedure • For information only. Explains how the indicator stores its results. For example, when the result is a boolean, it could save only 'True' values, only 'False' values, or all values. Storage mode • Either the 'Flat data report' table or the 'Big data report' table.
Active	True: the indicator is active and is used to assess the quality of the data. False: the indicator is not executed. Default value: True
Dataset storage	The location where the indicator results are stored. It is possible to overwrite this property with another location when the indicator is associated with a D.E.C. Refer to the table 'Indicator on D.E.C.'
Applied to D.E.C. type	An indicator can be run on a certain type of D.E.C. such as a table, a field, a dataspace, etc. When the indicator is associated with a D.E.C., it must be compliant with the 'D.E.C. type' property value. Refer to the table 'Indicator on D.E.C.'
Business label	Name of the indicator. This label is used by the reports in the user interface.
Business description	Short and long descriptions of the indicator.
Linked records	You can configure the indicator to save 'Linked records' in the results table. For instance, the 'Number of missing values for a field' indicator saves the list of records for which the field is missing. This list of 'Linked records' is displayed through the UI query and dashboards (service in the tile dashboard). Active • 'Yes': the linked records are saved • 'No': the linked records are not saved
Tile layout in dashboard	Output parameter

Property	Definition
	• Selection of the output parameter that the tile will display. You can overwrite this selection when configuring the 'Indicators in section' and the 'Tile preference' by user-profile.
Pie chart options	Defines the way the pie chart is calculated: • Last measure only: only the last value is considered when showing the pie chart • Addition:aggregates the results per output • Average: calculates the average for each output
Bar chart's default periodicity	Defines how indicator results will be divided into periodical groups in bar charts: • Daily: The average results of the current week by day (Mon, Tue, Wed, Thu, Fri, Sat, Sun) will be displayed. • Weekly: The average results of the current month by week (1st week, 2nd week, 3rd week, 4th week, etc.) will be displayed. • Monthly: The average results of the current year by month (Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec) will be displayed. • Quarterly: The average results of the current year by quarter (1st quarter, 2nd quarter, 3rd quarter, 4th quarter) will be displayed. • Semester: The average results of the current year by semester (1st semester and 2nd semester) will be displayed. • Yearly: The average results of all times by year (2013, 2014, 2015, 2016, etc.) will be displayed. 'Daily' will be used if no periodicity is selected.
Computation frequency	Defines the event on which the indicator is computed. The possible values are: • 'real-time': The computation is executed every time a modification occurs on the D.E.C. This is performed by using a probe, such as a trigger, on the D.E.C. or a listener on a data source that is updated in real-time, such as an audit-trail. • 'on demand': The computation is executed by user request through a service provided by the add-on. • By default, every time the indicator is executed, the add-on saves its results into the reporting tables. The 'Not save outcome' properties can cancel this storage.
Not save outcome	This property displays all computation frequencies that have been selected with the 'Computation frequency' property. It is then possible to cancel the storage of the outcomes by computation frequency.
Periodicity of control and watchdog	The indicators that check if their results are compliant with the predefined results use the 'periodicity of control' and 'watchdog' properties. Watchdog on • Watchdogs can be declared and applied to any Boolean type output parameters. For instance, the 'Empty field' indicator returns a boolean value of 'True' when the field is undefined. On this output, a watchdog can be configured to automatically raise an alert (email notification). Threshold on • Value of the boolean (True or False) on which the threshold is considered. This property is used to display the color corresponding to the threshold (refer to the dashboard configuration) and to raise an alert (email notification). Periodicity of control • Time period over which the control is applied. Possible periods are: monthly, weekly, daily, etc. • The indicator result is computed for the time period defined by the periodicity of control. Minimum threshold (watchdog) • Minimum value over which the indicator result is considered normal. Maximum threshold (watchdog)

Property	Definition
	• Maximum value under which the indicator result is considered normal. Tolerance number (watchdog) • This is a positive number used to lower the minimum value and raise the maximum value of thresholds. The names of the watchdog properties are directly defined in the Java implementation, then reused automatically at configuration time. These naming conventions are reused to adapt the labels of the three watchdog properties to make them more meaningful to the user: minimum threshold, maximum threshold, tolerance number.
Synthesis view configuration	The synthesis view is used to display a condensed view of the indicators results. Synthesis on • Selection of the output indicator to use for displaying the result on 'Synthesis view'. Synthesis classification • Selection of the classification to use for displaying the result on the 'Synthesis view'
Probe and filter	When the computation frequency is based on a real-time mode, then a probe must be indicated. Most of the time, an indicator can be executed using only one probe, such as a trigger. It is possible for the same indicator to work either on a trigger or a listener applied to a data source. In this situation, the probe selection will allow configuring which one is used (the trigger or the listener). Probe • Selection of a real-time execution approach either trigger or listener. Filter • Three filters are possible: 'on new', 'on update' and 'on delete'. • At least one filter must be selected.
Save only last value in indicator report table	Boolean value Applied to the report data structure based on the 'Indicator report' and 'Indicator result' tables. True: indicator execution results are stored by updating the last known value. This means that the reporting does not keep the history of past results. False: indicator execution results are stored in a new information record. This means that the reporting keeps a history of past results. This is required for future data analysis and reporting. Default value: False
Save only last value in flat reporting table	Boolean value Applied to the report data structure based on the 'Flat data report' table or the 'Big data report' table. True: indicator execution results are stored by updating the last known value. This means that the reporting does not keep the history of past results. False: indicator execution results are stored in a new information record. This means that the reporting keeps a history of past results. This is required for future data analysis and reporting. Default value: False
On email alert	Boolean value True:when a watchdog is alerted then an email is sent to the recipients that are defined in the 'Indicator email subscription' table. False :no automatic email is sent Default value:False
Email template	Configure the template to use when emails are sent either automatically when the 'On email alert' property is activated or manually through services available with reporting.

Property	Definition
Enable grouping	Enables grouping of result values. When you associate this indicator with a D.E.C., you can configure grouping options for this indicator on the D.E.C.

Table 11: Indicators - Indicator definition

Indicator view

This table is used to configure the data view used for a specific data storage.

When no data view is configured for a data storage, the add-on uses the default EBX® data view.

Property	Definition
Name	Name of the indicator view.
Data storage	A dataspace and dataset where the indicator results are stored. This is the location of a big data report on which a data view is then configured with the property 'Data view'.
Data view	Name of the data view the add-on will use to display the results of the indicator. This is the view's label of the data view.

Table 12: Indicators - Indicator view

Indicator on D.E.C.

This table is used to configure the Data Element Concepts on which indicators are applied. When a D.E.C. refers to a meta-concept such as **all tables**, it means that all related data assets benefit from the indicators.

When the indicator is attached to a D.E.C. it is possible to override the **periodicity of control** and **watchdog** properties if they are used by the indicator. It is also possible to override the location of data storage and other properties.

You can limit indicator execution to one or more dataspaces and datasets using the **dataset(s) for execution** group. This feature helps when you only want indicators to execute in a production environment and not in others.

Property	Definition
Indicator	The indicator that is attached to the D.E.C.
D.E.C.	The D.E.C. on which the indicator is configured.
Business label	Allows you to overwrite the indicator's business label.
Business description	Allows you to overwrite the indicator's business description.
Filter predicate	An XPath predicate used to filter table records before running the indicator. For example, ./FirstName = 'Michael', etc. This property is only applicable for indicators on D.E.C. table, D.E.C. group and D.E.C. field.
Enable grouping	Specifies whether grouping of this indicator's results is active. When enabled, you use the **Group by value** drop-down menu to select the field with the values to group. In bar charts, grouped values display as separate or stacked bars. In line charts, grouped values display as separate lines. In tabular views of query results, each group is given a record in the results. If you don't see grouping configuration fields, save the record to load them.
Group by value	Choose the field containing the values you want to group.
Order by	Choose the field by which grouped values will be sorted for linked records in the tabular view.
Maximum number of groups	If you set a limit, the add-on begins grouping by the highest priority—defined by the **Group priority** property. When it reaches specified limit, it combines the remaining groups of values into an "Other" group. Use the **Other group name** field to change this group's name. Note that after making changes to this field, you may need to save the record to display the required priority parameter. The default value is '6'.
Group priority	Determines which groups display first in charts—groups with the highest, or lowest number of records.
Other group name	Optionally, set a custom name for the "Other" group. See the definition for the **Maximum number of groups** property.
Display option	Specifies whether groups display in bar charts stacked on top of each other, or side-by-side.
Dataset(s) for execution	A set of datasets on which the indicator is allowed to execute. Only visible when the type of the configured D.E.C. is 'dataset', 'Table', 'Group', or 'Field'. These datasets must share the same data model as the configured D.E.C. (Please refer to the 'dataset' group in the 'D.E.C. (Data element concept)' table for more information). If no dataset is defined, any dataset that shares the same data model will be considered.
Input parameters	Overwrites the 'Indicator definition' table's Input parameters' group.
Data storage	By default, the data storage defined at the indicator level definition is used. You can override it at this level.

Property	Definition
Linked record	Overwrites the 'Indicator definition' table's 'Linked record' field
Periodicity of control	By default, the value configured in the indicator definition is used. You can change this value to suit the context of the relationship between the D.E.C. and the indicator.
Watchdog	By default, the values configured in the indicator definition are used. You can change these values to suit the context of the relationship between the D.E.C. and the indicator.
Save only last value in indicator report table	Overwrites the 'Indicator definition' table's 'Save only last value in report table' field.
Save only last value in flat reporting table	Overwrites the 'Indicator definition' table's 'Save only last value in flat reporting table' field.
Active	Determines whether this indicator is active for the given D.E.C.

Table 13: Indicators - Indicator on D.E.C.

Special notation:	
✕	Attachment of an indicator to a group of D.E.C.s.

Indicator email subscription

This table is used to configure the recipients that receive automatic email notifications when a watchdog is alerted.

Property	Definition
Indicator	The indicator on which recipient subscription is declared.
Profile	A user or role that is the recipient of automatic email notification when a watchdog is alerted during the execution of the indicator.
Recipients	Additional main recipients.
Copies	Additional recipients as copied.
Blank copies	Additional hidden recipients.
Is active	If set to True: the email is sent. If set to False: the email notification is stopped.

Table 14: Indicators - Indicator email subscription

Indicator classification

A classification scheme is available to manage indicator information.

A classification is defined using a classification nature and a set of reference values based on a code and a label.

This classification is not used to compute indicator result.

Property	Definition
Indicator	The indicator to classify.
Classification	The classification scheme used to associate the indicator. An indicator can be associated with an unlimited numbers of classifications.

Table 15: Indicators - Indicator classification

Probe

A **probe** is as a trigger on a table or a listener. It is used for the indicators of type **real-time**.

Property	Definition
Probe code	It is not possible to change this code. The probes provided by the add-on follows the naming convention with the '[ON]' prefix.
Label	Name of the probe.

Table 16: Indicators - Probe

Reference data tables

Table	Definition
Classification	Classification scheme for the indicators.
Classification nature	Classification scheme for the indicators.
Periodicity of control	List of possible values for periodicity of control.
Computation frequency	List of possible computation frequencies. The feature "timeline" is currently not available.
Dataset	List of datasets used to configure the 'dataset(s) for execution' property of the 'Indicator on D.E.C.' table.
Email template	Email template used for automatic notifications. The indicator results can be sent by email either manually from the reporting UI or automatically when a watchdog is raised: • When sent manually, the sender is the user connected to EBX® and the recipients are the owners of the Data Elements Concepts (D.E.C.). • When sent automatically, the sender is configured with the 'Email sender' property in the 'Configuration' table. This table is located in the 'Indicators' 'Reference data' sub-domain. The recipients are declared in the 'Indicators email subscription' table. Pre-defined variables are available to dynamically enrich email templates and include for example: ${table} (current table's label in execution time), ${field} (current field's label in execution time), ${workflow} (current workflow's label in execution time). Full list of predefined variables: • ${dataspace}:current dataspace's label in execution time. • ${dataset}:current dataset's label in execution time. • ${table}:current table's label in execution time. • ${field}:current field's label in execution time. • ${workflow}:current workflow's label in execution time. • ${operation}:current operation's label in execution time. • ${indicator.code}:indicator's code • ${indicator.label}:indicator's label • ${indicator.result}:indicator's result • ${dec.label}:D.E.C.'s label • ${dec.businessCode}:D.E.C.'s business code • ${link.table}:link to the table (a.k.a permalink) • ${link.record}:link to the record • ${system.time}:system time • ${system.date}:system date • ${system.datetime}

Table 17: Indicators - Reference data tables

Configuration	
Email sender	Email address used to send notification.
Base URI	URI used to build the full path of permanent links allowing to reach D.E.C. or other data in the repository. Such paths are used in the export Excel files. Examples: 'http://hostname:port/ebx/', 'http://proxyname:proxyport/ebx/'
Maximum nb. of graphs	The maximum amount of charts to display for an indicator.
Dynamic graph generation	Display charts dynamically when they appear on screen instead of drawing them all at once.
Show "Filter by current user" option	Show the 'Filter by current user' option in the Query tab in the 'Execute and query' service.

Table 18: Indicators - Configuration

Storage
Dataset to store indicator executions. Under the version EBX® 5.2.7 only two data stores are know by the add-on: • Insight - Reporting • Insight - Integration The 'default data storage' is used on the query UI by default. In a future version of EBX®, it will be possible to configure any data storage for the add-on.

Table 19: Indicators - Storage

13.4 **Permission**

The add-on is configured to manage permissions using one of the following modes:

- Based on the EBX® permissions applied to the data, or
- Based on additional permission management provided by the add-on.

The mode is configured in each user profile in the **Default permission** table.

When a user profile is not configured in the add-on's **Default permission** table, then that user cannot access the add-on's services. You can also configure whether or not execution and query operations are permitted.

When the add-on is configured with only EBX® permissions, a user cannot execute or query the indicators applied to data assets that are restricted by EBX® (that is, if the user has neither **read** nor **read-write** rights). For example, if a user has no rights on an **Employee** table, that user cannot execute or query any of the indicators on this table. However, in certain cases, by using the permissions provided by the add-on, access restrictions on a data asset do not necessarily mean that the user cannot execute indicators and query the results on this data asset.

The EBX® permission is used to configure the rights applied to the **Big data report**, **Indicator report** and **Indicator value** reporting tables.

Default permission

Property	Definition
User profile	User profile this permission configuration applies to. Configuration settings allow the user access to add-on services for execution and query.
Use Insight permission	Boolean value If set to 'True': The permission configuration provided by the add-on is used to manage the rights for the related user-profile. If set to 'False': The permission configuration provided by the add-on is not used to manage the rights for the related user-profile. Default value: False When the 'Use Insight permission' option is set to 'True', the EBX® standard permissions applied to a Data Element Concept (D.E.C) extend to the permissions declared through the add-on. This means that a user with no rights on a D.E.C. can be authorized to execute and query indicators on this D.E.C. This procedure does not bypass EBX® standard permission regarding the ability to read-write data belonging to this D.E.C. Only the rights to execute the indicator on the D.E.C. and to query the results are extended. It is understood that the results are displayed by regular views in EBX® that take into account standard permissions ('Big data report', 'Indicator report' and 'Indicator value'). For example, a user 'User01' has no rights on the 'Employee' table and cannot modify or read any data on this table. In the add-on, the 'Number of working hour per month' indicator is applied to the 'Employee' table. The add-on permission is then used to make the 'User01' able to execute and query the result of the 'Number of working hour per month' indicator on the 'Employee' table. This permission set at the add-on level does not change the fact that 'User01' cannot access the 'Employee' table data. Indicators of Workflow, Operation, Business rule, and Permission rule types are offered at the reference dataspace level. To execute the indicator on a workflow, the user must be at least a participant in this workflow.
Permission	Execution • Boolean value • True: Execution service is permitted • False: Execution service is not permitted • Default value: False Query • Boolean value • True: Query service is permitted • False: Query service is not permitted • Default value: False

Table 20: Permission - Default permission

Indicator

Property	Definition
User profile	Link to a record in the 'Default permission' table on which the indicator permission is then defined.
Indicator	The indicator that is authorized for the user-profile. When an indicator is not configured, its permissions are the ones defined by 'Default permission'. For example, the user-profile 'UPF01' is configured with 'Query' = 'Yes' and 'Execute' = 'No'. If the 'Number of records' indicator is not configured under permissions management, this indicator is available to query but not to execute. When an indicator is configured, its permissions are no longer the default permissions. For example, for the same user profile as above, if the 'Table last modification date' indicator is configured with 'Query' = 'Yes' and 'Execute' = 'Yes' with a restriction on the 'DS01' dataset, this indicator is available to query and can only be executed in the 'DS01' dataset. To execute the indicator on a workflow, the user must be at least a participant in this workflow.
Permitted dataset(s)	One to many dataset(s) on which the rights are granted. These datasets are configured in the related reference table 'dataset' in the permission domain For indicators of type Workflow, Operation, Business rule, and Permission rule: • The configuration of 'permitted datasets' is not used since these indicators are not reliant on datasets. • The 'Indicator permission by D.E.C.' configuration is not applied since these indicators are not reliant on D.E.C.s.
All datasets permitted	Boolean value If set to 'True': All dataset(s) are authorized for the indicator and the user-profile. If set to 'False': All dataset(s) are not authorized for the indicator and the user-profile. Default value: False When 'All datasets permitted' is set to 'True' and one to many (Permitted dataset(s)) are configured then the restriction to these datasets are used to manage the permissions. For indicators of type Workflow, Operation, Business rule, and Permission rule: • The configuration of 'All datasets permitted' is not used since these indicators are not reliant on datasets.
Permission	Execution • Boolean value • True: Execution service is permitted • False: Execution service is not permitted • Default value: False Query • Boolean value • True: Query service is permitted • False: Query service is not permitted • Default value: False

Table 21: Permission - Indicator

Indicator by D.E.C.

Property	Definition
Indicator permission	Link to a record in the 'Indicator' table within the permission domain on which the indicator by D.E.C. permission is then defined.
Permitted D.E.C.	The Data Element Concept that is permitted for the context of the 'Indicator permission'. For an 'Indicator permission', it is possible to restrict permissions to one or multiple Data Element Concepts (D.E.C.). When no 'Indicator by D.E.C.' is defined for an 'Indication permission', all D.E.C.s are permitted. When many D.E.C.s are permitted it is needed to create as many records 'Indicator by D.E.C.' than the D.E.C. to grant. For indicators of type Workflow, Operation, Business rule, and Permission rule, the configuration 'Indicator permission by D.E.C.' is not applied since these indicators are not reliant on D.E.C.s.
Permission	These values are inherited from the related 'Indicator permission' record and can be overloaded for the current 'Indicator by D.E.C.'. Execution • True: Execution service is permitted • False: Execution service is not permitted • Default value: False Query • True: Query service is permitted • False: Query service is not permitted • Default value: False

Table 22: Permission - Indicator by D.E.C.

Dataset

Property	Definition
Dataspace	Dataspace identification used to reach a dataset. This dataset can be used to define the permitted dataset(s) in the 'Indicator' table located in the 'Permission' domain.
Dataset	A dataset within the related dataspace.

Table 23: Permission - dataset

13.5 **Preference**

A **Preference** is a group of indicators ready-to-use for execution and the query. You can automatically feed the **Indicators to execute** and **Indicators to query** lists in the execute and query UI.

These tables can be authored directly to create preferences at the time of configuration. It is also possible for users to create the preferences from the **Execute and query** UI.

User preference

Property	Definition
User profile	User-profile who is the owner of the preference.
Indicators preference	Selection of one indicator preference.
Automatic loading	If set to 'True': the indicator preference is automatically loaded into the "Indicator to execute" and "Indicator to query" lists in the execute and query UI. If set to 'False': the indicator preference is not automatically loaded into the lists. Only one indicator preference can be stated as auto-loading for a user-profile.

Table 24: Preference - User preference

Preference

Property	Definition
Preference name	Name of the indicator preference.

Table 25: Preference - Preference

Indicators by preference

Property	Definition
Indicator preference	Selection of one indicator preference.
Indicator	Selection of one indicator to add into the selected indicator preference.

Table 26: Preference - Indicators by preference

CHAPTER 14

D.E.C. and Indicator administration

This chapter contains the following topics:

1. Global view
2. Attach indicators to D.E.C.s
3. Check configuration
4. D.E.C. creation
5. Update D.E.C. labels
6. D.E.C. table filter
7. D.E.C. purge
8. Update the hierarchy view by data models
9. Migrate to the 'Flat data report' table
10. Automatic creation of Indicators on D.E.C.
11. Automatic creation of Indicator views declaration

14.1 Global view

To help with D.E.C. administration, the following services are available on the **D.E.C. (Data element concept)** table:

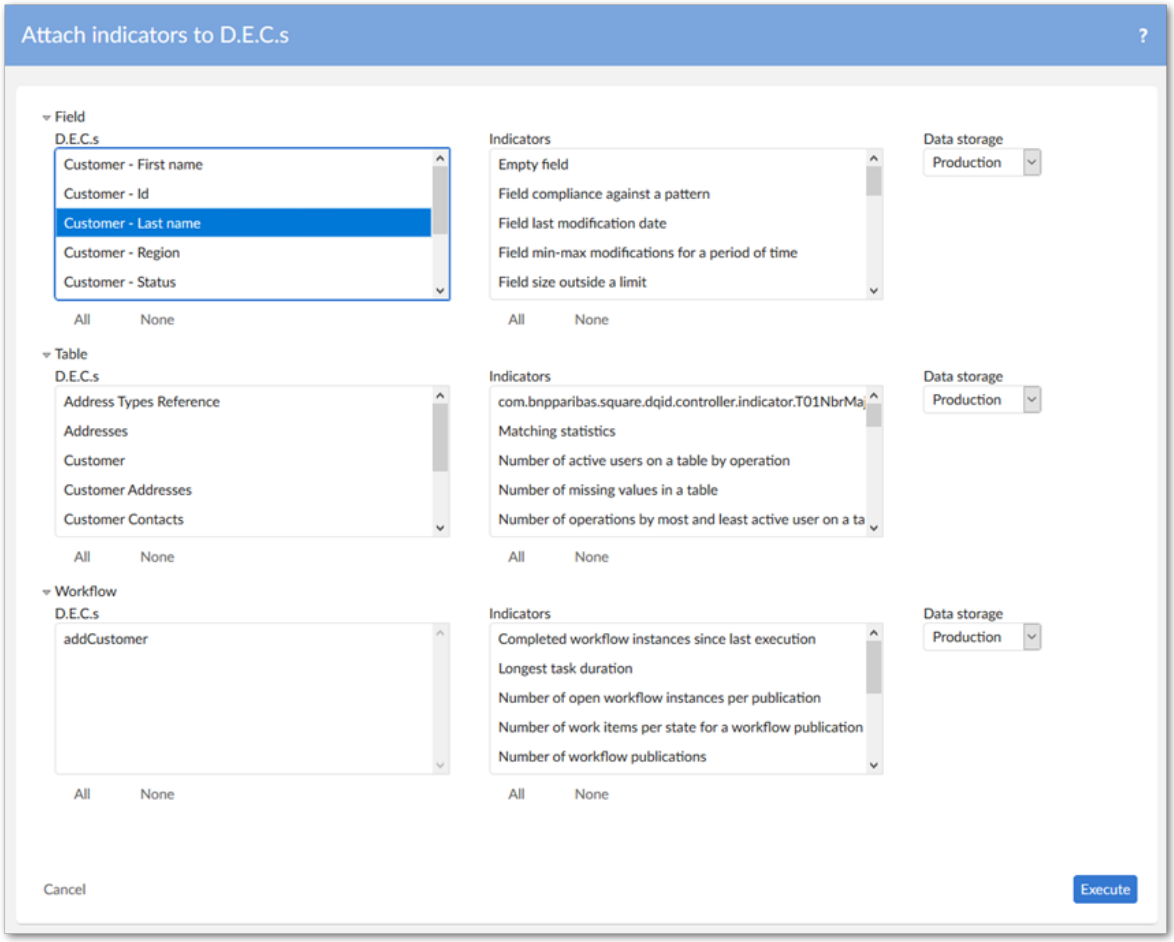
- **Attach indicators to D.E.C.s** to automatically attach indicators to one to many D.E.Cs.
- **Check configuration** to identify the D.E.C.s that are not defined.
- **D.E.C. creation** to create D.E.C. definitions.
- **Update D.E.C. labels** to update labels with the names from the data model.
- **D.E.C. purge** to remove D.E.C. definitions.
- **Update the hierarchy view by data models** to synchronize the **D.E.C. (Data Element Concept)** and **Indicator on D.E.C.** tables' hierarchy views with the configured data models.

To help with indicator administration, the following services are available:

- The **Migrate to the 'Flat data report' table** on the **Indicator definition** table.
- The **Indicator on D.E.C. creation** service on the **Indicator on D.E.C.** table.
- The **Create indicator view declaration** on the **Indicator view** table.

14.2 **Attach indicators to D.E.C.s**

This service allows you to create with a single click all expected **Indicator on D.E.C** declarations.

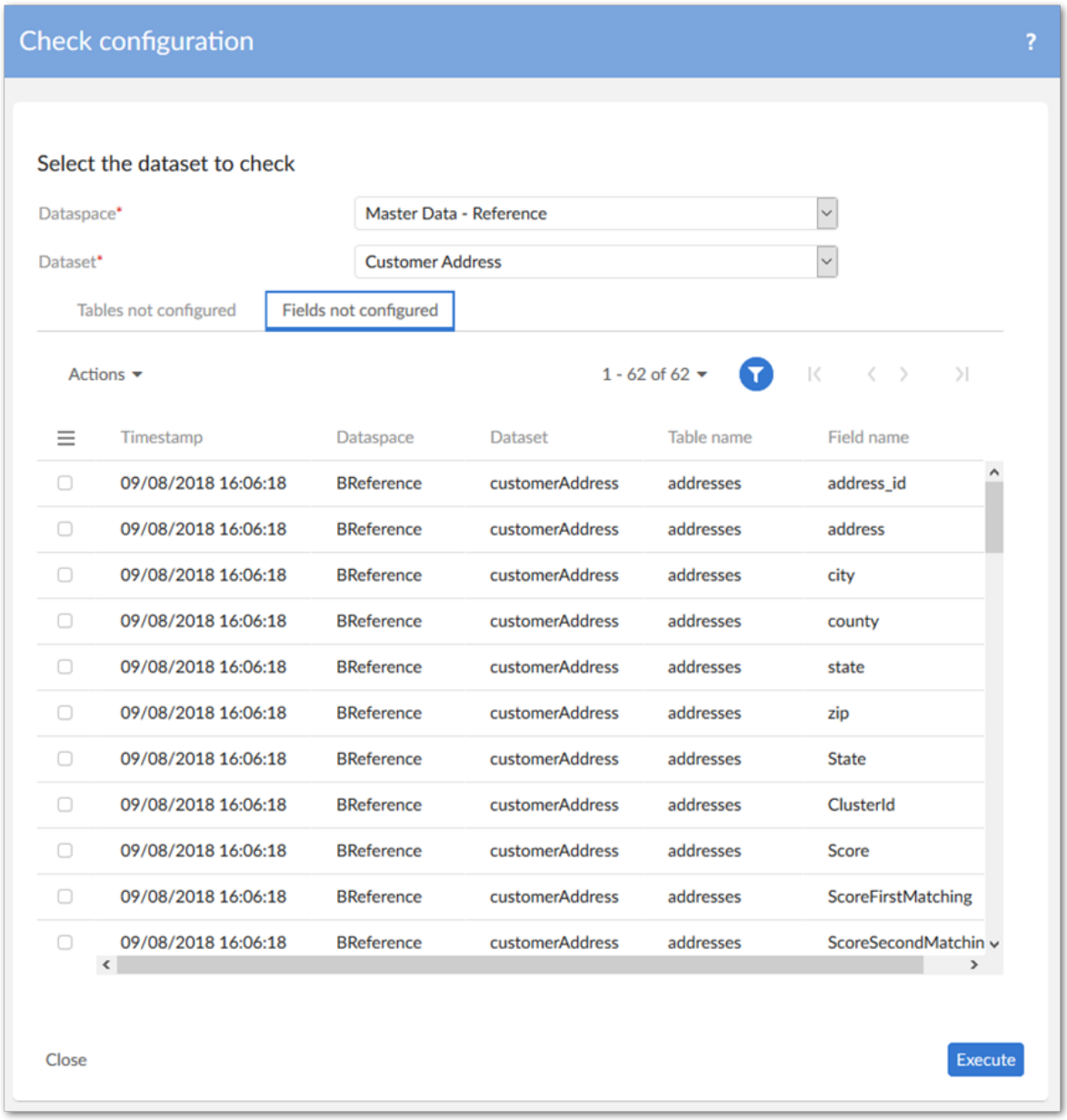


14.3 **Check configuration**

This service allows you to check the D.E.C. and indicator configuration quality. The rules are as follows:

- All tables in a dataset are declared as D.E.C.s.

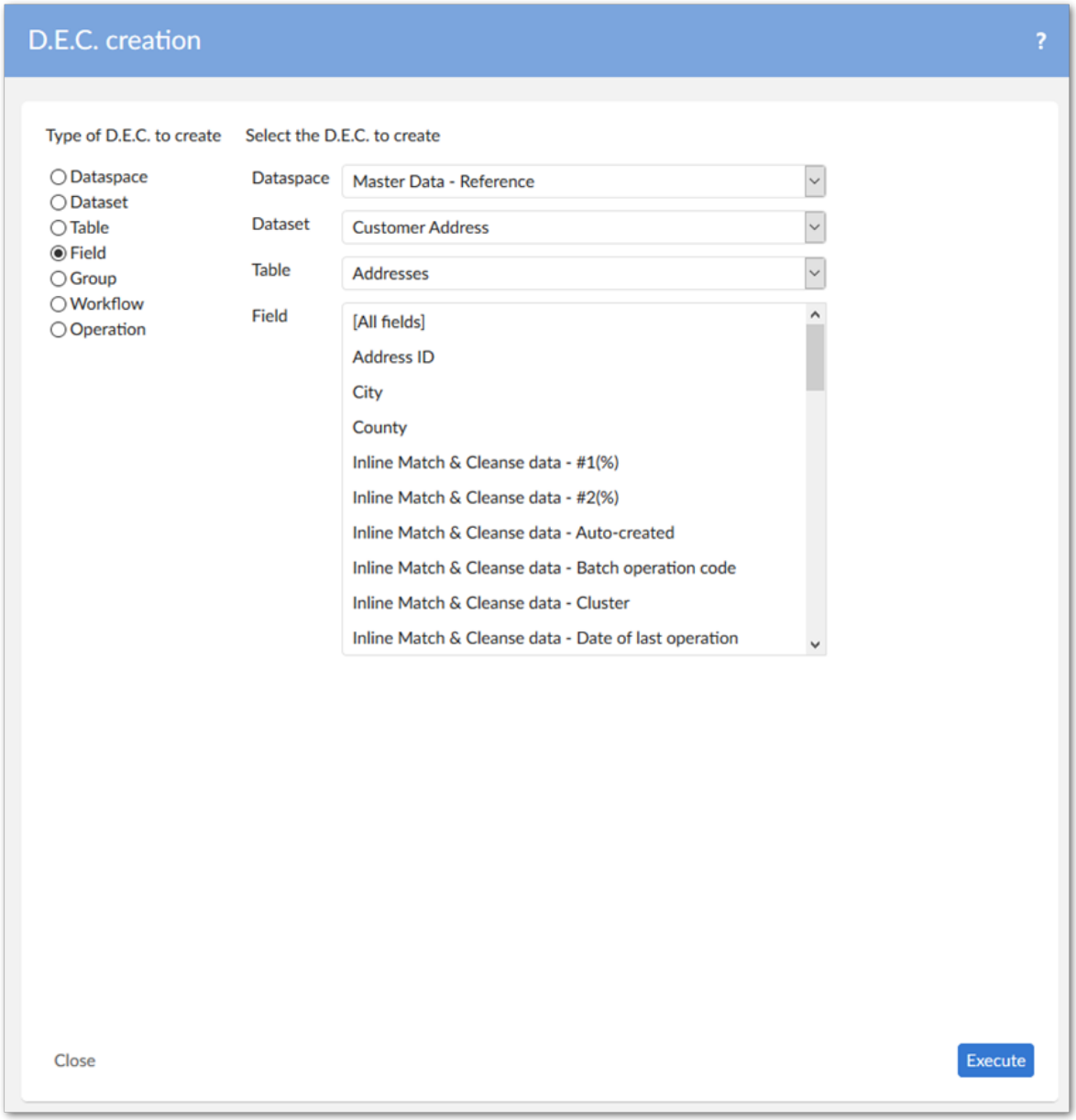
- All fields of the tables in a dataset are declared as D.E.C.s.



The results of the check are deleted for the user and the dataspace/dataset before the execution.

14.4 D.E.C. creation

The **D.E.C. creation** services allow you to automatically create Data Element Concepts. The D.E.C.'s primary key is automatically computed. To apply a business code, the **Business code** field must be fed manually after creation.



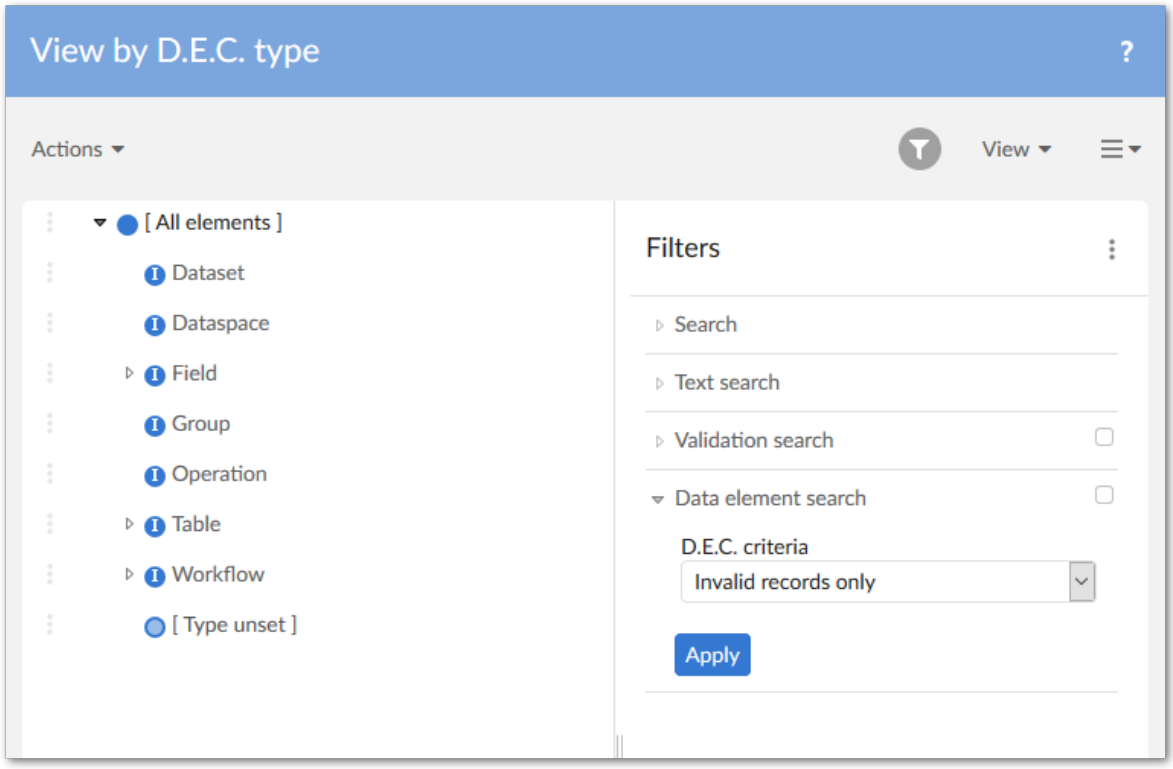
14.5 Update D.E.C. labels

After the creation of a D.E.C., if its name has been changed at the data model level, you can realign its label with the **Update D.E.C. labels** service. The same approach is applied to dataspaces, workflows, and Monitoring operations.

14.6 D.E.C. table filter

The **Data element search** filter block for the **D.E.C.** table allows you to query D.E.C. records in the following scenarios:

- Query invalid records: D.E.C. configuration with empty or invalid data element(s).
- Query by a specified data element: By choosing a D.E.C. type, you can select a certain data element to query all match D.E.C. records. It's also possible to query D.E.C. records of all child data elements.

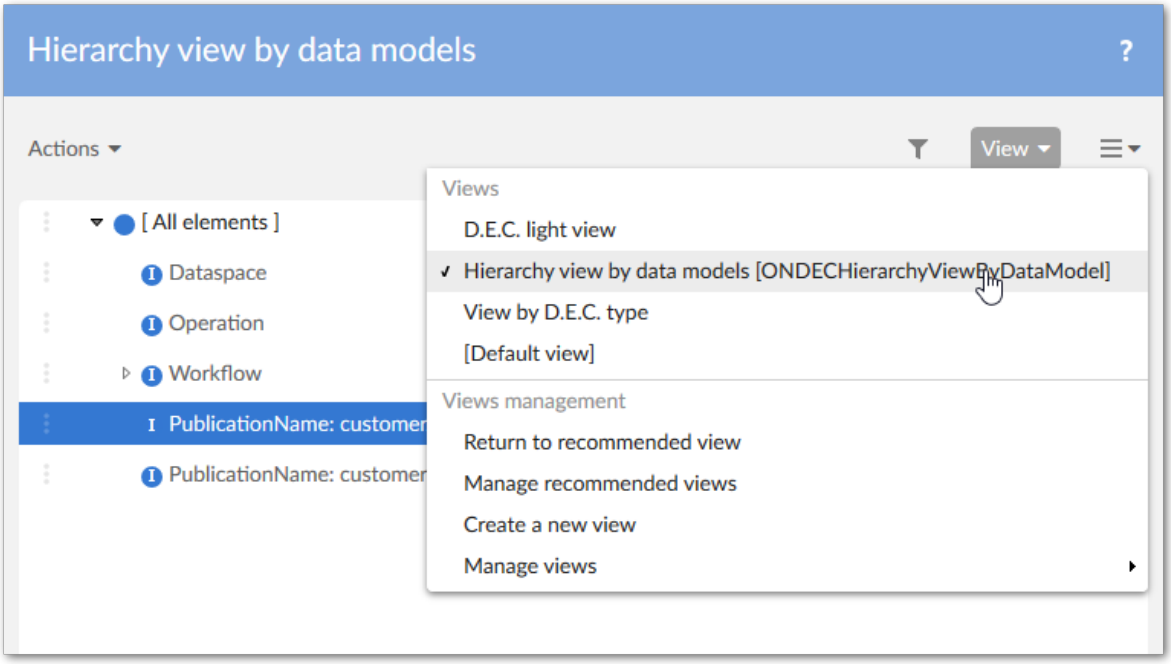


14.7 D.E.C. purge

The **D.E.C. purge** service allows you to directly remove the selected D.E.C. records together with their relevant indicator records. The relevant reporting records will also be purged logically. With such records, the **Removed** property in the **Flat data report** table or **Big data report** table will be set to `'Yes'`.

14.8 Update the hierarchy view by data models

Data Element Concepts can be organized to reflect the structures of all configured data models in the **Hierarchy view by data model** view.

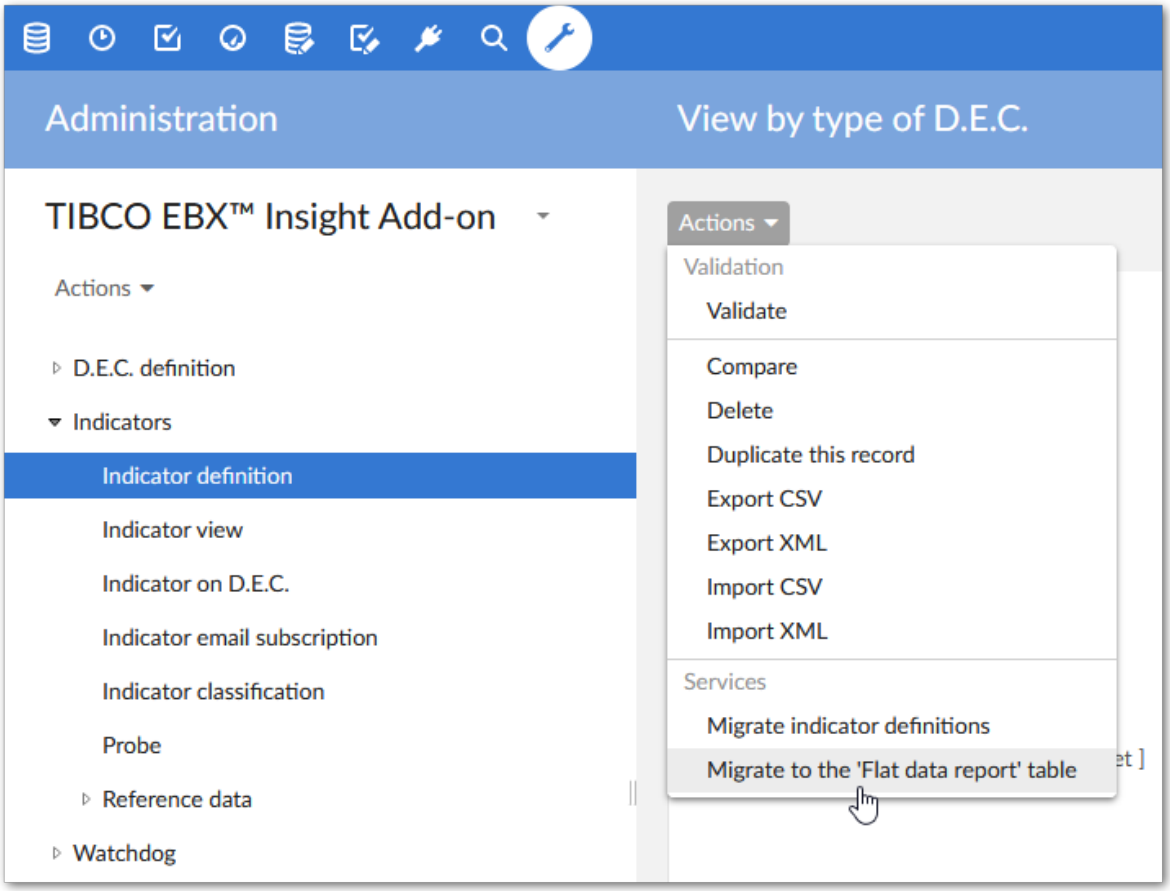


This view only includes the current Data Element Concepts after you've executed the **Update the hierarchy view by data models** service. This service also facilitates a similar hierarchy view for the **Indicator on D.E.C.** table.

14.9 Migrate to the 'Flat data report' table

From the GA 2.0.0 release, the **Flat data report** table replaces the **Big data report** table. From this release forward all built-in indicators only support this reporting table.

To assist with migration, the add-on provides the **Migrate to the table** service. We recommend running this service if upgrading from an older add-on version, or after adapting your custom indicators to work with the new table.



If you have administrative access, you can run the service on selected records or the entire **Indicator definition** table. Only those indicators that support the **Flat data report** will have their reporting data transferred. The current **Big data report** data will be kept intact.

14.10 Automatic creation of Indicators on D.E.C.

The **Indicator on D.E.C. creation** service allows you to select one indicator to attach to every D.E.C. for data storage.

This service is available on the **Indicator on D.E.C.** table.

14.11 Automatic creation of Indicator views declaration

The **Create indicator view declaration** service allows you to automatically create the view declaration for all missing indicator declarations.

This service is available on the **Indicator view** table.

CHAPTER 15

Probe declaration

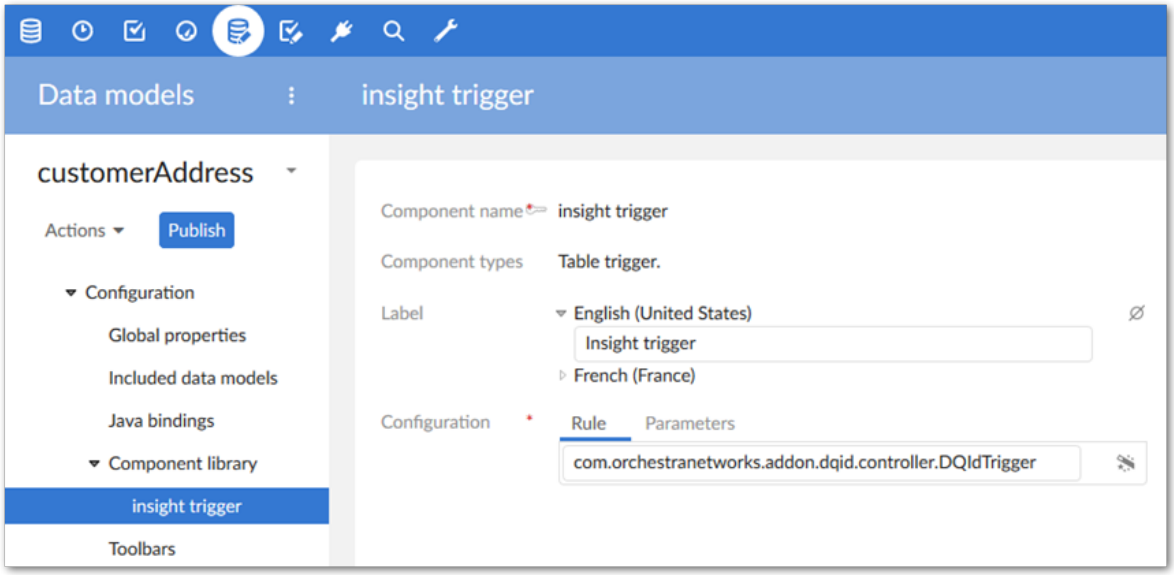
This chapter contains the following topics:

1. Declaration using the add-on's trigger
2. Declaration by using the API

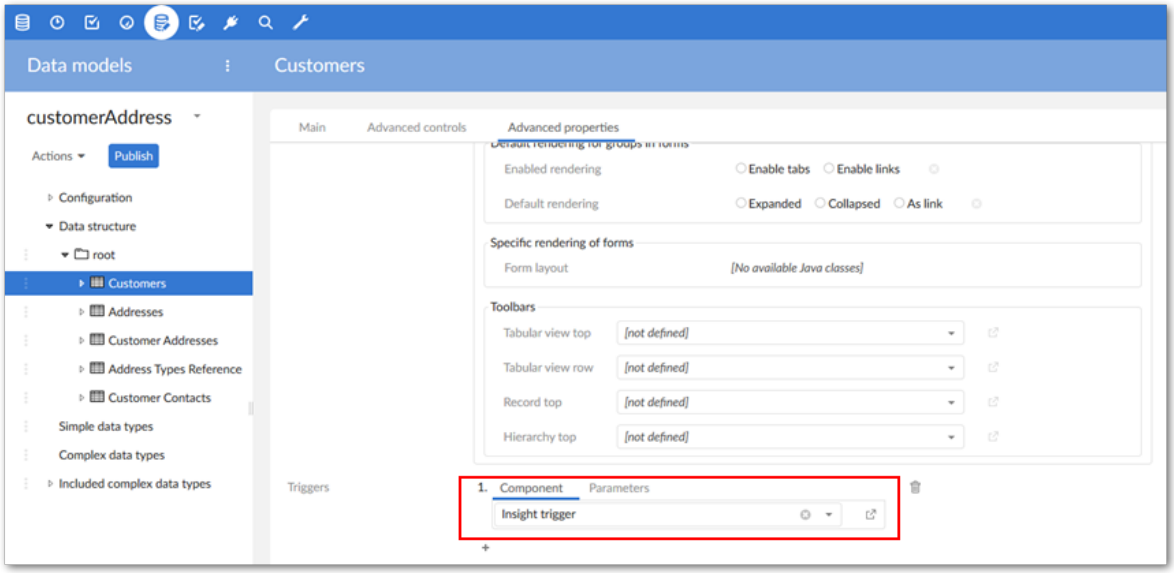
15.1 Declaration using the add-on's trigger

To add the add-on's trigger to a table, the procedure is as follows:

- Declare of a rule with the trigger provided by the add-on: `com.orchestranetworks.addon.dqid.controller.DQIdTrigger`.
- Use this trigger on the table.



Go to **Data structure**, open the table that you want to add the trigger. Go to **Advance properties** > **Trigger**, you can select the trigger in the drop-down box.



15.2 Declaration by using the API

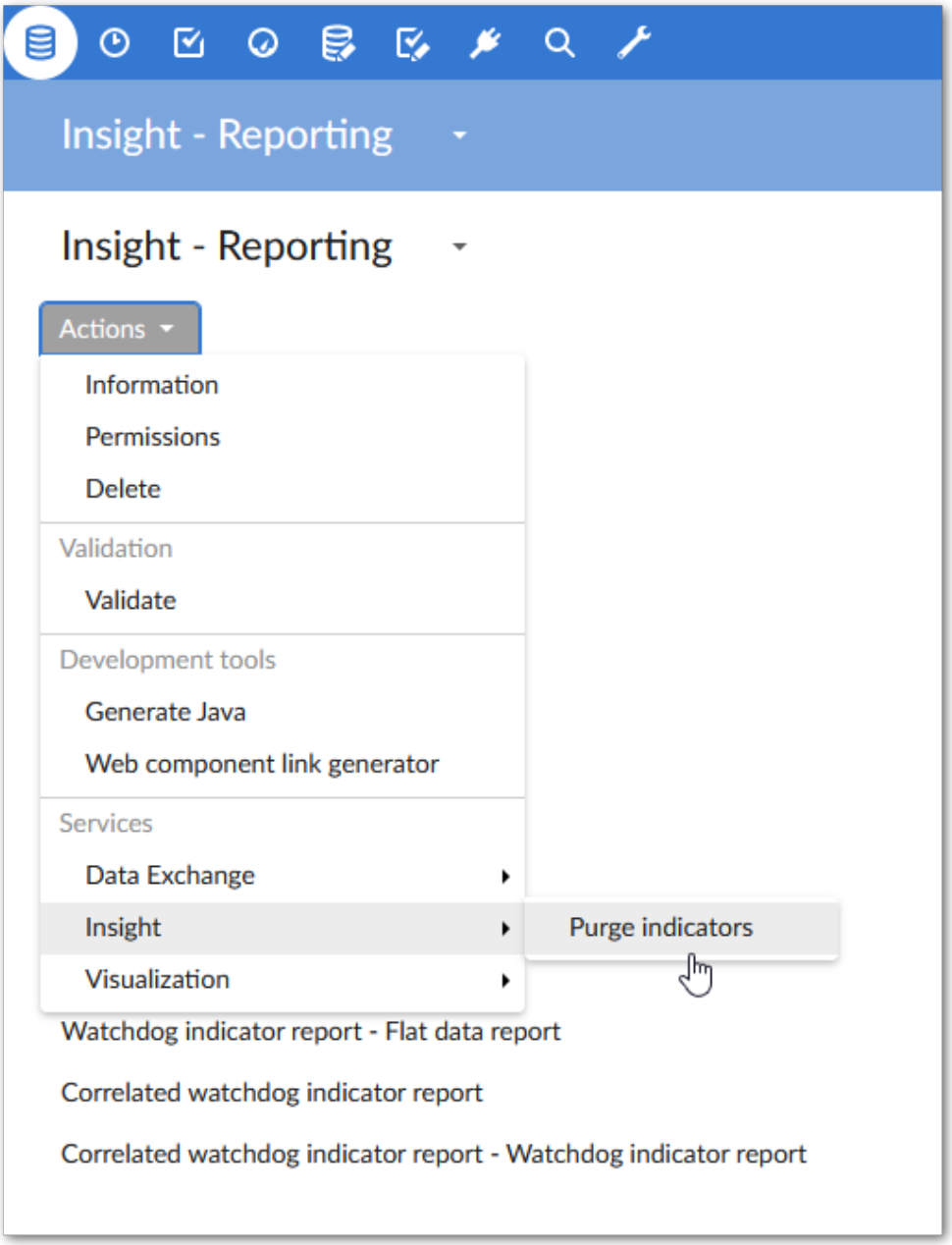
Please refer to the Java doc.

CHAPTER 16

Purge of the report tables

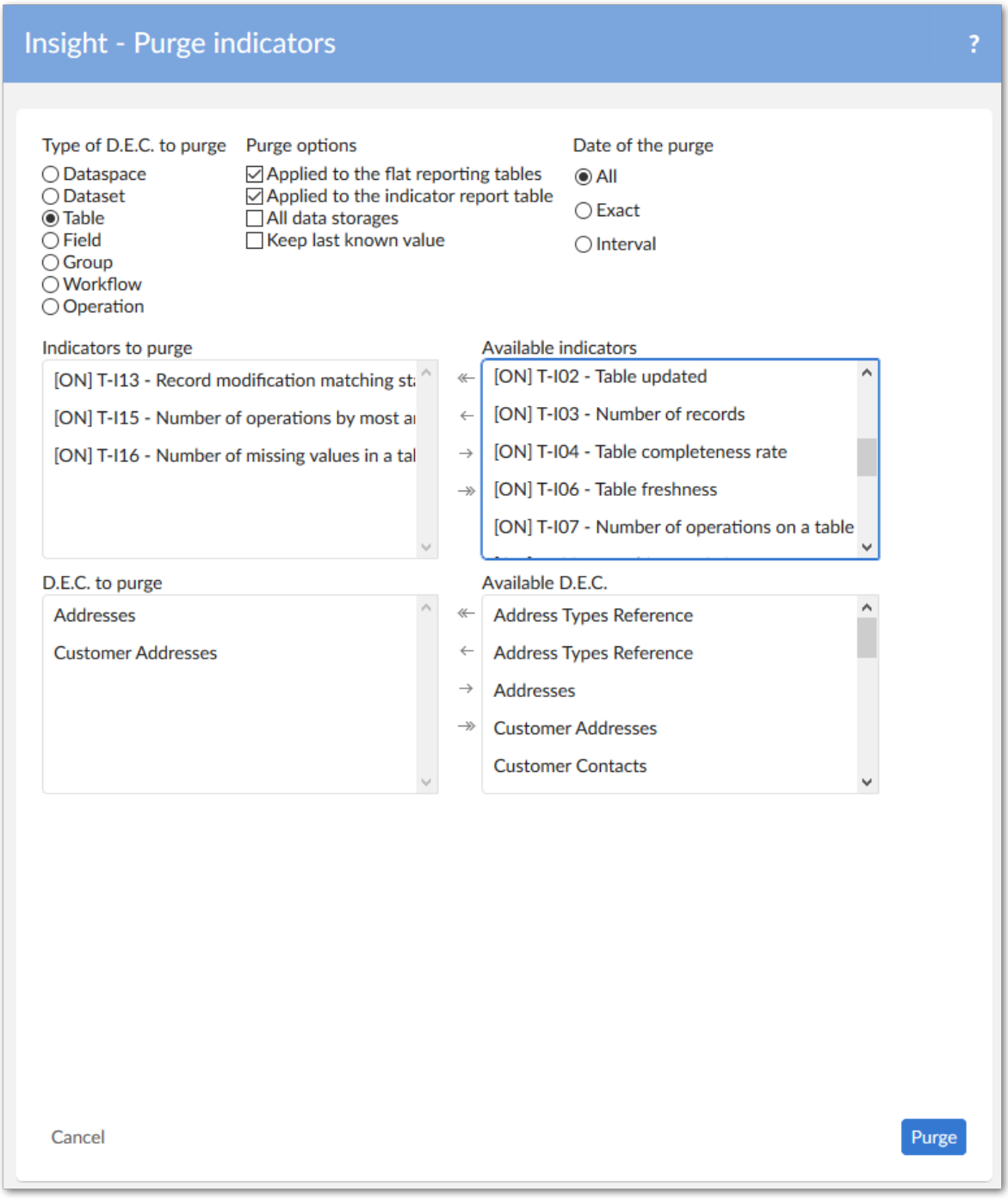
The tables used to store the indicators results are regular tables managed by EBX®. They rely on the relational data schema mode. This means it is possible to implement any SQL statements to purge these tables depending on your needs.

The add-on includes an integrated **purge** service at the level of each dataset as illustrated below.



The **Purge indicators** services allows you to purge the reporting tables by selecting a set of criteria such as the dates and the D.E.C. types. The purge entails a physical deletion of the data. The purge

applies the same permission rules than ones defined for the indicators (please refer to the section *Permission management*).



CHAPTER 17

Monitoring of the execution

This chapter contains the following topics:

1. Failure of indicator execution
2. Overview of the execution

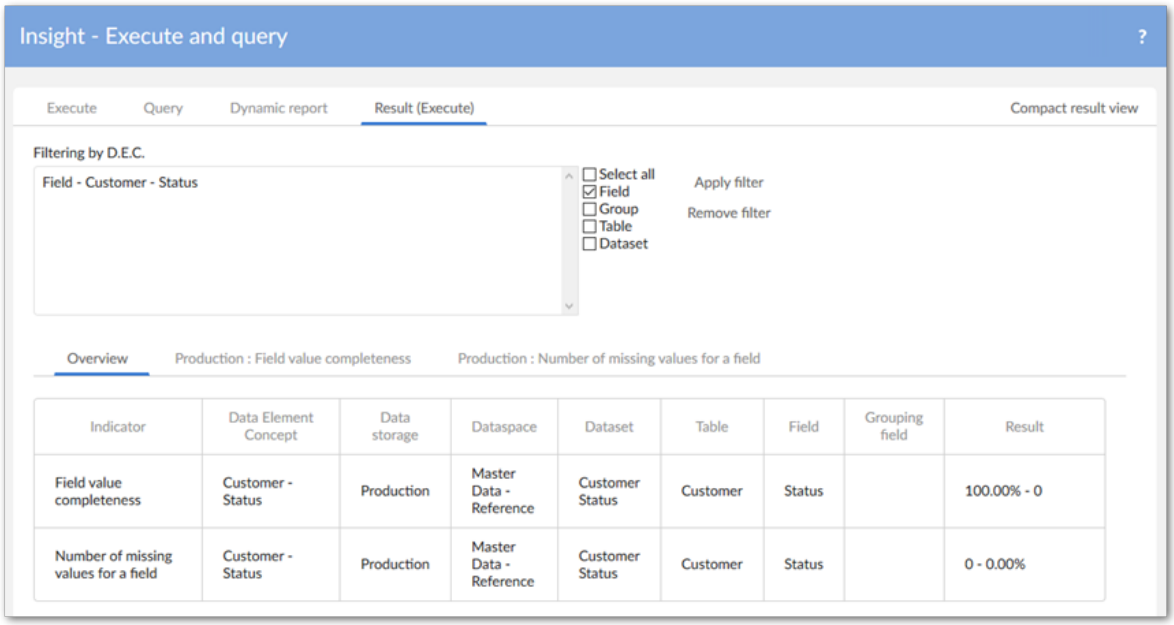
17.1 Failure of indicator execution

When an indicator executes **on failure**, it does not interrupt the underlying business processes, such as the creation of a record.

All indicators execute autonomously. This means that if one indicator fails, it does not stop execution of other indicators.

17.2 Overview of the execution

Indicator execution is monitored by an overview report. In a future version, a complete monitoring function will be provided to follow indicator execution in real-time.



CHAPTER 18

Dashboard

This chapter contains the following topics:

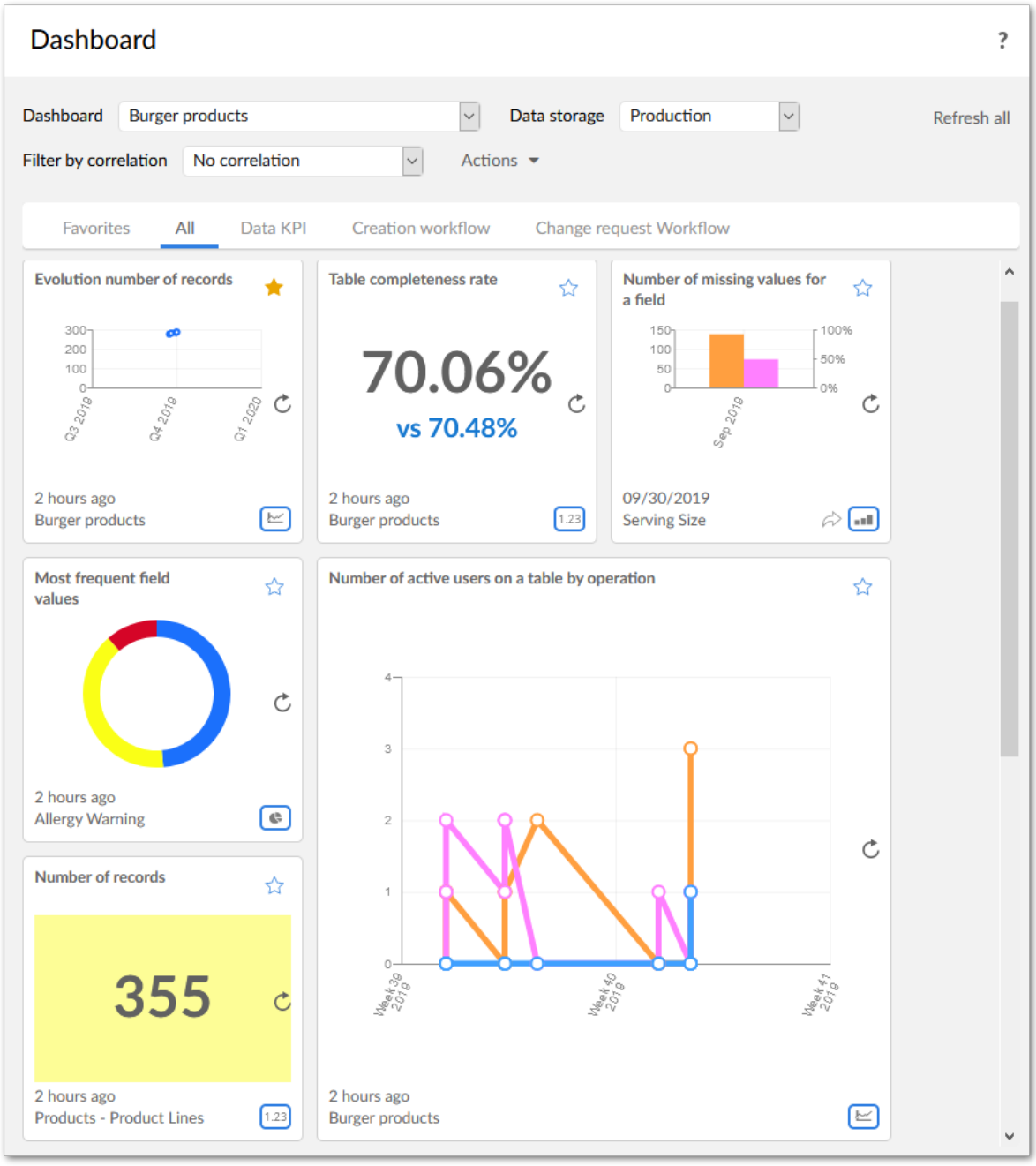
1. Global view
2. Expanding dashboard tiles
3. Dashboards integrated inside the EBX® Information Governance Add-on
4. Dashboard export
5. Permission and display rules
6. Configuration
7. Working with sections and indicator tiles

18.1 Global view

A dashboard displays sharp and easy-to-read indicator results based on a configuration of tiles. As illustrated below, it is made of one to many sections that group indicator results by Data Element

Concept (Table, Field, Workflow, dataspace, etc.). A coding color allows you to alert the user on unexpected or specific indicators values.

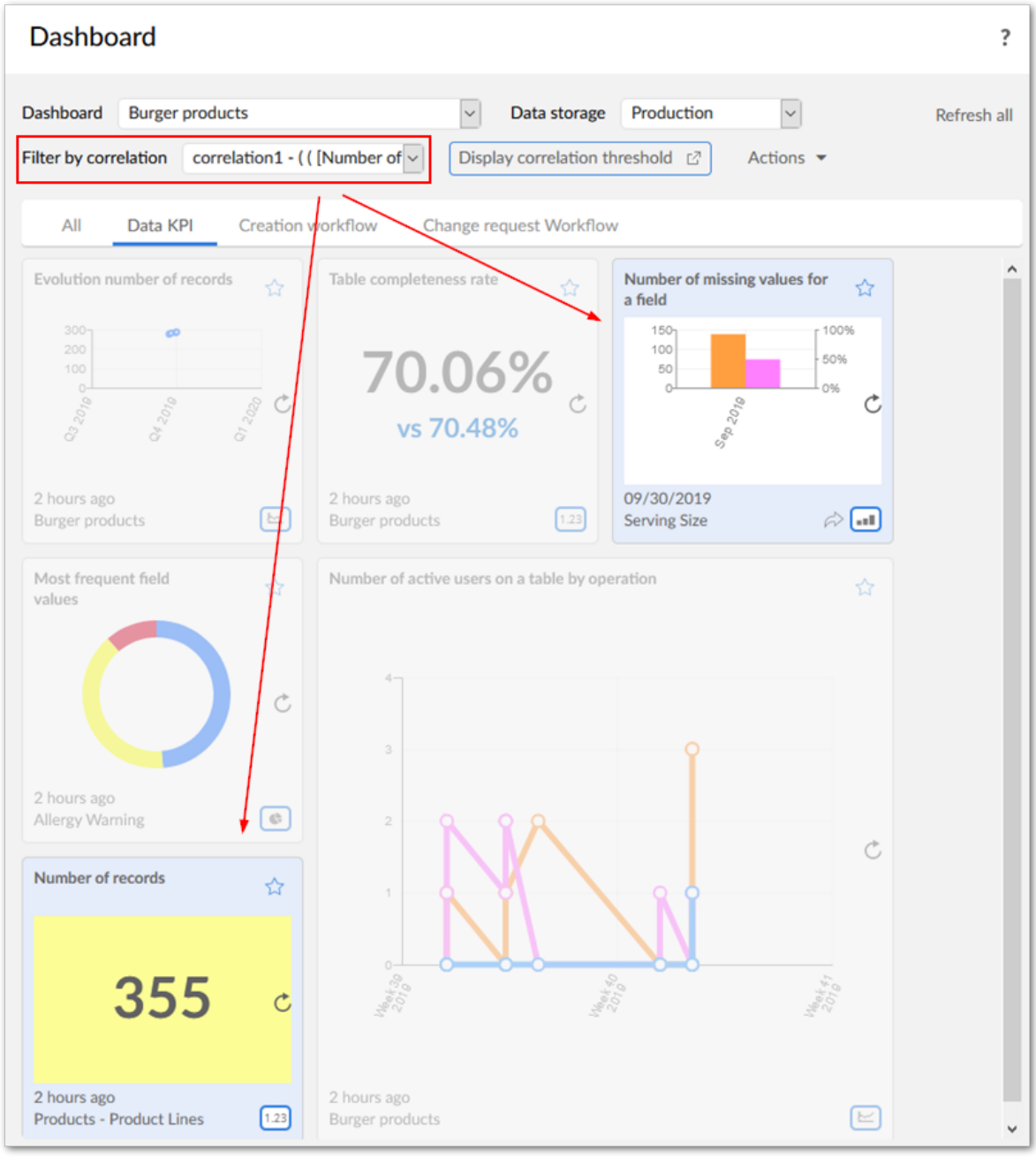
> **Note**
>
> When you launch a dashboard from a table, the dashboard display prioritizes indicators related to the table.



The tiles are configured in the **Dashboard** configuration domain of the **TIBCO EBX® Insight Add-on** data model (**Administration** area of EBX®). The rest of this section highlights how to configure a dashboard.

You can make it easier to monitor dashboard indicators by configuring tile background colors that display when watchdogs are raised. Please refer to the *Configuration* section under the *Dashboard* heading.

You can also monitor correlated watchdog indicators in the dashboard. You can filter tiles of an executed correlation.



You must configure watchdog indicators and correlated watchdog indicators before using them in the dashboard. Please refer to the *Configuration* of the *Correlated watchdog configuration* section.

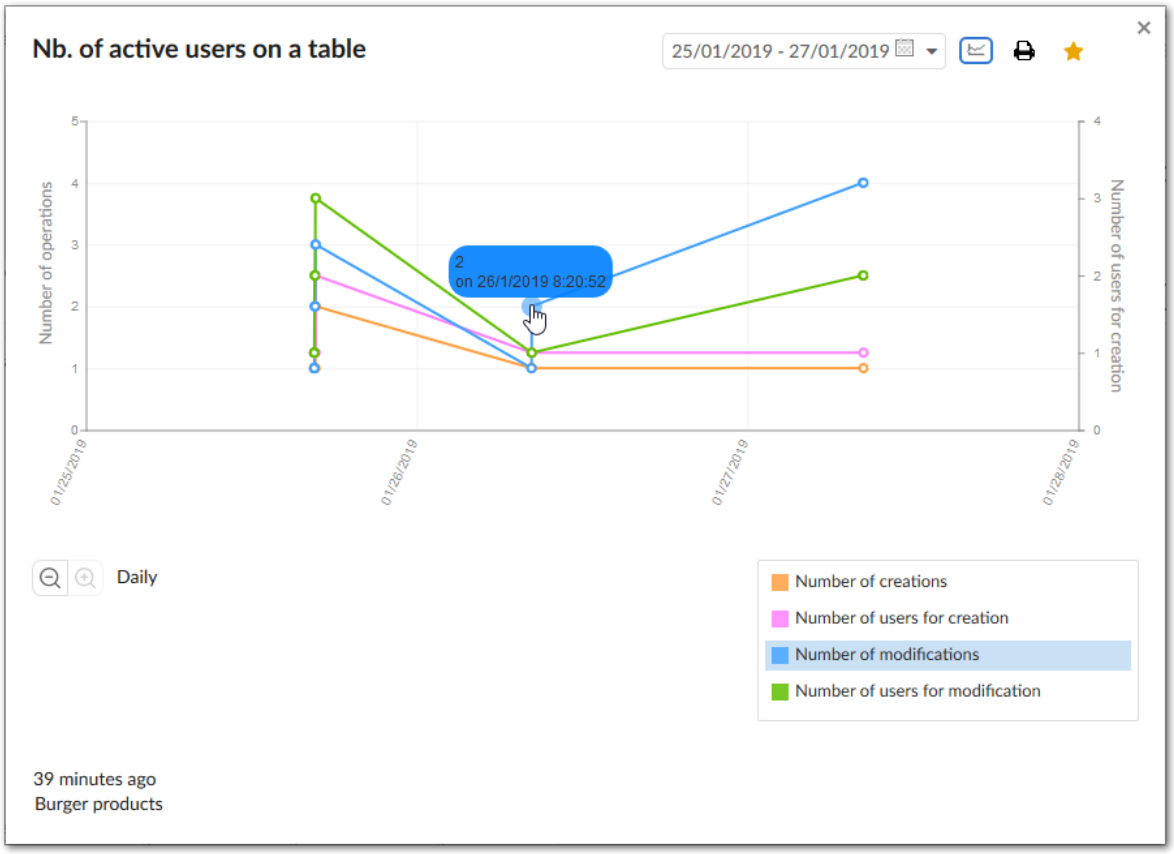
18.2 Expanding dashboard tiles

You can double-click a chart to expand it. The following sections highlight functionality for expanded charts.

Expanded Line and bar charts

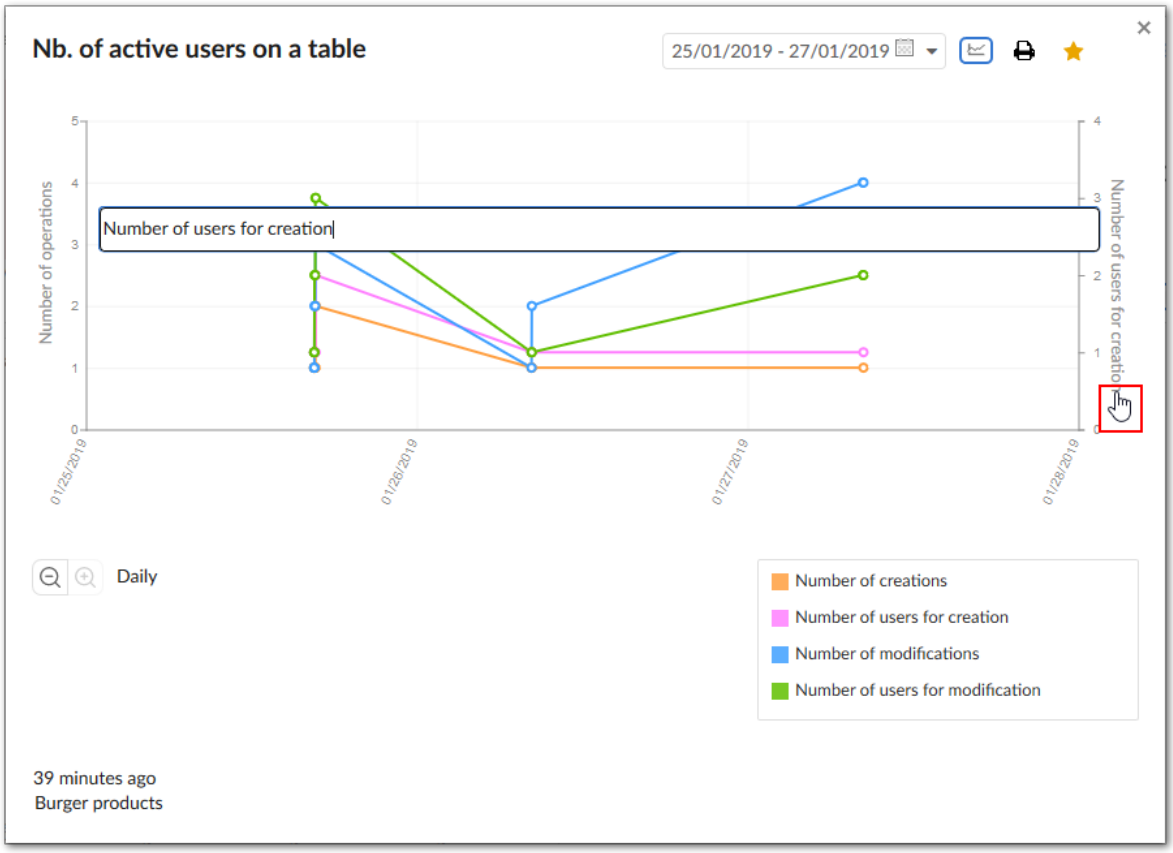
The following highlights features when interacting with line charts; bar charts, and sparkline charts (not shown) share similar features and functionality:

- You can select an entry in the legend to toggle display of the corresponding line/bar. If you hover your mouse over an entry in the legend, the add-on highlights the associated line/bar. You can also hover over points/bars on the chart to display details.



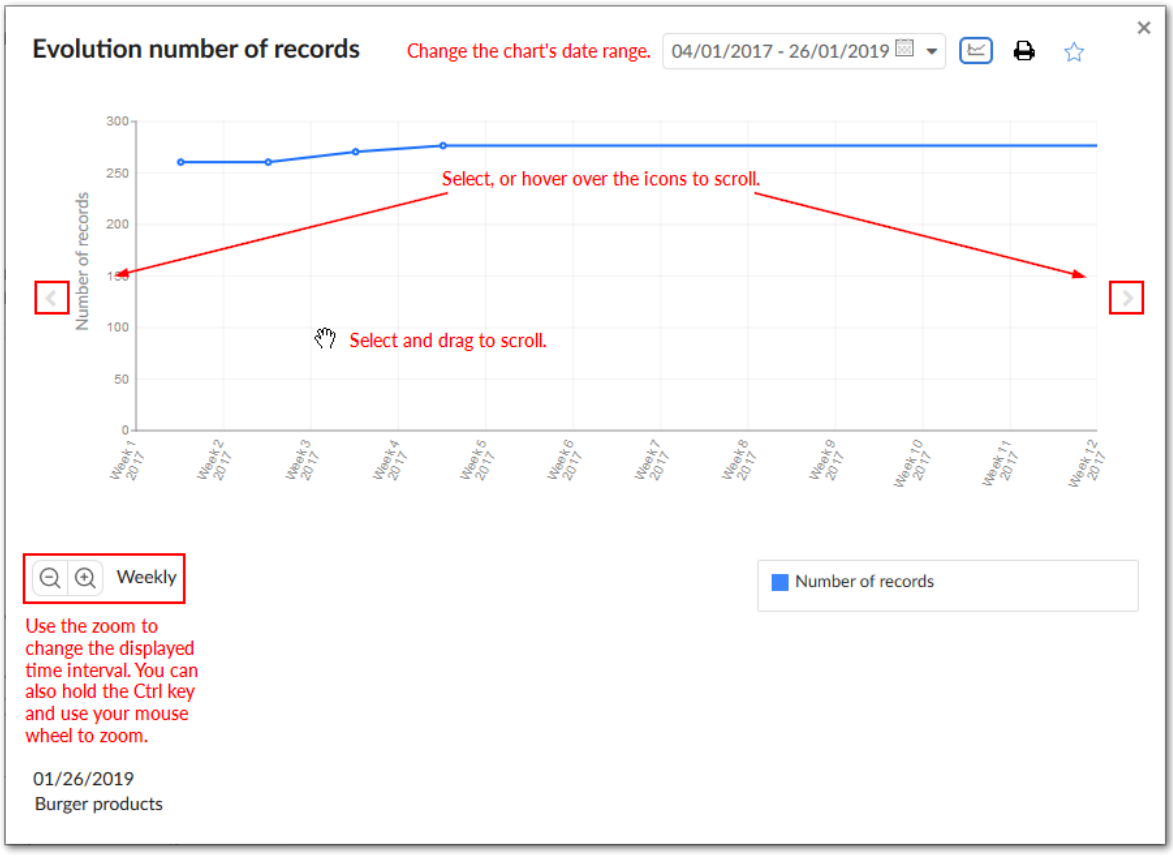
- As highlighted in the above image, you can filter display of lines/bars. Since the output displayed on the graph may no longer match the labels, the add-on automatically updates the displayed label to the optimal location.

- If enabled, users can click the axis label to edit it while viewing the indicator (shown below). Administrators can enable this functionality in the *Dashboard configuration* > *Permission* table by setting the **Is allowed to edit axis label** property to **Yes**.



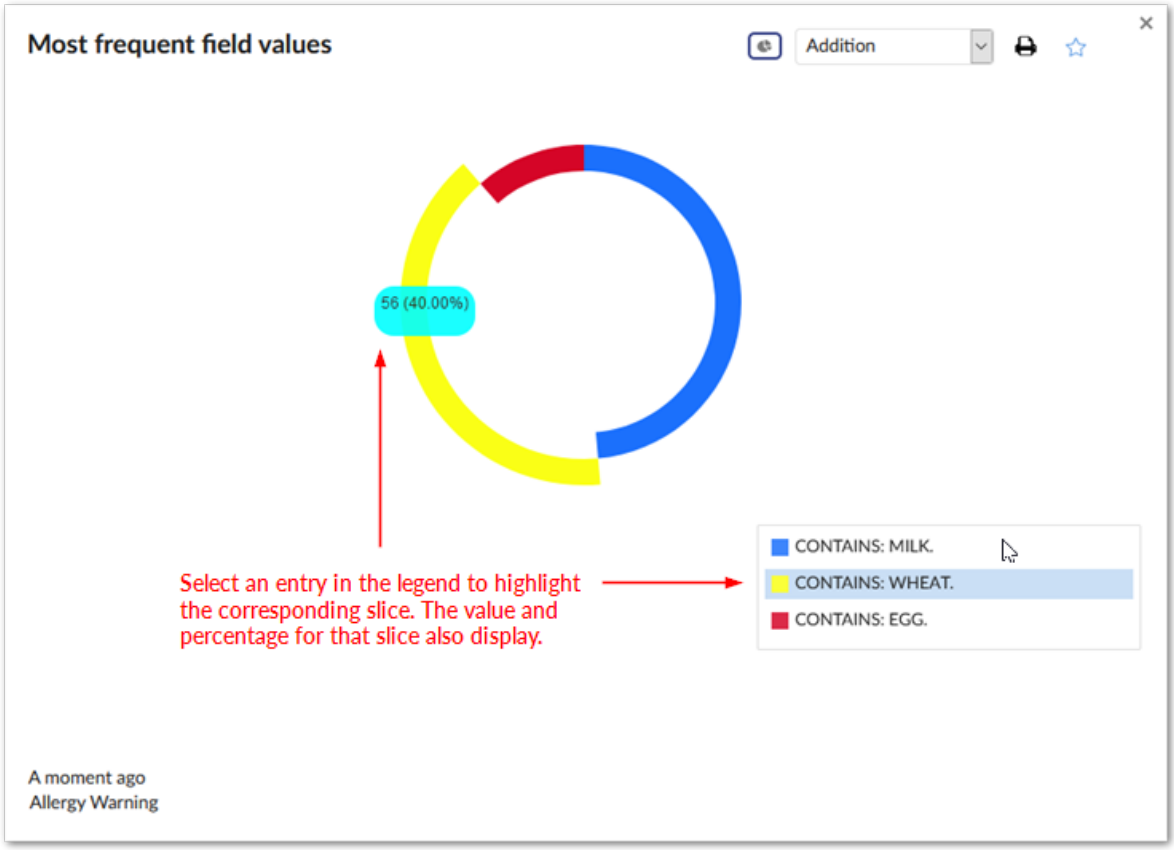
- With line and bar charts you can change the date range using the menu at the top of the chart. You can also change the time interval displayed on the chart by zooming in and out. If there is too much data to display at the chart's current level, you can use the chart's scroll feature to view the desired data. You can scroll by:
  - Clicking a scroll icon to advance in intervals.
  - Hovering over a scroll icon.

- Selecting and dragging the chart.



Pie charts

As shown below, pie charts enable functionality similar to line and bar charts, with subtle differences.

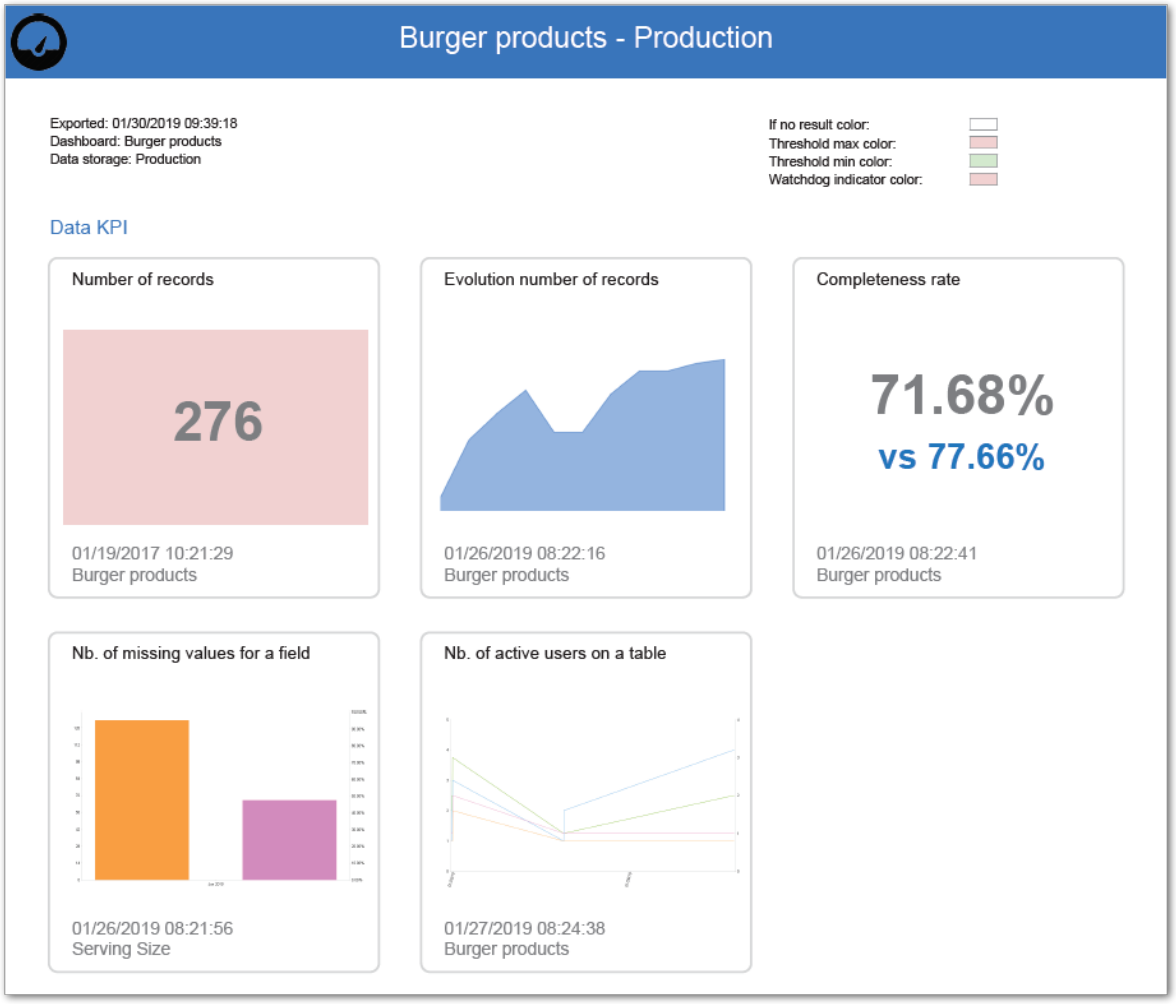


18.3 Dashboards integrated inside the EBX® Information Governance Add-on

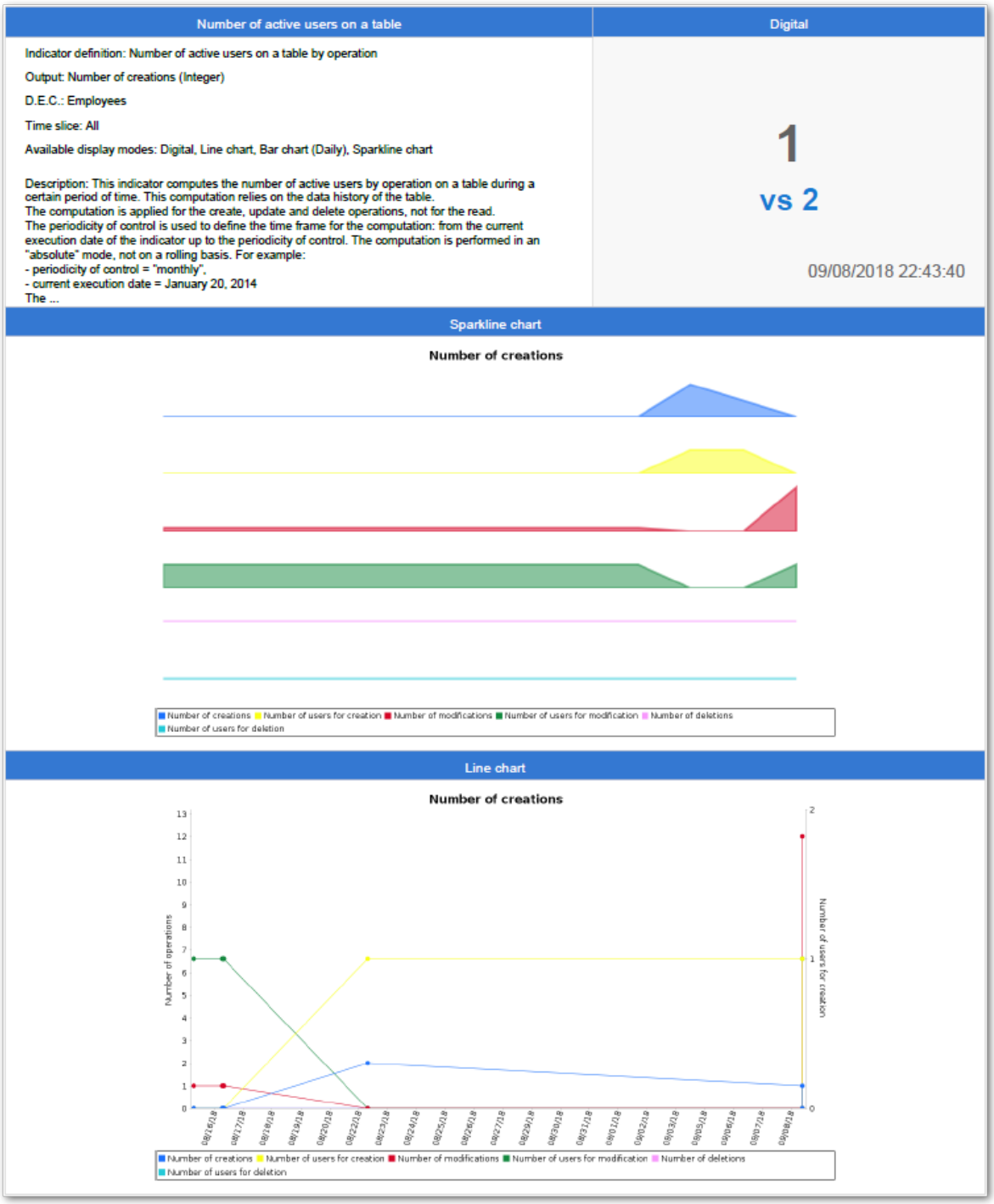
To show indicators for tables and fields you register them with the EBX® Insight Add-on. If these tables and fields correspond to **Administered Items**, the indicators also display in the **EBX® Information Governance Add-on**'s **Quality** tab.

18.4 **Dashboard export**

A dashboard can be configured to be exported to the PDF format. Please refer to the *Reference data tables* section for the configuration for more information. As shown below, the exported file provides an overview of the whole dashboard and detailed views of all tiles:



In addition to the dashboard overview, the PDF file contains detailed pages on individual indicators. The image below shows an example:



The add-on also provides an API to perform the same operation without accessing the **Dashboard** service. Additionally, you can customize the PDF content. Please refer to the add-on's *API documentation* for more information.

18.5 Permission and display rules

Permission

A dashboard is under the permission applied to a user-profile (refer to the configuration below). The content of the dashboard, namely the tiles, are under the control of the standard permission applied by the add-on (refer to the section *Permission management*).

Display rules

When the dashboard service is selected from the EBX® tool bar, the user's default dashboard displays. The user can also select from a list of available dashboards.

18.6 **Configuration**

Dashboard

A dashboard is made of one to many tiles. Every tile is related to one indicator, and grouped by section. A tile is displayed by enforcing some coding colors that are defined in the dashboard configuration.

> **Note**
>
> After creating a dashboard, administrators can select the dashboard's settings icon to update configuration options.

Property	Definition
Code	An auto-incremented value generated by the add-on.
Name	The name of the dashboard is used when it displays. The name is unique.
Dashboard template	A template can be selected to populate the dashboard's configuration properties using predefined values. By default, the template '[ON] standard - Standard' is used.
If no result label	When a tile that has no result to display then this label is applied.
If no result color	When a tile is displayed and has no result, then this color is applied.
Threshold max color	Tiles display as this color if their numeric value exceeds the maximum threshold of the indicator's watchdog. Unless, a boolean watchdog is also set and raised for the same indicator. Then, the tile displays the 'Watchdog indicator color'. For more information on the 'Maximum threshold' property, see the 'Indicator definition' table.
Threshold min color	Tiles display as this color when their numeric value falls below the minimum threshold of the indicator's watchdog. Unless, a boolean watchdog is also set and raised for the same indicator. Then, the tile displays the 'Watchdog indicator color'. For more information on the 'Minimum threshold' property, see the 'Indicator definition' table.
Watchdog indicator color	Tiles display as this color when an indicator, or a watchdog indicator evaluation returns a boolean value that raises a watchdog. If a numeric threshold is also set and raised for the same indicator, the 'Watchdog indicator color' overrides the threshold color.
Export configuration	Basic information regarding to the owner of the PDF file exported from the dashboard. By default, the '[ON] standard' configuration record is used.
Display previous result	Determines whether tiles set to digital display show the results from the previous execution beneath the current execution result.

Table 29: Dashboard configuration - Dashboard

Section

Sections are used to group indicators on a dashboard. Dashboards can contain multiple sections and a section can be used in multiple dashboards.

Property	Definition
Code	An auto-incremented value generated by the add-on.
Label	Label that appears in the display of the dashboard.

Table 30: Dashboard configuration - Section

Indicators in section

Property	Definition
Dashboard section	Selection of a dashboard section.
Indicator on D.E.C.	Selection of one 'Indicator on D.E.C.' for the selected section. The list is filtered by the D.E.C. attached to the section.
Tile size	Tile size
Available display modes	Available display modes of the tile in the dashboard. At least one display mode must be selected.
Default display mode	Selection of the default display mode of the tile in the dashboard. The user can change the display mode manually if several modes are possible for the indicator, such as digital (direct figure), line chart, pie-chart, bar chart and sparkline chart. The default display mode is limited to those available above.
Output parameter	Selection of the parameter that the tile will display.
Pie chart options	Selection of the pie chart options: • Last measure only: only the last value is considered when showing the pie chart • Addition: each output is the sum of all results • Average: the average is calculated based on every output See also: 'Pie chart option's in the Indicator definition table
Automatic refresh on open	For an indicator with a computation frequency "On demand", it is possible to force indicator execution when the dashboard displays. If set to 'True': the indicator automatically executes when the dashboard displays. If set to 'False': the indicator does not execute when the dashboard displays.
Filter results by current user	If set to 'True': the results presented in the associated tile are filtered based on the user viewing the dashboard.
Separate tiles by group	When enabled, each group of indicator values displays on a separate tile. This option can be helpful when monitoring individual field values over time.
Hide when inactive	If set to 'True': the indicator should be hidden from the dashboard when 'Execution option/Active' in 'Indicator on DEC' table set to 'False'. Hence we will not remove the corresponding record in the 'Indicator in section' table. If set to 'False': the indicator appear in the dashboard even when inactive (Default value).

Table 31: Dashboard configuration - Indicators in section

Sections in dashboard

The order of the sections in the dashboard is managed from the ordered data hierarchy (move up and move down services).

Property	Definition
Dashboard	Selection of a dashboard.
Dashboard section	Selection of a section to include in the dashboard.

Table 32: Dashboard configuration - Sections in dashboard

Permission

A dashboard is available under the condition the user has been permitted.

Property	Definition
User profile	User-profile having the permission to access the dashboard.
Dashboard	Selection of one dashboard for which the selected user-profile is permitted.
Is default	When a user-profile is permitted to access to many dashboards, one can be set to display by default.
Default data storage	By default, the dashboard displays the indicators results from the selected data storage.
Is data storage selectable	If set to 'True': the user can select a data storage for displaying the dashboard. If set to 'False': only the default data storage is used for displaying the dashboard. The user can not select another data storage.
Is allowed to edit axis label	If set to 'True': user can edit chart axis's label In full screen mode on dashboard. If set to 'False': user is not allowed to edit chart axis label.

Table 33: Dashboard configuration - Permission

Template

A template allows you to define the colors used by default to display the dashboards.

Property	Definition
Code	Any naming convention except the prefix '[ON]'.
Name	Any name is possible to identify the template.
If no result label	When a tile that has no result to display then this label is applied.
If no result color	When a tile is displayed and no results exist, then this color is applied.
Threshold max color	Tiles display as this color if their numeric value exceeds the maximum threshold of the indicator's watchdog. Unless, a boolean watchdog is also set and raised for the same indicator. Then, the tile displays the 'Watchdog indicator color'. For more information on the 'Maximum threshold' property, see the 'Indicator definition' table.
Threshold min color	Tiles display as this color when their numeric value falls below the minimum threshold of the indicator's watchdog. Unless, a boolean watchdog is also set and raised for the same indicator. Then, the tile displays the 'Watchdog indicator color'. For more information on the 'Minimum threshold' property, see the 'Indicator definition' table.
Watchdog indicator color	Tiles display as this color when an indicator, or a watchdog indicator evaluation returns a boolean value that raises a watchdog. If a numeric threshold is also set and raised for the same indicator, the 'Watchdog indicator color' overrides the threshold color.
Display previous result	This option determines whether tiles that present results in digital format display the last execution result along with the current result.

Table 34: Dashboard configuration - Template

Reference data tables

Table	Definition
Export configuration	Basic information regarding the owner of the PDF file exported from the dashboard, such as the company or organization.
Export template	Contains template(s) used to generate dashboards to PDF files.

Table 35: Dashboard configuration - Reference data tables

18.7 **Working with sections and indicator tiles**

If you have administrative privileges, you can add and remove sections and indicators from the dashboard UI. You can also edit indicator configuration options in the dashboard. The following headings describe these options:

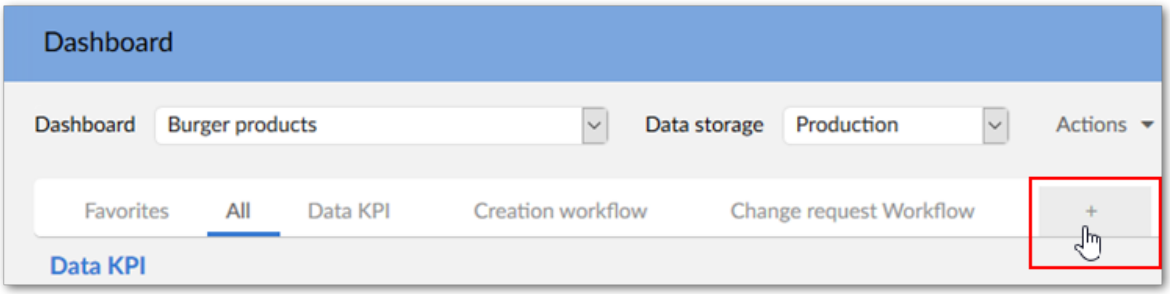
- Adding and removing sections [p 126]

- Adding and removing indicator tiles [p 126]

Adding and removing sections

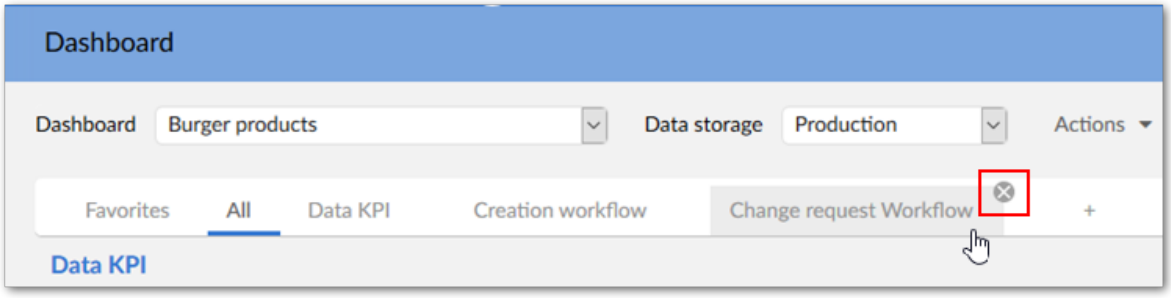
To add a section to an open dashboard:

1. Select the + icon next to the list of dashboard sections.



2. A new section displays. See Adding and removing indicator tiles [p 126] for information on adding indicators to this section.
3. Optionally, double-click the new section tab and enter a name.

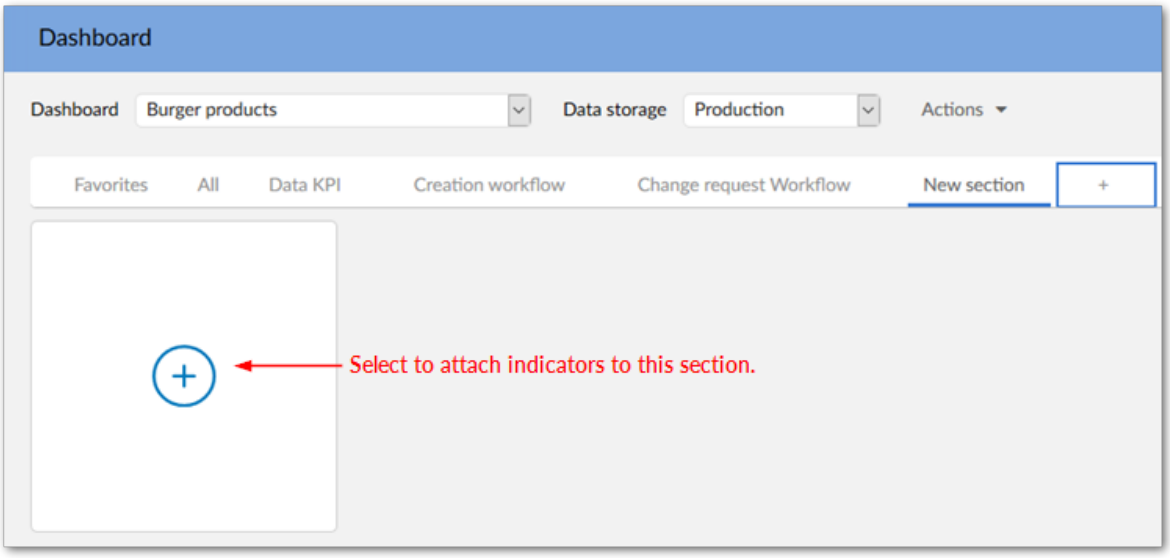
To remove a section, mouse over the desired section and select the X that displays. The add-on presents you with a confirmation dialog.



Adding and removing indicator tiles

To add an indicator to a section in a dashboard:

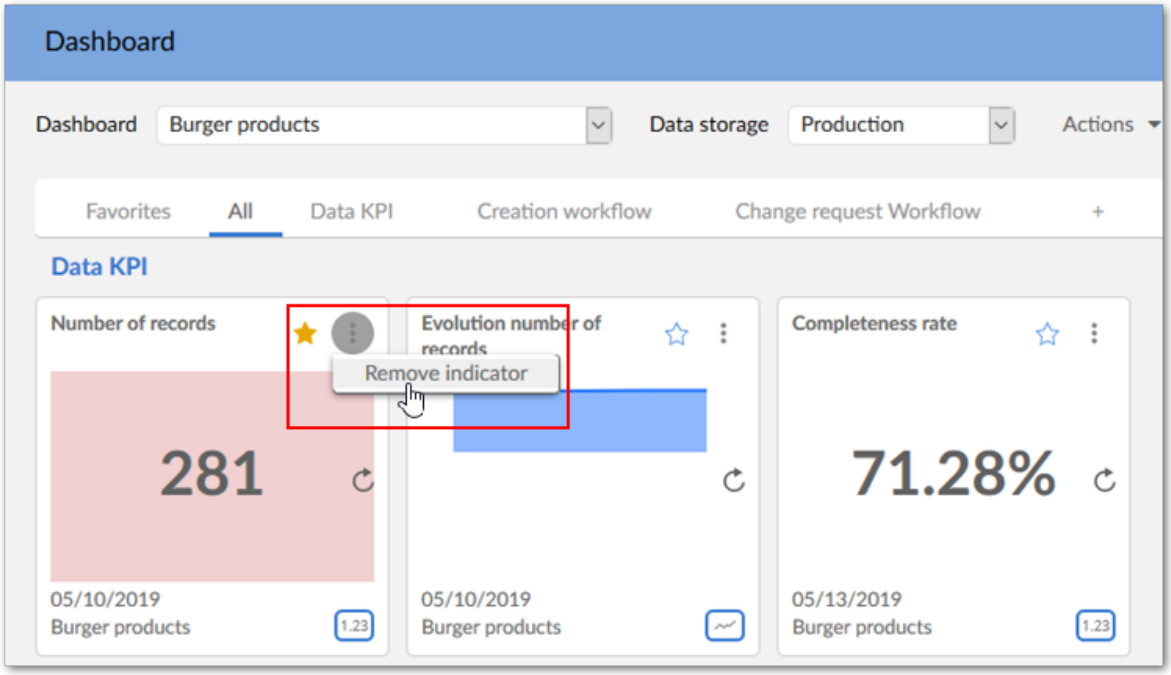
1. Select the **New indicator** tile.



2. Fill in the required fields.
3. After selecting **Add** the new indicator tile displays in the section.

> **Note**
>
> Using the above method to add an indicator automatically adds the required records to the **Indicator on DEC** and **Indicator in section** tables.

To remove an indicator from a section, open the menu in the indicator's title and select **Remove indicator**.



> **Note**
>
> When you remove an indicator, the add-on deletes the corresponding records in the **Indicator in section** and **Tile preference** tables.

Editing indicator configuration options

You can edit indicator configuration options directly from the dashboard. This alleviates you from having to navigate the tables in the **Administration** area. To change indicator configuration options:

1. Open the menu on the desired indicator tile and select **Configure indicator**.
2. In the configuration screen that displays, use the tabs to locate the settings you would like to change.
3. After selecting **Save and close** the indicator immediately reflects your changes.

CHAPTER 19

User graph preference

This chapter contains the following topics:

1. Global view
2. Chart preference
3. Tile preference
4. Chart preference template

19.1 Global view

This part of the configuration allows you to adapt the graph options.

19.2 **Chart preference**

This data preference allows you to adapt the chart display by user-profile and indicator.

Property	Definition
User profile	User-profile on which the chart preference is defined.
Indicator	Indicator on which the chart preference is defined.
Chart preference template	Reference to a chart preference template.
Line width (pixels)	Width of the line in the graph.
Point radius (pixels)	Point radius size in the graph.
Tooltip color	Color of the tooltips in the graph.
Output colors	Color applied by the indicator's output parameter. The order value gives the position of the output parameter in the indicator definition.
Actual value color	Color of the actual value in the tile.
Previous value color	Color of the previous value in the tile.

Table 36: User graph preference - Chart preference

19.3 **Tile preference**

This data preference allows you to adapt the tile display by user-profile and indicator in a dashboard section.

The display mode defined in the **Tile preference** overwrites the default one that is configured in the **Indicator in section** table.

Property	Definition
User profile	User-profile on which the tile preference is defined.
Indicator in section	Indicator on a dashboard section on which the tile preference is defined.
Available display modes	Possible display modes of the tile in the dashboard. At least one display mode must be selected.
Default display mode	Selection of the tile's default display mode (Digital, Line chart, Pie chart, Bar chart and Sparkline chart). The default display mode is limited to those available above.
Output parameter	Selection of the parameter that the tile will display.
Pie chart options	Selection of the pie chart options: • Last measure only: only the last value is considered when showing the pie chart • Addition: each output is the sum of all results • Average: the average is calculated based on every output See also: 'Pie chart option's in the Indicator definition table.
Automatic refresh on open	If an indicator's computation frequency is set to 'On demand', you can force it to execute when the dashboard displays. If set to 'True': the indicator automatically executes when the dashboard displays. If set to 'False': the indicator does not execute when the dashboard displays.
Filter results by current user	If set to 'True': the results presented in the associated tile are filtered based on the user viewing the dashboard.
Display tabular view	Determines whether users can access the dashboard tile's tabular data.
Time slice	Allows you to limit the dashboard tile's queried data to a specific time frame such as the current week, month, etc. The add-on applies this time frame to all graphical and tabular data displayed in the dashboard tile. Periodicity • Built-in time frame options supported by the add-on. • If empty or 'Any' is selected, there are no limitations placed on the time frame. • The periods are in the absolute mode; not on the rolling basis. For example, for the 'Monthly' periodicity, if the service is called on April 5 then the period is the first five days of April. • Select 'None' to define a custom time frame limited by a 'From date' and the latest execution time. From date • Allows you to define a custom time frame instead of using a built-in period. • Only available when the 'Periodicity' is set to 'None'.

Table 37: User graph preference - Tile preference

19.4 **Chart preference template**

This data preference allows you to declare a template to adapt the chart display. This template is used in the **Chart preference** configuration.

Property	Definition
Code	Any naming convention except the prefix '[ON]'.
Label	Name of the chart preference template.
Line width (pixels)	Width of the line in the graph.
Point radius (pixels)	Point radius size in the graph.
Tooltip color	Color of the tooltips in the graph.
Output colors	Color applied by output parameter of the indicator. The order value gives the position of the output parameter in the indicator definition.
Actual value color	Color of the actual value in the tile.
Previous value color	Color of the previous value in the tile.

Table 38: User graph preference - Chart preference template

CHAPTER 20

Dashboards in perspectives

This chapter contains the following topics:

1. Overview

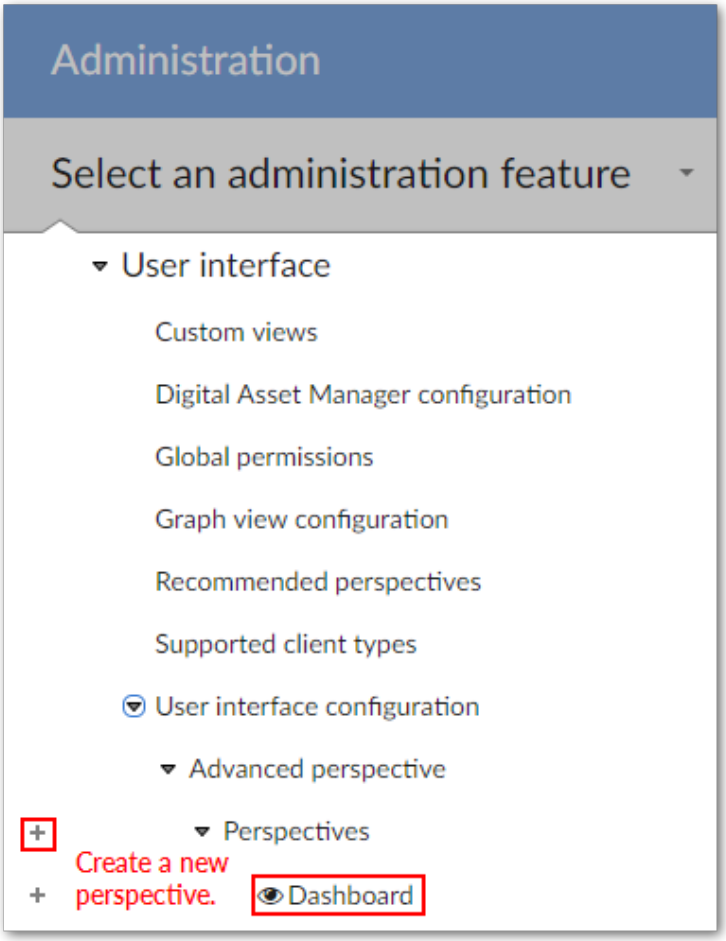
20.1 Overview

Administrators can configure EBX® perspectives to display add-on dashboards. The following section demonstrates how to accomplish this.

Adding a dashboard to a perspective

To add a dashboard to a perspective:

1. Navigate to *Administration* > *User interface* > *User interface configuration*.



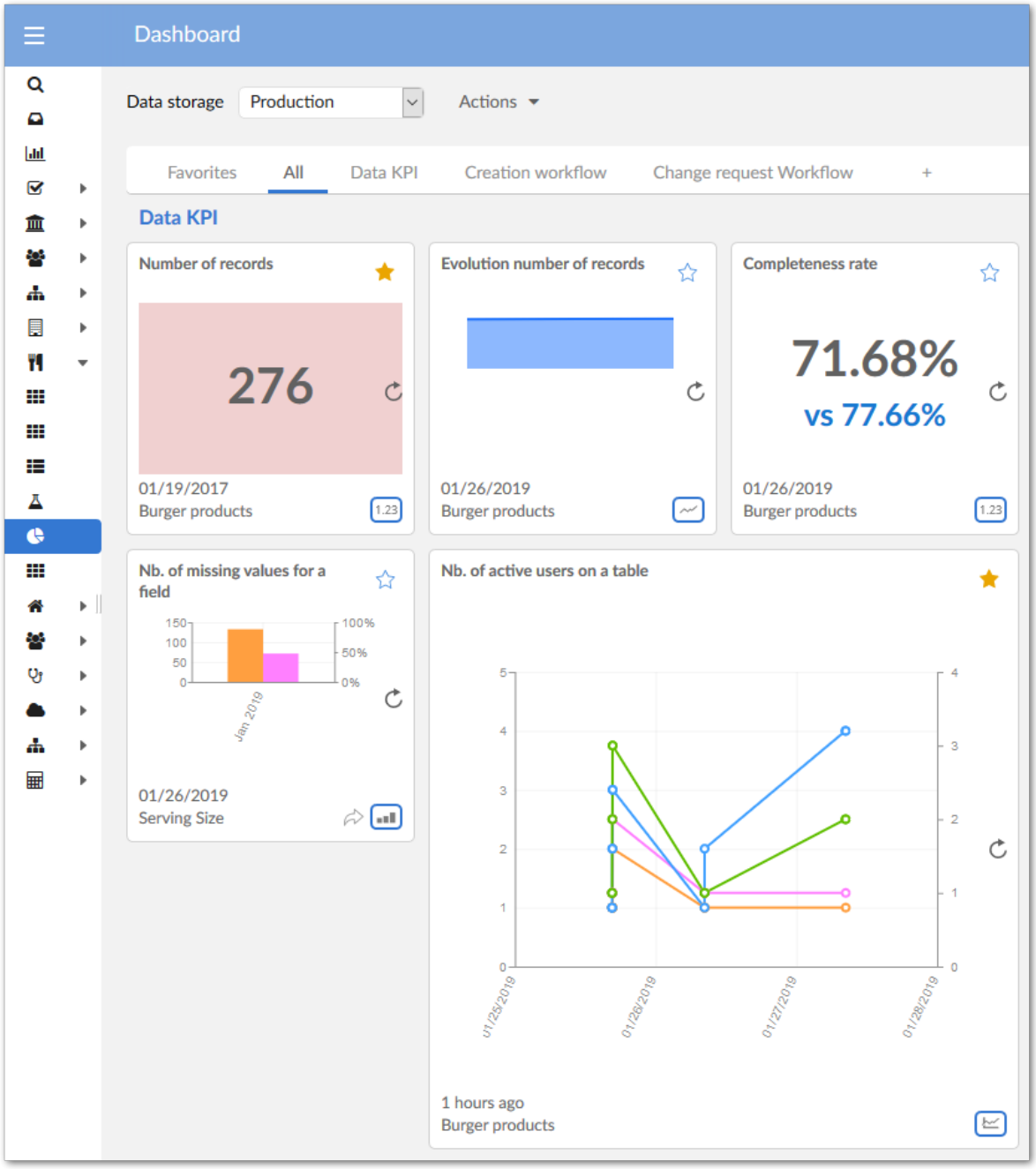
2. Click on the plus sign from **Perspectives** (highlighted above) and enter all required information:
3. Expand **Graphical interface configuration** and click **Activation & Allowed profiles** to enable this perspective for the desired users. If you do not complete this step, the perspective will not be available in the user's perspectives menu.
4. Under **Graphical interface configuration**, select **Perspective Menu** and create a new record under the **All elements** root.
5. Be sure the **Type** option is set to **Section**, add a descriptive label, and click **Save and close**.
6. Now, you can create an action that will open the perspective to the desired dashboard. Under the section created in the previous step, create a new record and enter the following information:
   - **Type**: Be sure this is set to **Action**.
   - **Parent**: Set this to the section you previously created.
   - **Label**: The value entered here is the name of the dashboard that will display under its parent.
   - **Service**: From the dropdown menu, select one of the following options:
     - **[ebx-addon-dqid] Dashboard**: You can use this option to enable display of a specific dashboard. Use the **Dataspace** and **Dataset** parameters to specify the location of the desired dashboard. You can leave the other parameters blank.

- **[ebx-addon-dqid] GlobalDashboard**: You can use this option to enable display of the global dashboard. A global dashboard allows users to access multiple dashboards. In the **Dataspace** parameter, enter `Reference`. In the **Target dashboard** parameter, add the names of individual dashboard to display—separated by a comma. If you leave this field blank, users can access all dashboards they have sufficient permission to view.

> **Note**
>
> For more detailed information on the input parameters, see Input parameter overview [p 136].

7. Save and close all records.

The following image shows an example of a dashboard perspective.



Input parameter overview

When setting input parameters for the dashboard service, the **Dataspace** and **Dataset** parameters are mandatory. If their values are invalid, the corresponding dashboard cannot be opened.

The optional **Target dashboard** parameter allows you to specify which dashboard displays when opening the perspective. If you do not set a target dashboard, and a user has a default dashboard configured, this dashboard will be opened.

When you do specify a target dashboard and a user does not have sufficient permissions, the dashboard will not open.

CHAPTER 21

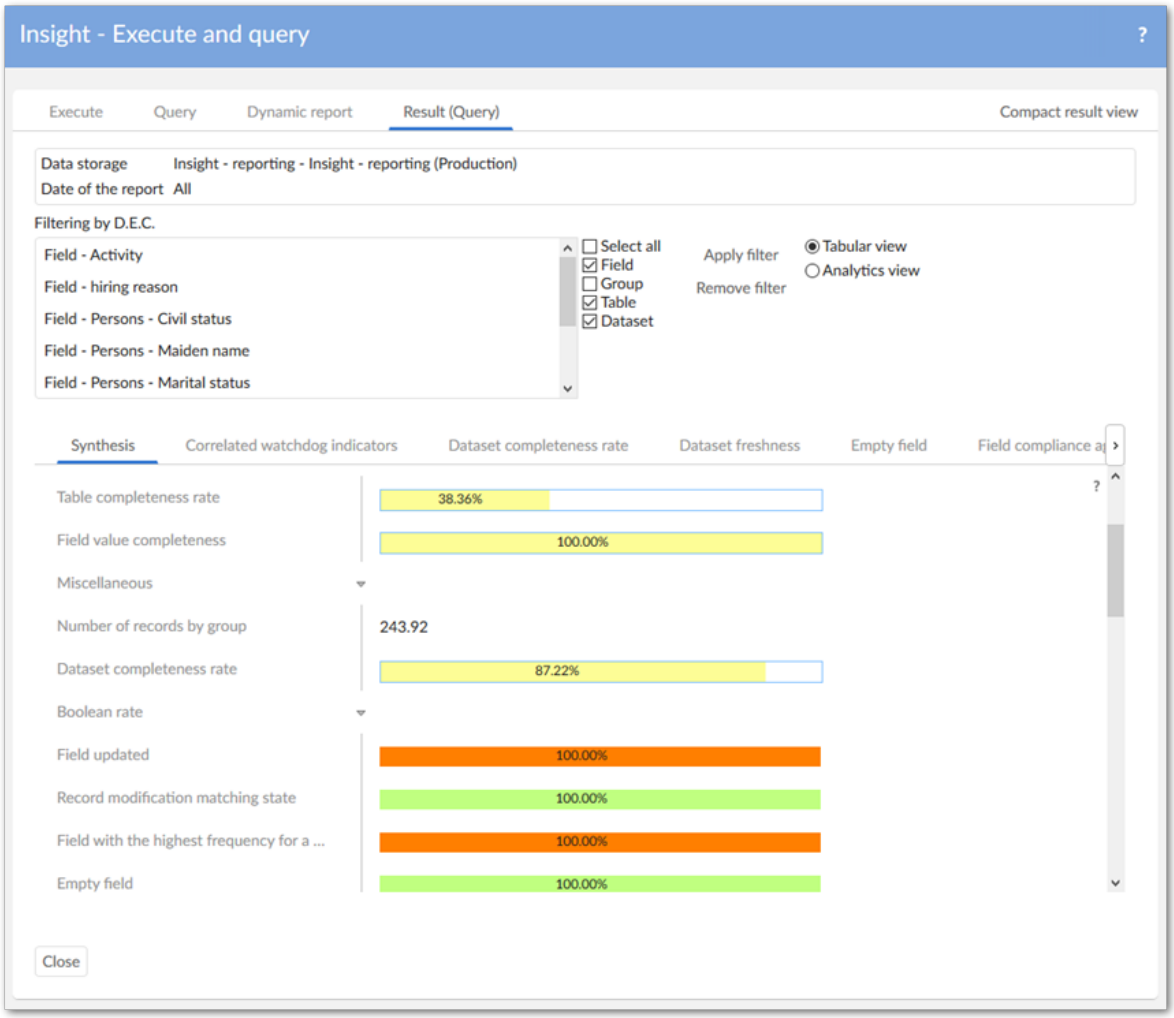
Synthesis configuration

This chapter contains the following topics:

1. Global view
2. Synthesis classification
3. Synthesis preference
4. Indicator synthesis preference
5. Synthesis indicator label
6. Synthesis template
7. Option date

21.1 Global view

This part of the configuration allows you to configure the **Synthesis view**. This view brings a condensed computation of indicator results.



21.2 Synthesis classification

The **Synthesis view** gathers indicator results through a classification scheme. For instance you can use the **Date** classification to display a condensed view applied to indicators with results of **Date** type. You can create your own classification scheme.

Property	Definition
Classification code	The codification starting with '[ON]' refers to a prebuilt classification provided with the add-on. You can reuse it. Any other naming convention is permitted for the creation of your own classifications.
Label	Classification label that appears in the 'Synthesis view'.

Table 39: Synthesis - Synthesis classification

21.3 **Synthesis preference**

You can adapt colors and configure certain options used to display the **Synthesis view**. This customization is done by user-profile.

Property	Definition
User profile	User-profile for which this configuration applies.
Synthesis template	To facilitate the configuration you can create / reuse a template that provides you with default values for customization. By default, the 'Standard' template is provided with the add-on.
Active	If 'True': the 'Synthesis view' is available for the user-profile. If 'False': the 'Synthesis view' is hidden for the user-profile. Default value: 'False'
Automatic display	If 'True': the 'Synthesis view' is computed and displayed automatically when the 'Active' property is 'True' If 'False': the 'Synthesis view' is computed and displayed on demand by the end-user and when the 'Active' property is 'True' Default value: 'False'
Color of True	Color for the display of boolean 'True' value.
Color of False	Color for the display of boolean 'True' value.
Color of Undefined	Color for the display of boolean 'Undefined' value.
Color of Rate	Color for the display of rate value.
Color of Rate border	Color for the display of the frame used for the rate border.
Option date	Option used to display the dates.
Sort ascending	Allows you to sort the synthesis results in a classification block by ascending or descending criteria.

21.4 Indicator synthesis preference

You can overwrite, for a user-profile, the properties defined at the level of the Indicator for the **Synthesis view**.

Property	Definition
User profile	User profile for which the configuration is applied.
Indicator	Indicator for which the configuration is applied.
Synthesis on	Indicator output to use for the synthesis display.
Synthesis classification	Classification to use for displaying this indicator on the 'Synthesis view'.

Table 40: Synthesis - Indicator synthesis preference

21.5 Synthesis indicator label

You can overwrite the label to use for **Synthesis view** display that is defined in the **Indicator definition** table.

Property	Definition
Indicator definition	The indicator definition for which the label is overwritten.
Label	The label to use. In case this property is empty, then the label stemming from the related 'Indicator definition' is used.

Table 41: Synthesis - Synthesis indicator label

21.6 **Synthesis template**

To facilitate the configuration of the **Synthesis view** display, you can use the prebuilt **Standard** template or create your own.

Property	Definition
Code	The template's code. The prefix '[ON]' is reserved for the template provided with the add-on ('Standard').
Label	The template's label.
Color of True	Color for the display of boolean 'True' value.
Color of False	Color for the display of boolean 'True' value.
Color of Undefined	Color for the display of boolean 'Undefined' value.
Color of Rate	Color for the display of rate value.
Color of Rate border	Color for the display of the frame used for the rate border.
Option date	Option used to display the dates.
Sort ascending	Allows you to sort the synthesis results in a classification block by ascending or descending criteria.

Table 42: Synthesis - Synthesis template

21.7 **Option date**

The condensed display of **Date** type output indicator requires you to select which date value to use among many results. This table contains these options.

Property	Definition
Code	The option's code. You cannot create your own option. Only the options provided with the add-on are possible.
Label	The option's label displayed on the 'Synthesis view'.

Table 43: Synthesis - Option date

CHAPTER 22

Correlated watchdog configuration

This chapter contains the following topics:

1. Global view
2. Watchdog indicator
3. Watchdog threshold
4. Threshold statement
5. Correlated watchdog
6. Watchdog indicator email
7. Correlated watchdog email
8. Reference data tables

22.1 Global view

These settings allow you to configure the **Watchdog indicator** and **Correlated watchdog**.

22.2 **Watchdog indicator**

To define a **Watchdog indicator** you can either reuse the watchdog defined with the corresponding indicator definition (based on a simple output parameter) or declare a more complicated logic relying on a logical expression.

Property	Definition
Code	The code must respect the naming convention applied to the identifier (primary key).
Label	Any name is possible.
Indicator	The Indicator definition on which the watchdog is defined.
Email template	The template used to send the email in case the watchdog indicator is raised.
Is active	If set to 'Yes': the watchdog indicator is active. If set to 'No': the watchdog indicator doesn't execute. Default value: Yes
Threshold defined at indicator's level	If set to 'Yes': the watchdog declared at the 'Indicator definition' level is reused. It is a ready-to-use watchdog that directly relies on the test of a boolean output parameter. If set to 'No': the watchdog is defined through a logical expression using thresholds and allows you to do more than testing a boolean output. See the 'Watchdog threshold' property.
Watchdog threshold	Allows you to define a logical expression using threshold statements that determine whether a watchdog indicator should be raised.

Table 44: Watchdog - Watchdog indicator

22.3 **Watchdog threshold**

This table allows you to declare the logical expression of the watchdog threshold. It is composed using one to many specified thresholds.

Property	Definition
Watchdog indicator	Link to the watchdog indicator
Threshold statement	Link to the watchdog statement that participates in the watchdog threshold
Logical operator	The logical operator used to build the logical expression based on the thresholds. 'void' or 'not' is used for the first statement.

Table 45: Watchdog - Watchdog threshold

22.4 **Threshold statement**

A **Threshold statement** defines a formula that compares an indicator's output parameter to a pre-defined value. The comparison returns a boolean value that determines whether to raise a watchdog indicator.

Property	Definition
Code	The code must respect the naming convention applied to the identifier (primary key)
Indicator	The indicator on which this threshold statement applies.
Output parameter	The first output parameter of this threshold statement.
Comparison operator	The comparison operator to use.
Value	The value to compare
Output parameter 2	The second output parameter in case the indicator has one or more outputs with the same type as the first output parameter. This is used only when the 'Value' property is empty.

Table 46: Watchdog - Threshold statement

22.5 **Correlated watchdog**

You can use this table to define correlated watchdog indicators.

Property	Definition
Code	The code must respect the naming convention applied to the identifier (primary key)
Label	Name of this correlated watchdog indicator.
Dataset storage	The dataset storage containing the watchdog indicator results to be correlated.
Is timeless	If set to 'True': the watchdog accepts results from any time interval. If set to 'False': the results must be within the configured interval to be accepted (see the 'Correlation time' property). If they are not, then the correlated watchdog won't fire. Default value: True
Correlation time	The time interval for the results to be accepted. This field is only shown if 'Is timeless' property is set to 'False'.
Watchdog indicator emails inactive	When a correlated watchdog indicator is evaluated, watchdog indicators which are parts of the correlation may have been executed right before the correlated watchdog indicator. Set this option to 'True' to prevent emails associated with child watchdog indicators to be sent if the parent correlated watchdog indicator has been raised. Default value: True
Email template	The template used to send the email when this correlated watchdog indicator is raised.
Is active	Determines whether this correlated watchdog indicator is active or not. Default value: True
Watchdogs to correlate	This group allows you to declare the logical expression of the correlated watchdog threshold. It is composed using one to many specified watchdog indicators. • Watchdog indicator: Link to the watchdog indicator • Indicator on D.E.C.: Link to the indicator on D.E.C. • Logical operator: Link to the logical operator. 'void' or 'not' is mandatory and can only be used once.
Correlated watchdogs	Displays the watchdog thresholds associated with occurences of the 'Watchdogs to correlate' group.

Table 47: Watchdog - Correlated watchdog

22.6 **Watchdog indicator email**

You can use this table to subscribe recipients to watchdog indicator email alerts. When selecting main and copied recipients, you can add individual user profiles or role profiles to email all in a group.

Property	Definition
Watchdog indicator	Link to the watchdog indicator.
Recipients	Main recipients.
Copies	Recipients as copies.
Blank copies	Additional hidden recipients.
Is active	If set to True: the email is sent. If set to False: the email notification is stopped. Default value: True

Table 48: Watchdog - Watchdog indicator email

22.7 **Correlated watchdog email**

You can use this table to subscribe recipients to correlated watchdog indicator email alerts.

The structure of this table is similar to that of the **Watchdog indicator email** table. The only difference is the **Watchdog indicator** field is replaced by the **Correlated watchdog** as the email subscription applied to a correlated watchdog indicator.

Property	Definition
Correlated watchdog indicator	Link to the correlated watchdog.
Recipients	Main recipients.
Copies	Recipients as copies.
Blank copies	Additional hidden recipients.
Is active	If set to True: the email is sent. If set to False: the email notification is stopped. Default value: True

Table 49: Watchdog - Correlated watchdog email

22.8 **Reference data tables**

Table	Definition
Comparison operator	Defines the operators used to compare values.
Logical operator	Defines the operators used to combine the logical values.
Email template	This table defines the text templates which are sent in email subscriptions in case correlated watchdog indicators or watchdog indicators are raised. This is similar to the 'Email template' table from the 'Indicators' group.

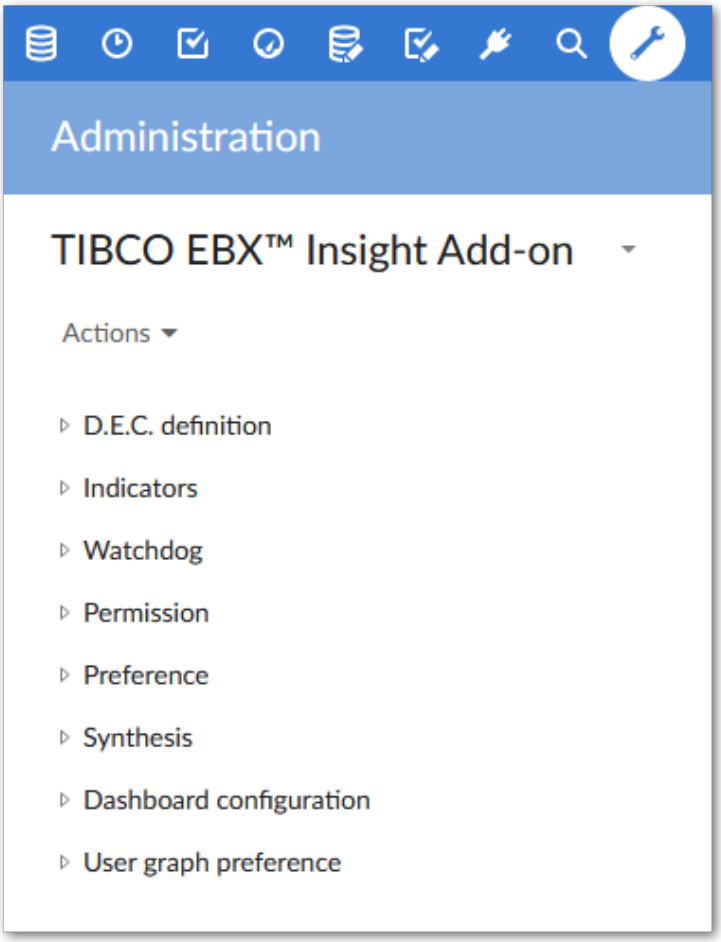
Table 50: Watchdog - Reference data tables

CHAPTER 23

Migration

Version 2.2.0

Migration to version 2.2.0 involves two steps. The first step happens automatically behind the scene when you register the add-on. To complete the second step, navigate to the **TIBCO EBX® Insight Add-on** dataset and from its **Actions** menu, run the **Migration** service. To ensure that all rules defined by other modules are migrated when upgrading to a new version, you must run the **Migration** service after starting the server. Additionally, if you import an old archive file (`.ebx`) into the **TIBCO EBX® Insight Add-on** dataset, you need to run the **Migration** service.



CHAPTER 24

Appendix

This chapter contains the following topics:

1. Report data structures
2. API to draw charts
3. Correlated watchdog use case

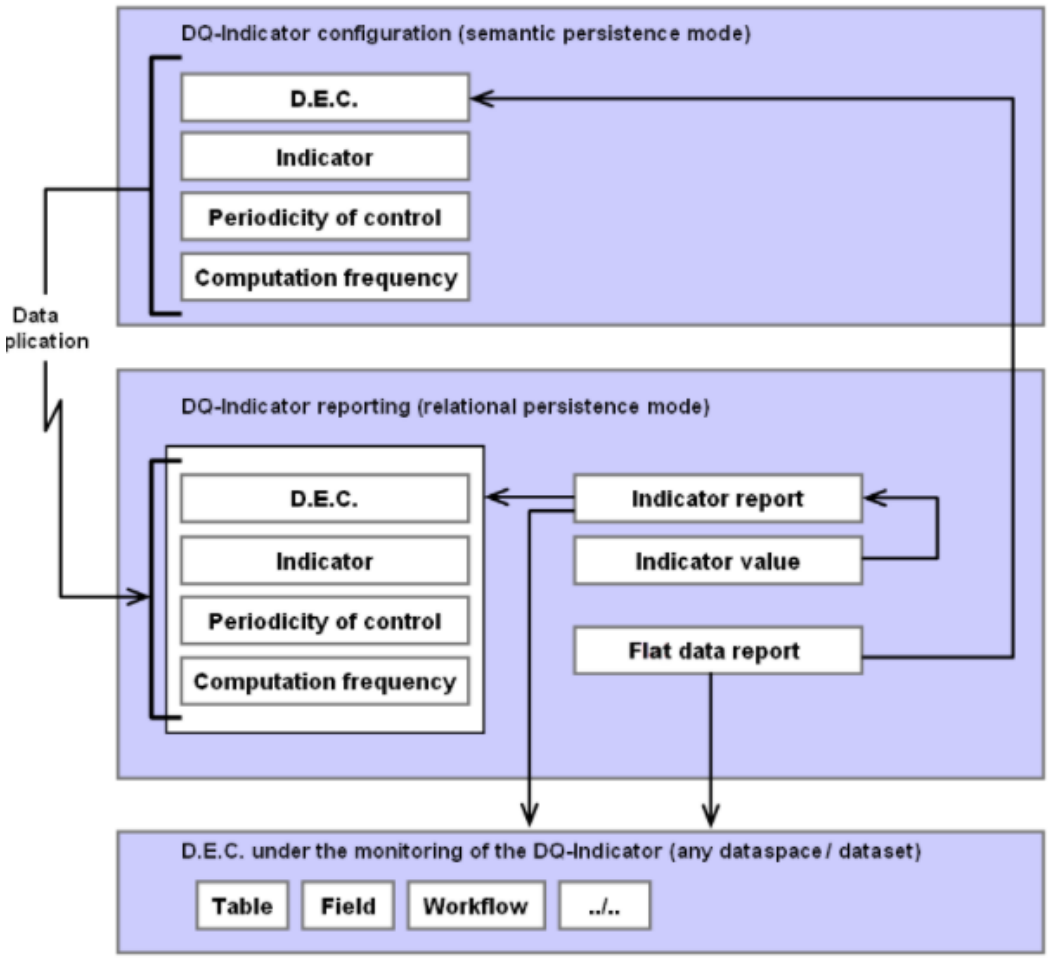
24.1 Report data structures

Global view

Two data structures are used to store indicator results. They are compliant with the relational persistent mode in EBX®:

- **Indicator report** and **Indicator value** can store any type of indicator results. These tables can be used by any third party SQL tools to generate reports. The storage of a result is based on a neutral data type (string) with additional information that specifies the actual data type to allow an external data cast, if needed.
- **Flat data report** (or **Big data report** in versions prior to v2.0.0) is a unique table that fully de-normalizes the storage of the indicator results in order to generate reports directly in EBX® without any use of external SQL third party tools. This de-normalization no longer requires the table to be extended whenever a new type of result is introduced. The same type of result can be shared by an infinite number of indicators. For instance, a date and time field can be used to store the date of a table modification, a field modification, a workflow modification, etc.

These two data structures share some reference data that is also compliant with the EBX® relational persistence mode. The reference data is synchronized from the semantic configuration data model in real-time as well as through a refresh service (see the *Results storage* section above in this user guide).



Reference data

D.E.C. table

Property	Definition
D.E.C. code	Code of the Data Element Concept.
Last modification	Timestamp of the last modification of the record.
D.E.C. type	Value of the D.E.C. type.
Table code	Value of the business table code.
Table link	Link to the table in the dataspace and dataset configured at D.E.C. definition.
Group code	Value of the business group code.
Field code	Value of the business field code.
Field link	Link to the table in the dataspace and dataset configured at the time of the D.E.C. definition.
Language 1	First EBX® locale.
Label 1	Label in language 1.
Language 2	Second EBX® locale.
Label 2	Label in language 2
Language 3	Third EBX® locale.
Label 3	Label in language 3.
Removed	Boolean If set to 'True': the D.E.C. has been deleted from the configuration. If set to 'False': the D.E.C. exists in the configuration.
Validity status	Value of the validity status.
Owner's email	List of emails configured at the administrator level and owner fields in the D.E.C. definition.

Table 51: Reporting - D.E.C.

Indicator table

Property	Definition
Indicator code	Code of the indicator.
Last modification	Timestamp of the last modification of the record.
Language 1	First EBX® locale.
Label 1	Business label of the indicator in the language 1.
Language 2	Second EBX® locale.
Label 2	Business label of the indicator in the language 2.
Language 3	Third EBX® locale.
Label 3	Business label of the indicator in the language 3.
Removed	Boolean If set to 'True': the indicator has been deleted from the configuration. If set to 'False': the indicator exists in the configuration.

Table 52: Reporting - Indicator

Periodicity of control table

Property	Definition
Code	Code of the periodicity of control.
Language 1	First EBX® locale.
Label 1	Business label of the periodicity of control in the language 1.
Language 2	Second EBX® locale.
Label 2	Business label of the periodicity of control in the language 2.
Language 3	Third EBX® locale.
Label 3	Business label of the periodicity of control in the language 3.

Table 53: Reporting - Periodicity of control

Computation frequency table

Property	Definition
Code	Code of the computation frequency.
Language 1	First EBX® locale.
Label 1	Business label of the computation frequency in the language 1.
Language 2	Second EBX® locale.
Label 2	Business label of the computation frequency in the language 2.
Language 3	Third EBX® locale.
Label 3	Business label of the computation frequency in the language 3.

Table 54: Reporting - Computation frequency

Indicator report tables

Indicator report table

Property	Definition
Oid	Automatic assigned primary key.
Indicator	Foreign key to the 'Indicator' reference table.
Dataspace	Dataspace in which the indicator has been executed.
Dataset	Date set in which the indicator has been executed.
Table path	Path of the table in the data structure.
Group path	Path of the group in the data structure.
Field path	Path of the field in the data structure.
Workflow publication key	Workflow identification
Operation key	Operation identification
Business rule key	Business rule identification
Permission rule key	Permission rule identification
Record predicate	Full link to the record including the primary key value.
D.E.C.	Foreign key to the reference table D.E.C. (in the relational model).
Timestamp	Timestamp of the indicator execution.
Is automatic	If set to 'True': execution is performed by the system either in real-time or through a scheduler. If set to 'False': execution is performed by a human user ('on demand' computation frequency).
User	User that executed the indicator.
Periodicity of control code	Foreign key to the periodicity of control.
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Integer type.
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined

Property	Definition
	Integer type.
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Decimal type.
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined Decimal type.
Tolerance number	Tolerance number of the indicator when a watchdog is defined.
Execution id	A string that uniquely identifies all result records from the same execution of one or multiple indicators.

Table 55: Reporting - Indicator report

Indicator value table

Property	Definition
Oid	Automatically assigned primary key.
Indicator report	Foreign key to the 'Indicator' report table.
Timestamp	Timestamp of the 'Indicator' report table.
Sequence number	If the indicator can store a list of results, the sequence number gives the current iteration number in the list. When no list is used, the sequence number is always '1'.
Order in the sequence	In a sequence, one to multiple outputs can be saved by an indicator. If only one output is possible, then the value of the order is always '1'.
Value	Value of the output is stored in a neutral data type (string).
Output description	Name of the output parameter.
Type	Data type of the parameter to allow external data casts if needed.

Table 56: Reporting - Indicator value

Flat reporting tables

Flat data report table

Since the GA 2.0.0 release, this table replaces **Big data report** as the main flat reporting table supported by the add-on. It has the same structure as the **Big data report** table but offers more generic output fields for indicator results based on data types to avoid requiring future extension.

Common fields: List of fields for indicator execution and general analytics. These fields are recreated from the **Big data report** table.

Property	Definition
Oid	Automatically assigned primary key.
Execution identifier	A string that uniquely identifies all result records from the same execution of one or more indicators.
Execution date	Time-stamp of the indicator execution.
Sequence number	If the indicator can store a list of results, the sequence number gives the current iteration number in the list. When no list is used, the sequence number is always '1'.
Operation	Not used for reporting. This field allows you to manage a pop-up menu at the record level to include certain business operations in the UI report.
Watchdog raised	Boolean
Automatic email sent	Boolean
Indicator code	Value of the indicator code.
Indicator name	Value of the indicator name in the language used when the indicator was executed.
D.E.C.	Foreign key to the definition of the D.E.C. in the configuration data model (in the semantic model).
D.E.C. code	The value of the D.E.C. code.
Dataspace	Dataspace in which the indicator has been executed.
Date set	Dataset in which the indicator has been executed.
Table path	Path of the table.
Table code	Value of the business table code.
Table name	Name of the table in the language used when the indicator was executed.
Table link	Link to the table in the dataspace and dataset where the indicator was executed.
Table filter predicate	The predicate used to filter the table.
Group path	Path of the group.
Group code	Value of the business group code.
Group name	Name of the group in the language at the time the indicator was executed.

Property	Definition
Field path	Path of the field.
Field code	Value of the business field code.
Field name	Name of the field using the language when the indicator was executed.
Record predicate	Full link to the record including the primary key value.
Record link	Holds a value function used to build the link to the record by using the 'Record predicate'.
Workflow publication	The name of the workflow publication in the language when the indicator was executed.
Workflow publication key	Holds the name of the key that identifies the workflow publication on which the indicator was executed.
User task key	Holds the name of the key that identifies the user task on which the indicator was executed.
Operation key	Holds the name of the key that identifies the operation on which the indicator was executed.
Operation name	The name of the operation as referenced in the TIBCO EBX® Activity Monitoring Add-on.
Business rule key	Holds the name of the key that identifies the business rule on which the indicator was executed.
Business rule label	The name of the business rule as referenced in the TIBCO EBX® Rules Portfolio Add-on.
Permission rule key	Holds the name of the permission rule that identifies the user task on which the indicator was executed.
Permission rule label	The name of the permission rule as referenced in the EBX® Rules Portfolio Add-on.
User	User at the time the indicator was executed.
Language	Language at the time the indicator was executed.
Periodicity of control	Code of the periodicity of control.
Periodicity of control name	Label of the periodicity of control in the language of the current locale (computed value).
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Integer data type.
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined Integer data type.
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Decimal data type.

Property	Definition
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined Decimal data type.
Tolerance	Tolerance number of the indicator when a watchdog is defined

Generic output fields for indicator results: Their labels and descriptions will be replaced with those from an indicator's output parameters in the EBX® Insight Add-on services.

Property	Definition
Integer 1	Generic integer field.
Integer 2	Generic integer field.
Integer 3	Generic integer field.
Integer 4	Generic integer field.
Integer 5	Generic integer field.
Integer 6	Generic integer field.
Integer 7	Generic integer field.
Integer 8	Generic integer field.
Integer 9	Generic integer field.
Integer 10	Generic integer field.
Big decimal 1	Generic decimal field.
Big decimal 2	Generic decimal field.
Big decimal 3	Generic decimal field.
Big decimal 4	Generic decimal field.
Big decimal 5	Generic decimal field.
Big decimal 6	Generic decimal field.
Big decimal 7	Generic decimal field.
Big decimal 8	Generic decimal field.
Big decimal 9	Generic decimal field.
Big decimal 10	Generic decimal field.
Short string 1	Generic string field. Max length: 255 characters.

Property	Definition
Short string 2	Generic string field. Max length: 255 characters.
Short string 3	Generic string field. Max length: 255 characters.
Short string 4	Generic string field. Max length: 255 characters.
Short string 5	Generic string field. Max length: 255 characters.
Short string 6	Generic string field. Max length: 255 characters.
Short string 7	Generic string field. Max length: 255 characters.
Short string 8	Generic string field. Max length: 255 characters.
Short string 9	Generic string field. Max length: 255 characters.
Short string 10	Generic string field. Max length: 255 characters.
Long string 1	Generic string field. Max length: 2000 characters.
Long string 2	Generic string field. Max length: 2000 characters.
Long string 3	Generic string field. Max length: 2000 characters.
Long string 4	Generic string field. Max length: 2000 characters.
Long string 5	Generic string field. Max length: 2000 characters.
Boolean 1	Generic Boolean field.
Boolean 2	Generic Boolean field.

Property	Definition
Boolean 3	Generic Boolean field.
Boolean 4	Generic Boolean field.
Boolean 5	Generic Boolean field.
Boolean 6	Generic Boolean field.
Boolean 7	Generic Boolean field.
Boolean 8	Generic Boolean field.
Boolean 9	Generic Boolean field.
Boolean 10	Generic Boolean field.
Date 1	Generic date field.
Date 2	Generic date field.
Date 3	Generic date field.
Date 4	Generic date field.
Date 5	Generic date field.
Date 6	Generic date field.
Date 7	Generic date field.
Date 8	Generic date field.
Date 9	Generic date field.
Date 10	Generic date field.
Date and time 1	Generic date and time field.
Date and time 2	Generic date and time field.
Date and time 3	Generic date and time field.
Date and time 4	Generic date and time field.
Date and time 5	Generic date and time field.

Property	Definition
Date and time 6	Generic date and time field.
Date and time 7	Generic date and time field.
Date and time 8	Generic date and time field.
Date and time 9	Generic date and time field.
Date and time 10	Generic date and time field.
Percentage 1	Generic percentage field.
Percentage 2	Generic percentage field.
Percentage 3	Generic percentage field.
Percentage 4	Generic percentage field.
Percentage 5	Generic percentage field.
Interval 1	Generic interval field. See 'Interval format' for more information.
Interval 2	Generic interval field. See 'Interval format' for more information.
Interval 3	Generic interval field. See 'Interval format' for more information.
Interval 4	Generic interval field. See 'Interval format' for more information.
Interval 5	Generic interval field. See 'Interval format' for more information.
User profile 1	Generic field for EBX®'s users.
User profile 2	Generic field for EBX®'s users.
User profile 3	Generic field for EBX®'s users.
User profile 4	Generic field for EBX®'s users.
User profile 5	Generic field for EBX®'s users.

Big data report table

Property	Definition
Oid	Automatically assigned primary key.
Indicator code	Value of the indicator code.
Indicator name	Value of the indicator name in the language at the time the indicator was executed.
Operation	Not used for reporting. This field allows managing a pop-up menu at the record level to include certain business operations in the UI report.
Dataspace	Dataspace in which the indicator has been executed.
Date set	Dataset in which the indicator has been executed.
Table path	Path of the table.
Group path	Path of the group.
Field path	Path of the field.
Record predicate	Full link to the record including the primary key value.
Execution date	Time-stamp of the indicator execution.
Watchdog raised	Boolean
Automatic email sent	Boolean
Sequence number	If the indicator can store a list of results, the sequence number gives the current iteration number in the list. When no list is used, the sequence number is always '1'.
User	User at the time the indicator was executed.
Language	Language at the time the indicator was executed.
D.E.C.	Foreign key to the definition of the D.E.C. in the configuration data model (in the semantic model).
D.E.C. code	The value of the D.E.C. code.
Table D.E.C.	Foreign key to the configuration of the D.E.C. (in the semantic model).
Table code	Value of the business table code.
Table name	Name of the table in the language at the time the indicator was executed.

Property	Definition
Table link	Link to the table in the dataspace and dataset where the indicator was executed.
Filter predicate	The predicate used to filter the target table.
Group D.E.C.	Foreign key to the configuration of the D.E.C. (in the semantic model).
Group code	Value of the business group code.
Group name	Name of the group in the language at the time the indicator was executed.
Field D.E.C.	Foreign key to the definition of the D.E.C. in the configuration data model (in the semantic model).
Field code	Value of the business field code.
Field name	Name of the field in the language at the time the indicator was executed.
Workflow D.E.C.	Foreign key to the configuration of the D.E.C. (in the semantic model).
Workflow publication	The name of the workflow publication in the language at the time the indicator was executed.
Workflow publication key	Holds the name of the key that identifies the workflow publication on which the indicator was executed.
User task key	Holds the name of the key that identifies the user task on which the indicator was executed.
Operation key	Holds the name of the key that identifies the operation on which the indicator was executed.
Operation name	The name of the operation as referenced in the EBX® Activity Monitoring Add-on.
Business rule key	Holds the name of the key that identifies the business rule on which the indicator was executed.
Business rule label	The name of the business rule as referenced in the EBX® Rules Portfolio Add-on.
Permission rule key	Holds the name of the permission rule that identifies the user task on which the indicator was executed.
Permission rule label	The name of the permission rule as referenced in the EBX® Rules Portfolio Add-on.
Record link	This field holds a value function used to build the link to the record by using the "Record predicate".
Periodicity of control	Code of the periodicity of control.
Periodicity of control name	Label of the periodicity of control in the language of the current locale (computed value).
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Integer data type.

Property	Definition
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined Integer data type.
Minimum threshold	Minimum threshold of the indicator when a watchdog is defined Decimal data type.
Maximum threshold	Maximum threshold of the indicator when a watchdog is defined Decimal data type.
Tolerance	Tolerance number of the indicator when a watchdog is defined
Date of last update	Result of the indicator Data type: Date
Table updated	Result of the indicator Data type: Boolean
Field updated	Result of the indicator Data type: Boolean
Field empty	Result of the indicator Data type: Boolean
Golden when creation	Result of the indicator. True when the new record is a golden one. Data type: Boolean
Golden when modification	Result of the indicator. True when the modified record becomes a golden one. Data type: Boolean
Table completeness rate	Result of the indicator. Percentage of completeness of a table based on the completeness of every records (fields empty or not). Data type: Decimal
Above max. highest frequency	Data type: Boolean
Below min. highest frequency	Data type: Boolean
Above max. lowest frequency	Data type: Boolean
Below min. lowest frequency	Data type: Boolean
Most frequent value	Most frequent value of a field in a table. Data type: String

Property	Definition
Most frequent frequency	Frequency of the most frequent value of a field in a table. Data type: Decimal
Most frequent number records	Number of records of the most frequent value of a field in a table. Data type: Integer
Least frequent value	Least frequent value of a field in a table. Data type: String
Least frequent frequency	Frequency of the least frequent value of a field in a table. Data type: Decimal
Least frequent number of records	Number of records of the least frequent value of a field in a table. Data type: Integer
Number of creation(s)	Number of creation operation(s) on a table. Data type: Integer
Number of users for creation	Data type: Integer
Number of modification(s)	Number of modification operation(s) on a table. Data type: Integer
Number of user for modification	Data type: Integer
Number of deletion(s)	Number of deletion operation(s) on a table. Data type: Integer
Number of user for deletion	Data type: Integer
Total number of creation(s)	Total number of creation operation(s) on all tables of a dataset. Data type: Integer
Total number of modification(s)	Total number of modification operation(s) on all tables of a dataset. Data type: Integer
Total number of deletion(s)	Total number of deletion operation(s) on all tables of a dataset. Data type: Integer
Average number of creation(s)	Average number of creation operation(s) on all tables of a dataset. Data type: Decimal
Average number of modification(s)	Average number of modification operation(s) on all tables of a dataset.

Property	Definition
	Data type: Decimal
Average number of deletion(s)	Average number of deletion operation(s) on all tables of a dataset. Data type: Decimal
Table freshness (in days)	Freshness of a table in number of days. Data type: Decimal
Most active user	User the most active
Number of operations of most active	Data type: Integer
Least active user	User the less active
Number of operations of least active	Date type: Integer
Value outside the limit	Boolean True: the value is outside False: the value is not outside
Field value	Data type: Decimal
Field value	Data type: String
TRUE	Data type: Boolean
FALSE	Data type: Boolean
Undefined	Data type Boolean
Number of 'True'	Data type: Integer
Number of 'False'	Data type: Integer
Number of 'Undefined'	Data type: Integer
Group of fields completeness rate	Data type: Decimal
Missing pattern value	Result of the indicator
Number of records	Result of the indicator Data type:Integer

Property	Definition
Below min modification	Boolean value
Above max. modification	Boolean value
Number of modifications during the period	Result of the indicator
Oversee check	Boolean
Oversee value	String
Oversee value	Date
Oversee value	Decimal
Number of missing value	Integer
Percentage of missing value	Decimal
Is missing time series in the future	Boolean value
Missing time record in the future	String
Exceeded time in the future	Integer
Exceeded time in the past	Integer
Is missing time series in the past	Boolean
Missing time record in the past	String
Dataset completeness rate	Decimal
Dataset freshness	Decimal
Number of open dataspaces	Integer

Property	Definition
Number of close dataspaces	Integer
Number of open version (snapshot)	Integer
Number of close versions (snapshot)	Integer
Date difference (in days)	Result of the indicator Data type: Integer
Validity status	Value of the validity status of the indicator at the time of its execution.
Number of records	Result of the indicator Data type: Integer
Nb. of active publications	Result of the indicator Data type: Integer
Nb. of inactive publications	Result of the indicator Data type: Integer
Nb. of open workflow instances	Result of the indicator Data type: Integer
Nb. of allocated workitems	Result of the indicator Data type: Integer
Nb. of offered workitems	Result of the indicator Data type: Integer
Nb. of started workitems	Result of the indicator Data type: Integer
Nb. of completed workitems	Result of the indicator Data type: Integer
Nb. of error workitems	Result of the indicator Data type: Integer
Nb. of completed instances	Result of the indicator Data type: Integer
Average processing time	The processing time is the difference between the started date and the completed date.

Property	Definition
Nb. of started task	Data type: Integer
Nb. of not completed task	Data type: Integer
From date	Use for indicators: W-I04, W-I05, W-I06
To date	Use for indicators: W-I04, W-I05, W-I06
Workflow user	A user is assigned for one task in specified workflow.
Matching state	Matching states defined in the TIBCO EBX® Match and Cleanse Add-on.The possible states are: Definitive golden, Golden, Pivot, Suspicious, Suspect, Merged, Deleted, Unmatched, and To be matched.
Nb. of records per state	Number of records for each matching state.
Percentage per state	Percentage of records for each state over all records in a table.
Number of errors	Number of errors in the a table.
Number of warnings	Number of warnings in the a table.
Translation rate	The average result of translation rate between languages of localized labels in a table.
Product name	The name of the product to which an operation belongs.
Number of operation execution	The number of time an operation has been started.
Operation average execution time (in minutes)	The average execution time of an operation.
Nb. of snapshots without description	Data type: Integer
Nb. of dataspaces without description	Data type: Integer
Nb. of created child dataspaces	Data type: Integer
Nb. of created snapshot	Data type: Integer
Lifetime of dataspace	The duration between the creation time and the closure time of a dataspace represented through the 'Interval format' (see next properties).

Property	Definition
	Data type: Decimal
Dataspace name	Data type: String
Owner's email	List of emails configured at the administrator level and owner fields in the D.E.C. definition. Data type: String
Interval format	Duration formats such as: x weeks - y days, x days - y hours - z minutes - w seconds, etc. Data type: String
Task name	A workflow task name. Data type: String
Task duration of a workflow instance	The duration between the start time and end time of a workflow instance's task represented through the 'Interval format'. Data type: Decimal
Task average duration of all workflow instances	The average duration between the start time and end time of a task of all workflow instances represented through the 'Interval format'. Data type: Decimal
Number of values	Data type: Integer
Number of null/ empty values	Data type: Integer
Number of different values	Data type: Integer
Number of unique values	Data type: Integer
Number of duplicate values	Data type: Integer
Number of values equal to a value	Data type: Integer
Highest length	Data type: Integer
Lowest length	Data type: Integer
Average	The average value of a numeric series. Data type: Decimal
Median	The median value of a numeric series. Data type: Decimal

Property	Definition
First quartile	The first quartile value of a numeric series. Data type: Decimal
Third quartile	The third quartile value of a numeric series. Data type: Decimal
Range	The difference between the highest value and the lowest value of a numeric series. Data type: Decimal
Number of valid values	Data type: Integer
Number of invalid values	Data type: Integer
Number of invalid dates	Data type: Integer
Nb. of start dates not before end date	Data type: Integer
Nb. of values under the minimum	Data type: Integer
Nb. of values above the maximum	Data type: Integer
Nb. of values in the interval	Data type: Integer
Nb. of null relations	Number of records with empty foreign key. Data type: Integer
Nb. of broken relations	Number of records with invalid foreign key. Data type: Integer
Nb. of normal relations	Number of records with valid foreign key. Data type: Integer
Percentage of fulfillment	The percentage of completeness of a field against all records in table. Data type: Decimal
Nb. of records with null or empty value	Data type: Integer
Execution identifier	A string that uniquely identifies all result records from the same execution of one or multiple indicators.

Property	Definition
Linked record	Allows the user to get the list of linked records that are saved in the 'Linked record' table.
Watchdog indicator results	A link to display all the watchdog indicator reports evaluated against this big data record.
Removed	'True': The record is marked as deleted. Default value: False

Table 57: Reporting - Big data report

Record linked

Linked record table

Property	Definition
Oid	Automatic primary key.
Indicator	Foreign key to the 'Indicator' reference table.
D.E.C. (Data element concept)	Foreign key to the reference table D.E.C.
Dataspace	Dataspace containing the reference records.
Dataset	Date set containing the reference records.
Table	The table containing the reference records.
Linked record	Not used for reporting. This field allows you to manage a pop-up menu at the record level to show the referenced record.
Execution time	Time-stamp of the indicator execution.
Refers to big data report	To know at least one record in 'Big data report' table refers to this record.

Table 58: Reporting - Linked record

Linked item table

Property	Definition
Oid	Automatic assigned primary key.
Linked record	Refers to table "Linked record".
Record predicate	Predicate of a reference record.
Reference fields	The big data paths related to this record.If the value is empty, all result fields are considered. Otherwise, this record is associated to those specific paths.

Table 59: Reporting - Linked item

Watchdog report

Watchdog indicator report table

Property	Definition
Oid	Automatic primary key.
Execution date	Time-stamp of the watchdog indicator execution.
Watchdog	Foreign key to the definition of watchdog indicator in the configuration data model (in the semantic model).
D.E.C. (Data element concept)	Foreign key to the reference table D.E.C.
Watchdog threshold	The threshold on which the watchdog indicator has been evaluated.
Result	Indicates whether the watchdog indicator has been raised.

Table 60: Reporting - Watchdog indicator report

Watchdog indicator report - Flat data report table

Property	Definition
Watchdog indicator report	Foreign key to the watchdog indicator report.
Flat data report	Foreign key to the flat data report.

Table 61: Reporting - Watchdog indicator report - Flat data report

Watchdog indicator report - Big data report table

Property	Definition
Watchdog indicator report	Foreign key to the watchdog indicator report.
Big data report	Foreign key to the big data report.

Table 62: Reporting - Watchdog indicator report - Big data report

Correlated watchdog indicator report table

Property	Definition
Oid	Automatic primary key.
Execution date	Time-stamp of the watchdog indicator execution.
Correlated watchdog	Foreign key to the definition of correlated watchdog indicator in the configuration data model (in the semantic model).
Correlated watchdog threshold	The threshold on which the correlated watchdog indicator has been evaluated.
Result	Indicates the correlated watchdog indicator has been raised or not.
Watchdog indicator results	A link to display all the watchdog indicator reports of the correlation.

Table 63: Reporting - Correlated watchdog indicator report

Correlated watchdog indicator report - Watchdog indicator report table

Property	Definition
Correlated watchdog indicator report	Foreign key to the correlated watchdog indicator report.
Watchdog indicator report	Foreign key to the watchdog indicator report.

Table 64: Reporting - Correlated watchdog indicator report - Watchdog indicator report

24.2 API to draw charts

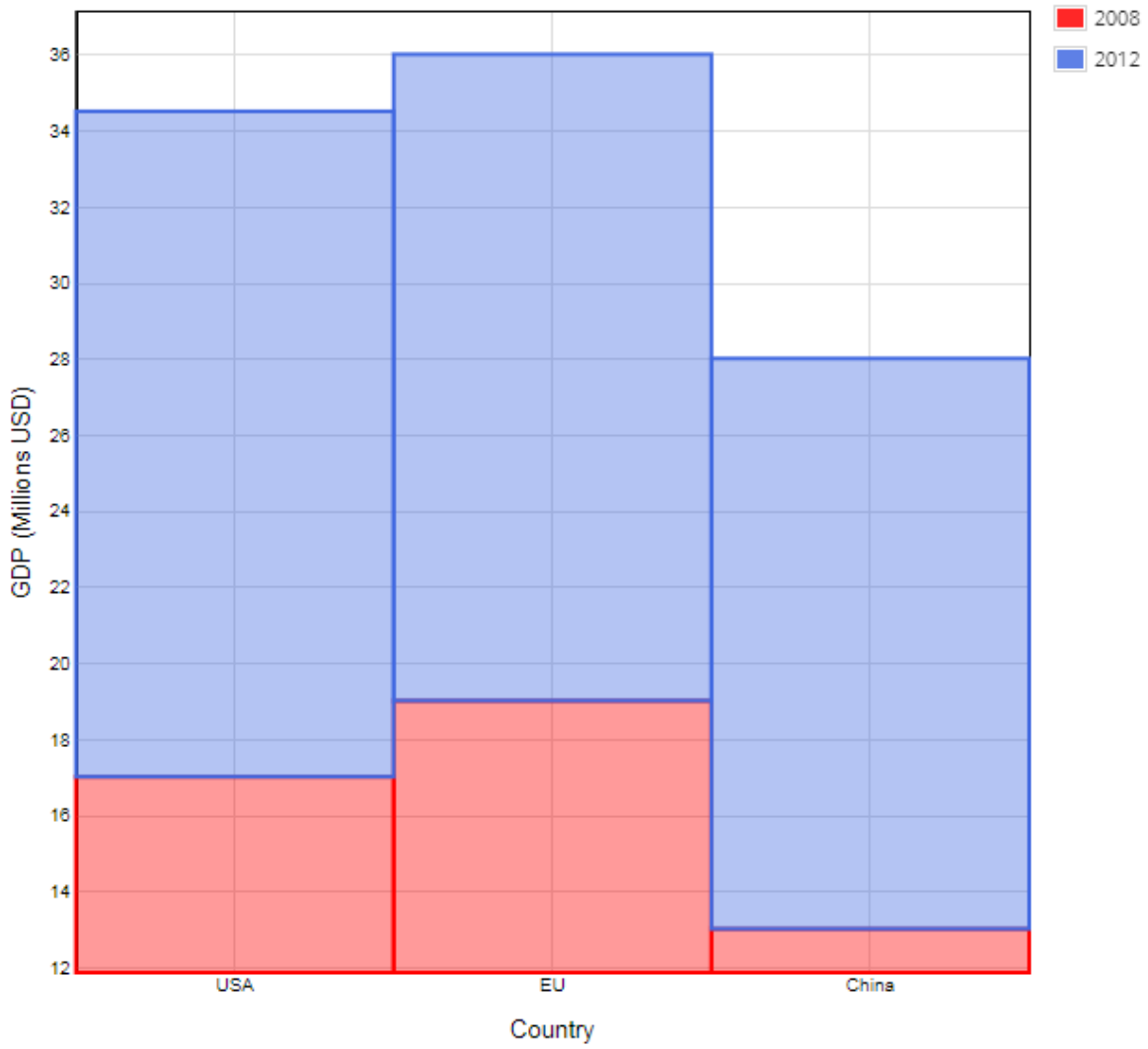
Description

The EBX® Insight Add-on provides a chart framework that allows the creation of various chart types. The provided API allows developers to create charts that are similar to the ones used in the analytics service but allowing custom data and options, therefore being independent of the add-on's scope.

The API allows the creation of the following chart types: line chart, bar charts, category bar charts, area charts and pie charts.

Example

The following image shows an example of a chart created using the API.



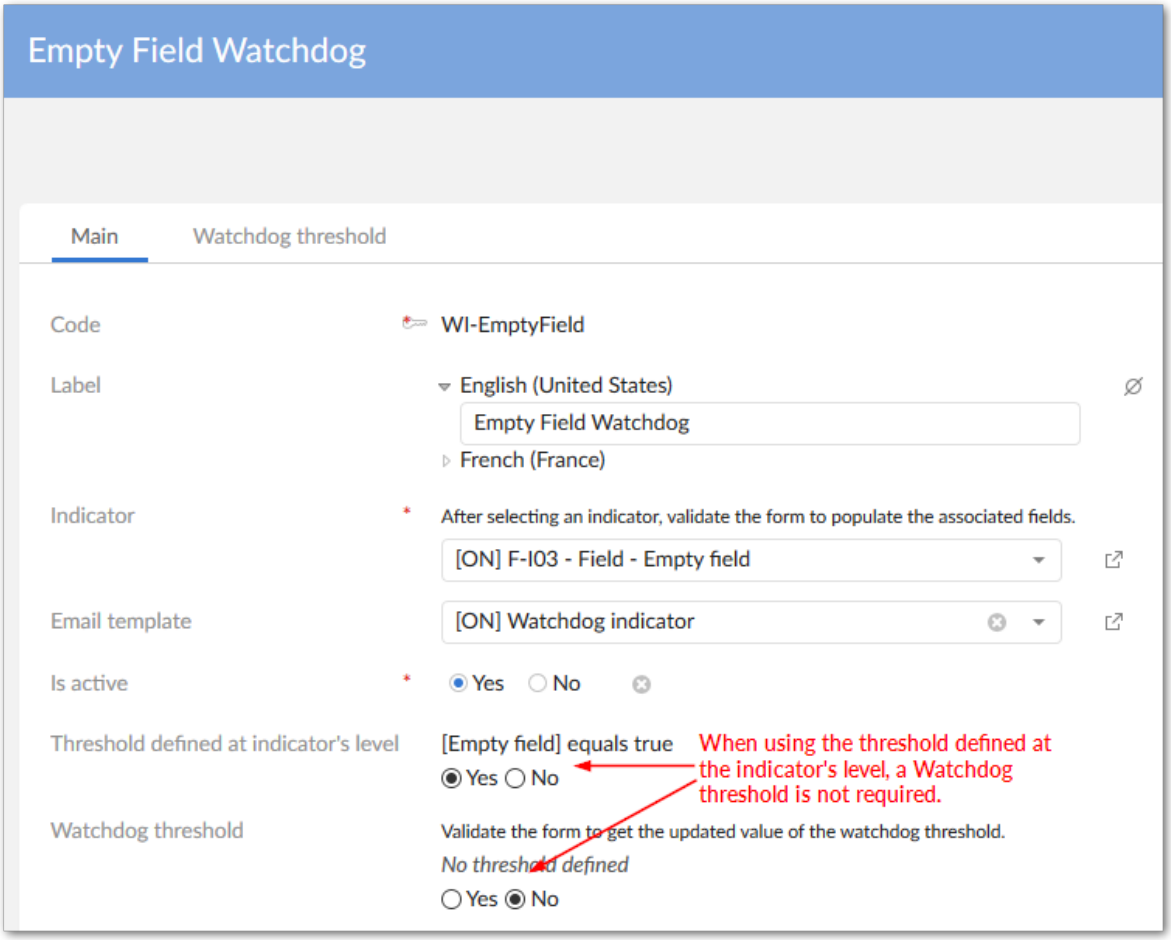
You can refer to the provided java documentation for details about how to use the API.

24.3 Correlated watchdog use case

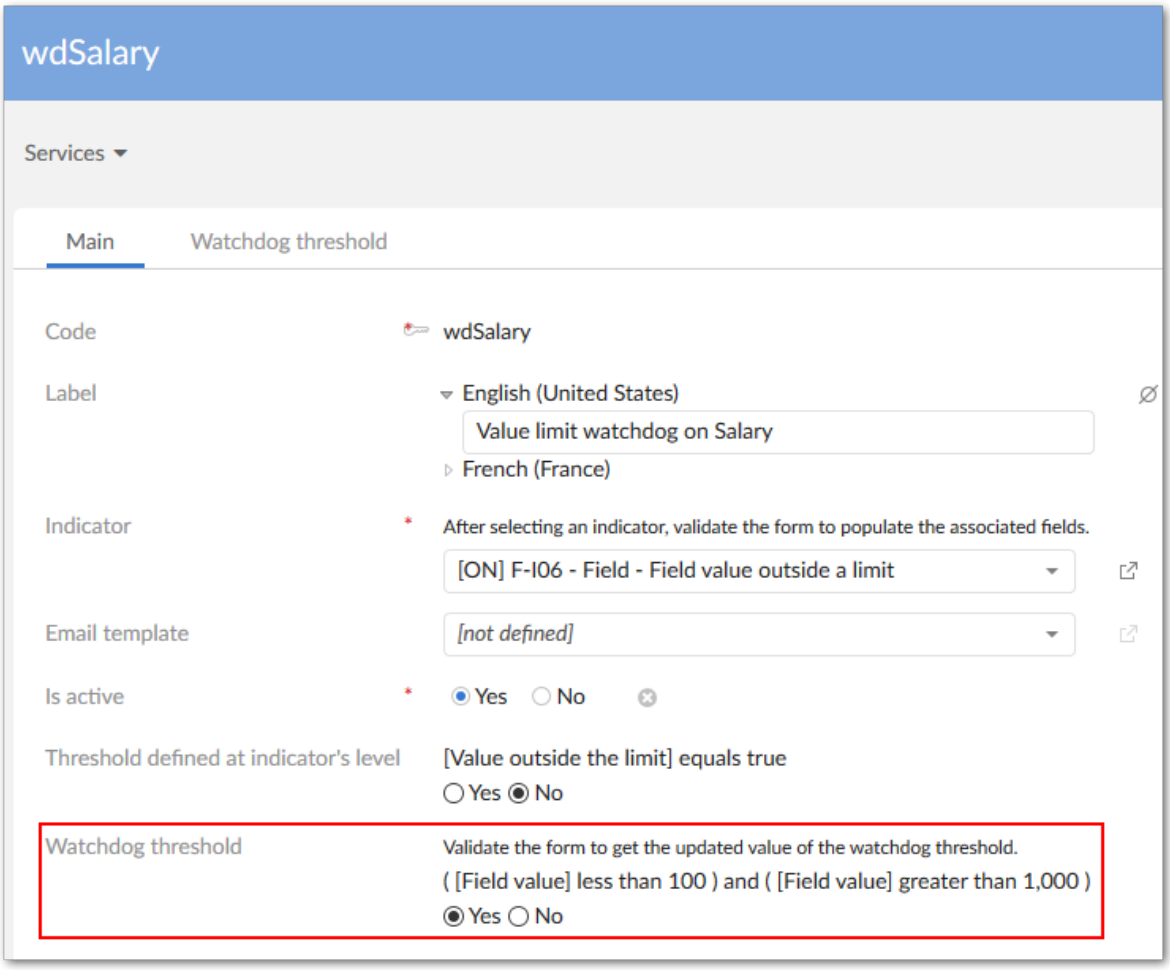
This appendix presents watchdog indicators and correlated watchdogs using several use cases.

Watchdog indicators based on threshold statements

Watchdog indicators can evaluate indicator results using watchdog thresholds, which give you the flexibility to define your own logic that compares any output parameter with a pre-defined value.

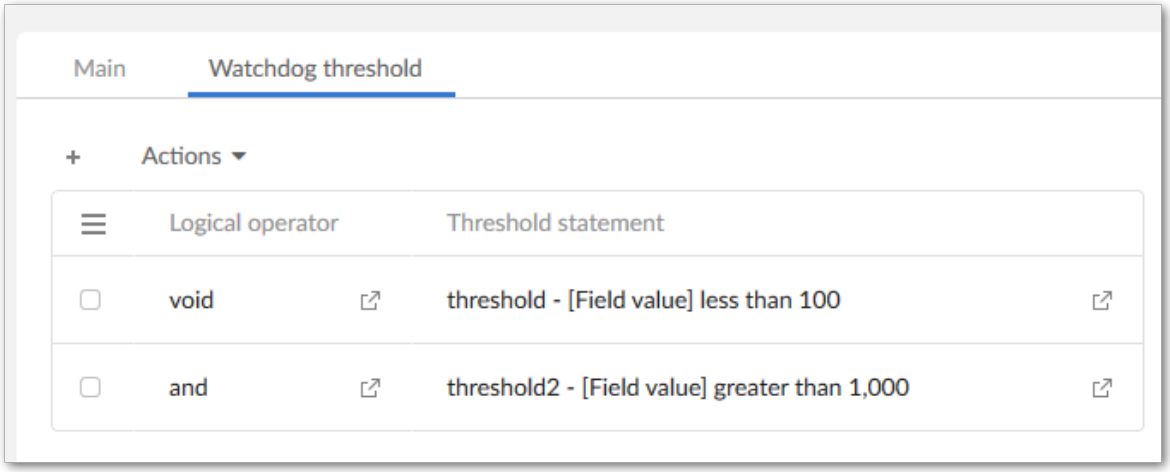


The example below shows how you can use the **Field value outside a limit ([ON] - FI06)** indicator to monitor salary values:

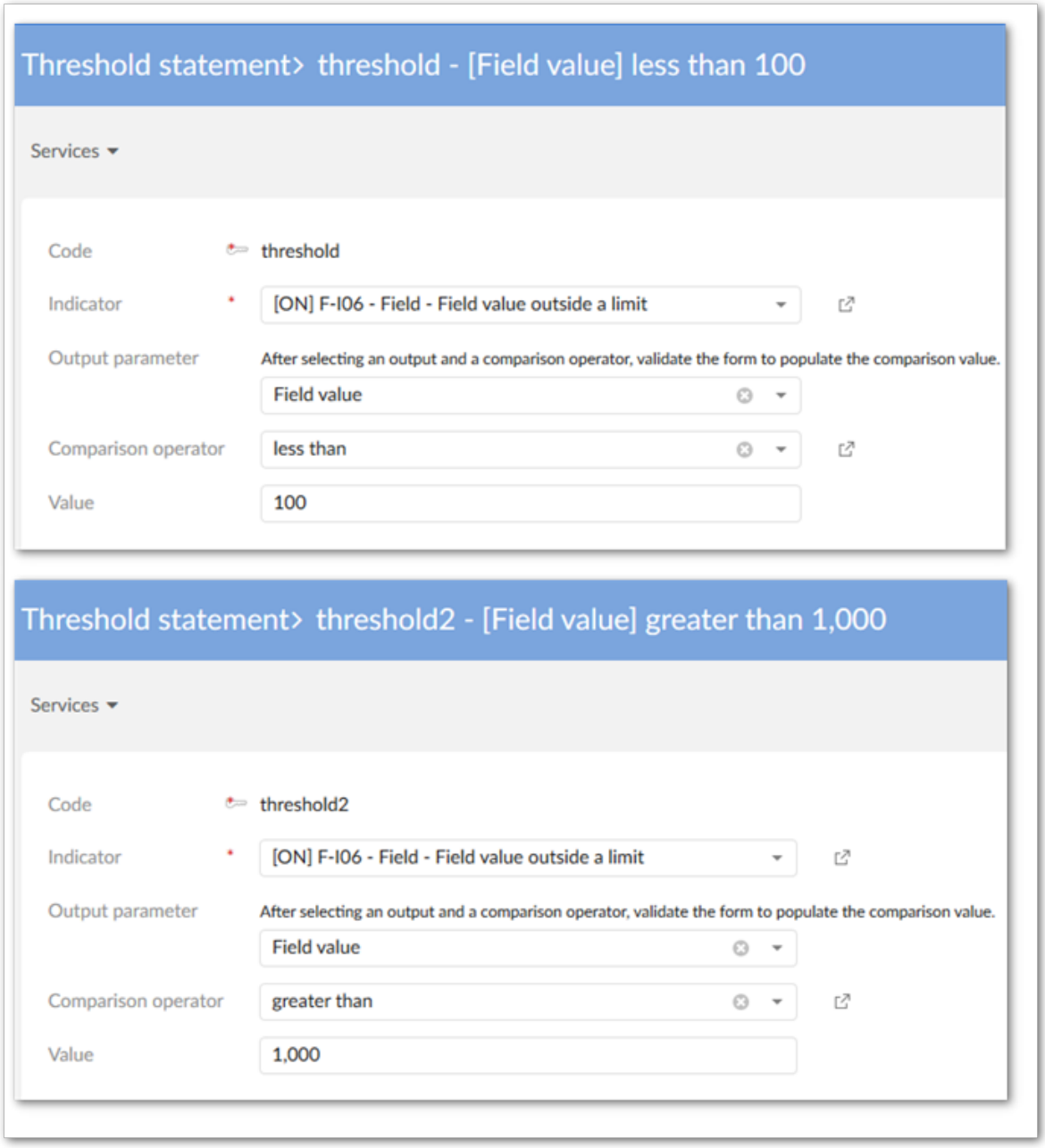


The indicator's watchdog configuration raises an alert when a salary value falls out of the specified range of [10 - 20]. The watchdog threshold raises an alert when a value falls within the range of [100 - 1000]. Using a watchdog threshold to create an alert allows you to keep and enrich existing indicators without having to modify their settings. Correlations between watchdog indicators will be illustrated later.

As shown below, you can define two watchdog threshold records to create a range value:



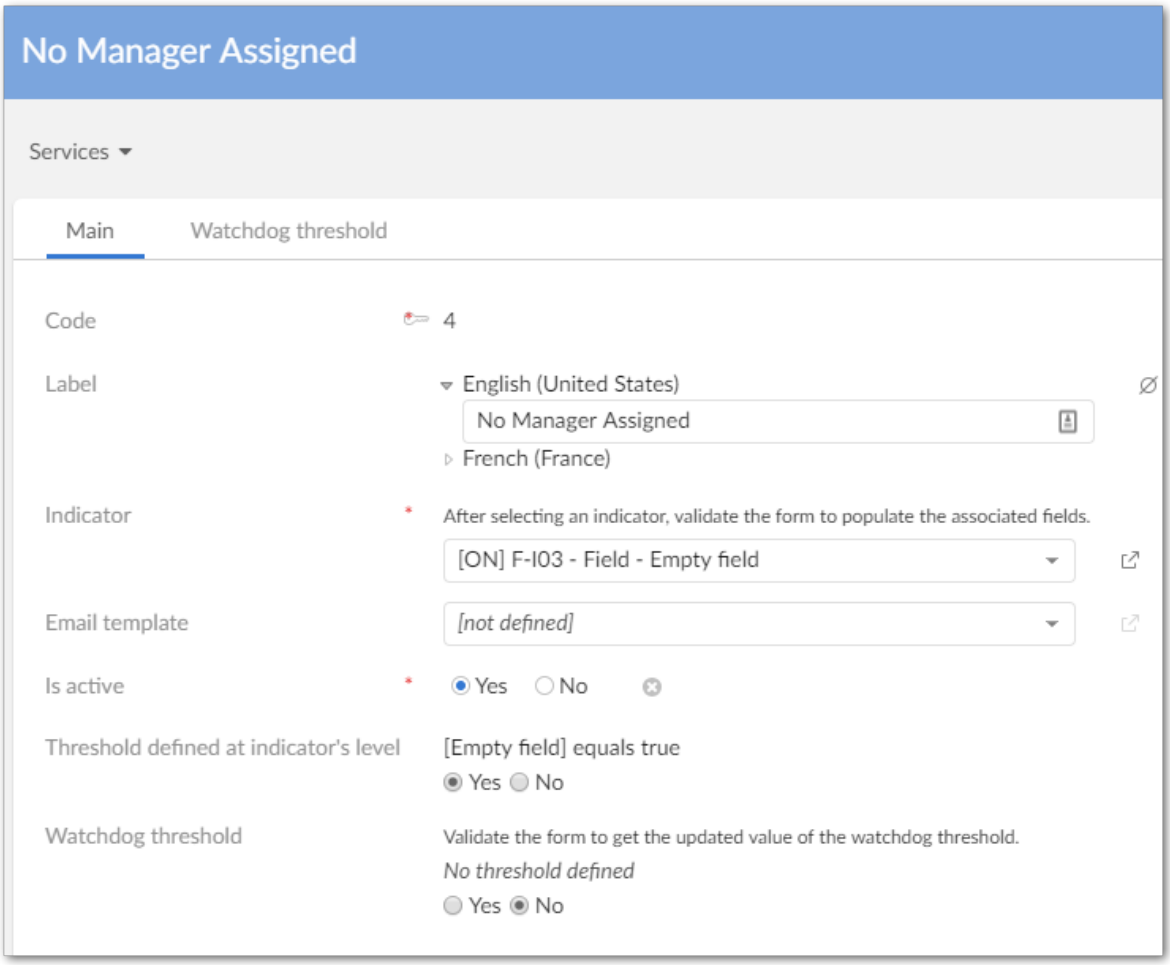
Each watchdog threshold is built on a logical operator and a threshold statement:



You can also define more complex logic between indicator outputs. See the example in the *Correlated Watchdog indicators* section.

Watchdog indicators based on the indicator's threshold

You can also configure a watchdog indicator that works on the threshold defined at indicator's level. By doing this, you can monitor that watchdog indicator together with other watchdog indicators in the same result UI, or use it as a part of a correlated indicator.

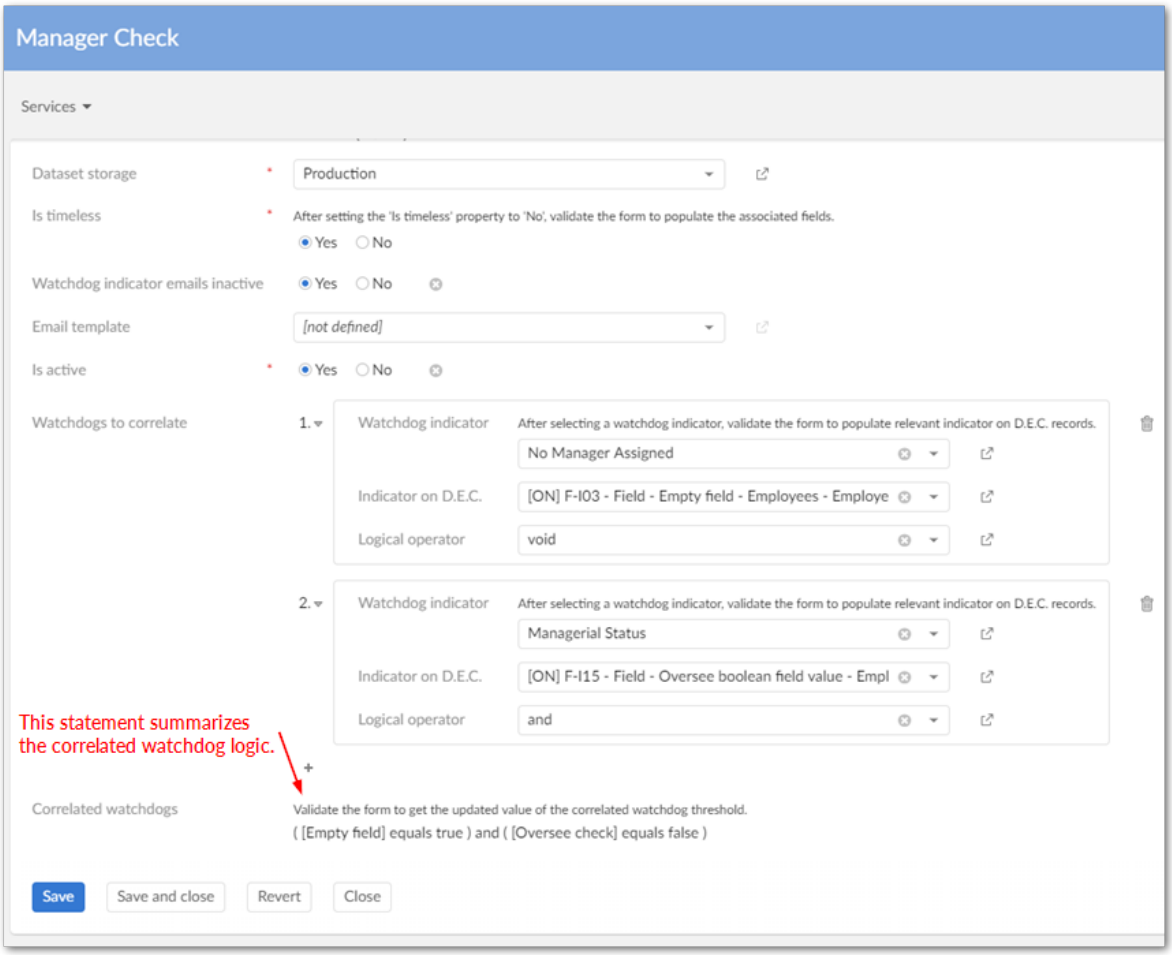


Correlated watchdog indicators

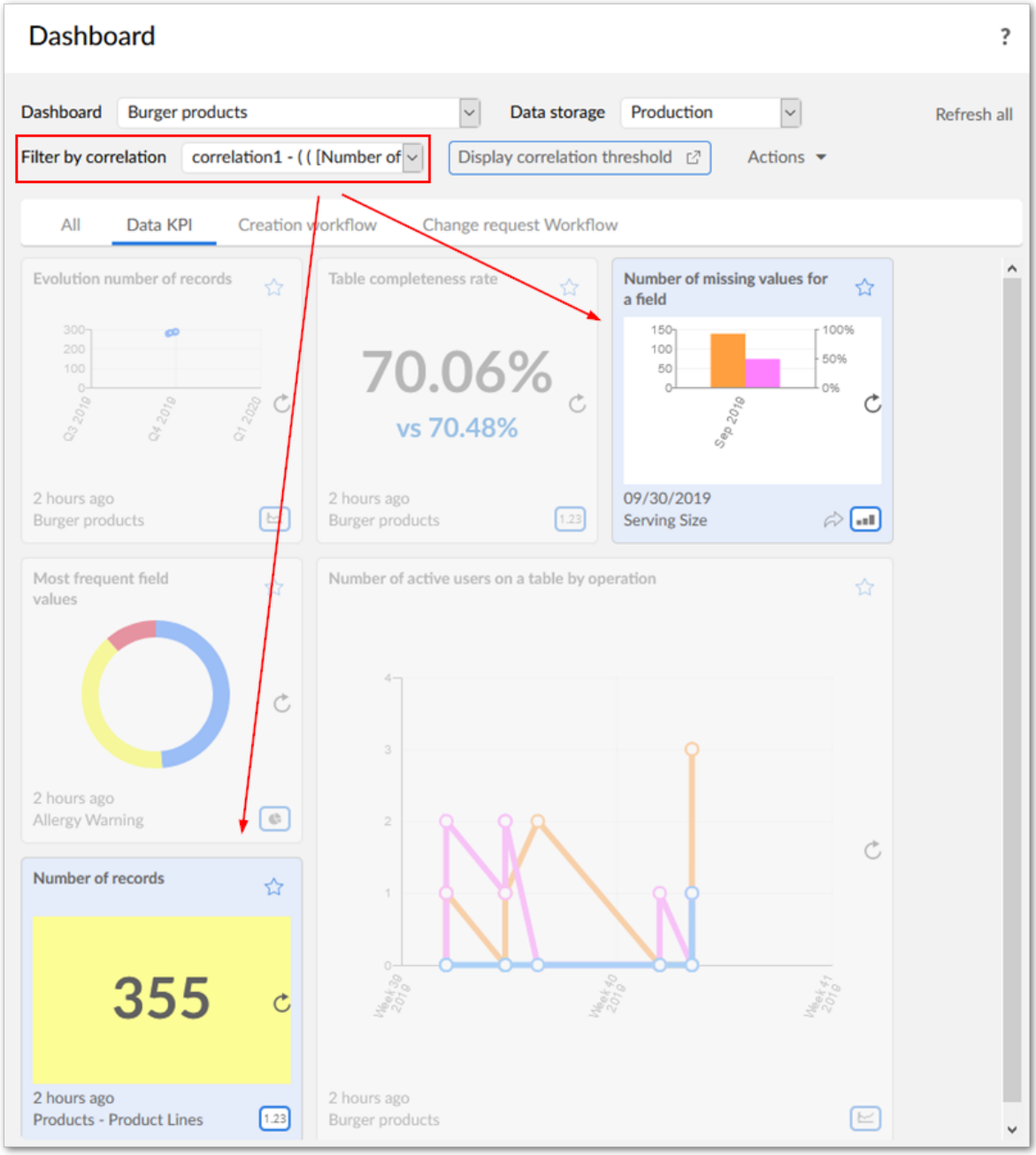
You can create a correlation between watchdog indicators to monitor multiple indicator results. In the following example, an alert is raised when an employee is added or updated and:

- they have no specified manager. The [ON] F-I03 - Field - Empty field value checks whether the employee is assigned a manager.
- they are not a manager. The [ON] F-I15 - Field - Oversee boolean field value indicator watches the employee's managerial status.

After configuring the above indicators on the appropriate fields, and setting up watchdog indicators, the correlation between the watchdogs can be created. The following image highlights the settings:



When you add correlated watchdogs to dashboard sections, you can use the filter to highlight the related tiles:


Dashboard
Dashboard
Burger products
Data storage
Production
Refresh all
Filter by correlation
correlation1 - (([Number of
Display correlation threshold
Actions
All
Data KPI
Creation workflow
Change request Workflow
Evolution number of records
2 hours ago
Burger products
Table completeness rate
70.06%
vs 70.48%
2 hours ago
Burger products
Number of missing values for a field
09/30/2019
Serving Size
Most frequent field values
2 hours ago
Allergy Warning
Number of active users on a table by operation
2 hours ago
Burger products
Number of records
355
2 hours ago
Products - Product Lines

Indicator Portfolio Reference

CHAPTER 25

Overview and naming convention

The TIBCO EBX® Insight Add-on brings a portfolio of ready-to-use indicators to follow the quality of data over time. This portfolio can be enriched by any custom indicators a company wants to implement (refer to the user guide).

The indicators can assess the quality of any asset known in TIBCO EBX® such as: tables, fields, workflows, dataspaces, datasets, business rules.

The indicator definitions that are provided with the add-on use this naming convention applied to the code of the definition:

[ON] type_of_data_element_concept-Idigit

Where type_of_data_element_concept can be 'T' for Table, 'F' for field, 'W' for workflow, 'D' for dataset and dataspace, 'O' for operation. And the digit is an incremented by one number by type of data element concept.

Here are some examples:

[ON] T-I01, [ON] T-I02

[ON] F-I01, [ON] F-I02, [ON] F-I03

[ON] O-I01

These indicator definitions are in read-only. To create a new indicator definition based on one provided by the add-on, it is necessary to duplicate the definition, change the code with any naming convention except the use of the prefix [ON], and then adapt the definition.

The attachment of the Data Element Concepts (D.E.C.) and the Data views is based on the indicator definitions. This means that when a new indicator definition is created it entails to maintain the configuration related to the D.E.C.s and the Data views attachments (tables "Indicator on D.E.C." and "Indicator View", please refer to the user guide).

Special notation key:	
✔	Important recommendation for use of the add-on
✘	This feature is not yet available in the current release

CHAPTER 26

Indicators applied to a table

This chapter contains the following topics:

1. Table last modification date [ON] T-I01
2. Table updated [ON] T-I02
3. Number of records [ON] T-I03
4. Table completeness rate [ON] T-I04
5. Table freshness [ON] T-I06
6. Number of operations on a table [ON] T-I07
7. Matching statistics [ON] T-I08
8. Number of active users on a table by operation [ON] T-I11
9. Record creation matching state [ON] T-I12
10. Record modification matching state [ON] T-I13
11. Nb. of operations by the most and least active user [ON] T-I15
12. Number of missing values in a table [ON] T-I16
13. Number of validation items (error, warning) [ON] T-I17

26.1 **Table last modification date [ON] T-I01**

Property	Specification
Code	[ON] T-I01
Name	Table last modification date
Use other indicators	N/A
Specification	Computes the last modification date of a table. This date is updated in real-time using a trigger on the table. For modifications on a table performed by methods that do not activate triggers (archive import, dataspace merges) the indicator must use the history of the data to find the date of the last modification. Data history is used when the indicator is executed 'on demand' and only if the 'Use history when not real-time' input parameter is set to 'True'.
Table filter predicate	Yes
Linked records	No
Applied to D.E.C. type	Table
Output parameters	'Table last modification date' : timestamp
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	'Use history when not real-time': boolean • If set to 'True': table history is used when execution is set to 'on demand'. • If set to 'False': table history is not used when execution is set to 'on demand'. Setting this option to 'True' is useful for updating the indicator result when a modification has occurred in the table that bypasses the trigger.
Computation frequency	'Real-time', 'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONTableLastModificationDate

26.2 **Table updated [ON] T-I02**

Property	Specification
Code	[ON] T-I02
Name	Table updated
Use other indicators	[ON] T-I01 - Table last modification date
Specification	Check if the table has been updated during a certain period compared to the current date of the indicator execution and the minimum threshold. This computation relies on the result values of T-I01 ('Table last modification date'). The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the last modification date is March 21 and the indicator is executed on April 1, then the table is not considered to be updated. The table is not considered to be updated if the number of updated records is less than the minimum threshold.
Table filter predicate	No
Linked records	Records of the last modification date will be stored if 'Table updated' is 'True'.
Applied to D.E.C. type	Table
Output parameters	'Table updated': boolean • 'True': the table has been updated • 'False': the table has not been updated
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily Minimum threshold=yes, label=Minimum of modification Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONTableUpdated

26.3 **Number of records [ON] T-I03**

Property	Specification
Code	[ON] T-I03
Name	Number of records
Use other indicators	N/A
Specification	Compute the number of records in a table.
Table filter predicate	Yes
Linked records	Yes
Applied to D.E.C. type	Table
Output parameters	'Number of records': integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNumberOfRecords

26.4 **Table completeness rate [ON] T-I04**

Property	Specification
Code	[ON] T-I04
Name	Table completeness rate
Use other indicators	N/A
Specification	The completeness rate of a table is the average percentage of every record completeness rate. Example for a table with 10 fields: - record 01 => 3 fields empty (70% of completion) - record 02 => 9 fields empty (10% of completion) - record 03 => 4 fields empty (60% of completion) The table completion rate is then: 46.66%
Table filter predicate	Yes
Linked records	Uncompleted records will be stored.
Applied to D.E.C. type	Table
Output parameters	"Table completeness rate': Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONTableCompletenessRate

26.5 **Table freshness [ON] T-I06**

Property	Specification
Code	[ON] T-I06
Name	Table freshness
Use other indicators	N/A
Specification	The freshness of a table is the freshness average of its records. The result is a number of days. The freshness of a record is computed by subtracting the execution date of the indicator from the last modification date of the record. Example for a table with these three records: - record 01, 2013-01-10 - record 02, 2013-01-05 - record 03, 2013-01-01 When the executed date of the indicator is 2013-01-11 the add-on computes the freshness of every record as follows: - record 01, 1 day - record 02, 5 days - record 03, 10 days Then the table freshness is: 5,33 days
Table filter predicate	Yes
Linked records	No
Applied to D.E.C. type	Table
Output parameters	"Table freshness (in days)': Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No

Property	Specification
Save last value only	Configuration
Email alert	Configuration
Data view	ONTableFreshness

26.6 **Number of operations on a table [ON] T-I07**

Property	Specification
Code	[ON] T-I07
Name	Number of operations on a table
Use other indicators	N/A
Specification	This indicator computes the number of operations on a table. The following computation frequencies are available for this indicator: • Real-time: every time a creation, modification and deletion operation is done on the table, the indicator increments by one the previous number of operations. • On-demand: the computation relies on the data history of the table and the configuration of periodicity of control. Three figures are computed for the corresponding operations, namely create, modify and delete. Example for a table with this initial indicator values: - Nb. create =10 - Nb. update = 0 - Nb. delete = 5 When a new record is created then the indicator values are as follows: - Nb. create =11 - Nb. update = 0 - Nb. delete = 5 When a record is updated: - Nb. create =11 - Nb. update = 1 - Nb. delete = 5
Table filter predicate	No
Linked records	No
Applied to D.E.C. type	Table
Output parameters	"Number of creation': Integer "Number of modification': Integer "Number of deletion': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real-time' and 'On-demand'

Property	Specification
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbOperationsOnTable

26.7 **Matching statistics [ON] T-I08**

Property	Specification
Code	[ON] T-I08
Name	Matching statistics
Use other indicators	N/A
Specification	This indicator computes for each matching state value the number of records and the corresponding percentage. The table must integrate the Matching meta-data type otherwise an error is raised in the overview UI result. A parameter allow you to select which state value(s) to compute. It is possible to create several indicator definitions from the prebuilt 'Matching statistics' and get dedicated indicators to oversee one or many matching state values.
Table filter predicate	Yes
Linked records	Records of each configured matching state will be stored.
Applied to D.E.C. type	Table
Output parameters	"State": String "Number of records per state": Integer "Percentage per state": Percentage
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each configured state.
Input parameters	"State values": String[*] (enumeration data type). The enumeration includes the following states: definitive golden, golden, pivot, suspicious, suspect, merged, deleted, unmatched, to be matched
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONMatchingStatistics

26.8 **Number of active users on a table by operation [ON] T-I11**

Property	Specification
Code	[ON] T-I11
Name	Number of active users on a table by operation
Use other indicators	N/A
Specification	This indicator computes the number of active users by operation on a table during a certain period of time. This computation relies on the data history of the table. The computation is applied for the create, update and delete operations, not for the read. The periodicity of control is used to define the time frame for the computation: from the current execution date of the indicator up to the periodicity of control. The computation is performed in an "absolute" mode, not on a rolling basis. For example: - periodicity of control = "monthly", - current execution date = January 20, 2014 The indicator saves the following values: Number of users for creation, Number of users for modification, and Number of users for deletion When the periodicity of control is equal to "any" then all time is considered.
Table filter predicate	Yes
Linked records	No
Applied to D.E.C. type	Table
Output parameters	Number of users for creation, Number of users for modification, and Number of users for deletion
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONNbActiveUsersOnTableByOperation

26.9 **Record creation matching state [ON] T-I12**

Property	Specification
Code	[ON] T-I12
Name	Record creation matching state
Use other indicators	N/A
Specification	Every time a record is created it saves if it is a golden or not. The Matching state meta-data is used to know if the state is golden or not.
Table filter predicate	No
Linked records	No
Applied to D.E.C. type	Table
Output parameters	"Golden record': Boolean • 'True': the record is a golden record • 'False': the record is not a golden record
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real-time'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (on create only)
Save last value only	Configuration
Email alert	Configuration
Data view	ONRecordCreationDQState

26.10 **Record modification matching state [ON] T-I13**

Property	Specification
Code	[ON] T-I13
Name	Record modification matching state
Use other indicators	N/A
Specification	Every time a record is modified it saves if it is a golden or not. The Matching state meta-data is used to know if the state is golden or not.
Table filter predicate	No
Linked records	No
Applied to D.E.C. type	Table
Output parameters	"Golden record': Boolean • 'True': the record is a golden record • 'False': the record is not a golden record
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real-time'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (on modify only)
Save last value only	Configuration
Email alert	Configuration
Data view	ONRecordModificationDQState

26.11 **Nb. of operations by the most and least active user [ON] T-I15**

Property	Specification
Code	[ON] T-I15
Name	Number of operation by the most and least active user on a table
Use other indicators	N/A
Specification	This indicator uses the data history. Only the create, update and delete operations are taking into consideration. The number of read operations is unknown. The maximum of output for both most and least active users is configured through an input parameter. Only the maximum highest active users and the maximum lowest active users are saved for the all known data history. There is no periodicity of control to apply. Example: If the value of the input parameter "Maximum of output for most/least least active users" is "3" then the three highest active users and the three lowest active users are saved.
Table filter predicate	Yes
Linked records	No
Applied to D.E.C. type	Table
Output parameters	'Most active user': String 'Nb. operations': Integer 'Least active user': String 'Nb. operations': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - Multiple records are saved in the Flat data report table depending on the configured maximum output number.
Input parameters	"Maximum of output for most /least active users": Integer, default value is 3, the maximum is 20.
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no

Property	Specification
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbOperationByMostAndLeastActiveUserOnTable

26.12 **Number of missing values in a table [ON] T-I16**

Property	Specification
Code	[ON] T-I16
Name	Number of missing values in a table
Use other indicators	N/A
Specification	This indicator computes a string missing value pattern. This pattern is based on one boolean figure per field. If the value is "1" then at least one record in the table has a missing value for this field. If the value is "0" then there is no record in the table with a missing value for this field. The position in the string pattern gives the field that is considered in the table. Only terminal fields appear in the string pattern, not the group fields names. The number of occurrences of each pattern is computed. Example: for a Table T1(F1, F2, F3, F4) here are the existing records: - 2 records have F4 with missing value - 5 records have F1 with missing value - 3 records have F3 with missing value Then the output is: "1,0,1,1-10" Input parameter are used to give the values string that are considered as missing values (E.g. Unknown, Not available, etc.).
Table filter predicate	Yes
Linked records	Records with missing values will be stored.
Applied to D.E.C. type	Table
Output parameters	"Missing pattern value": String "Nb. of records: Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value similar to empty": String[*] "Is empty value": Boolean • "True": accept case empty value • "False": do not accept case empty
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no

Property	Specification
	Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbMissingValuesInTable

26.13 **Number of validation items (error, warning) [ON] T-I17**

Property	Specification
Code	[ON] T-I17
Name	Number of validation items (error, warning)
Use other indicators	N/A
Specification	This indicator executes the validation report on a table and saves the number of errors and the number of warnings.
Table filter predicate	Yes
Linked records	Records belonging to one of these states will be stored: • Records with errors (default option) • Records with warnings • Records with either errors or warnings
Applied to D.E.C. type	Table
Output parameters	"Number of error': Integer "Number of warning': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONNumberOfValidationItemsErrorWarning

CHAPTER 27

Indicators applied to a field

This chapter contains the following topics:

1. Field last modification date [ON] F-I01
2. Field updated [ON] F-I02
3. Empty field [ON] F-I03
4. Number of active users on a field by operation [ON] F-I04
5. Frequency by value [ON] F-I05
6. Field value outside a limit [ON] F-I06
7. Field size outside a limit [ON] F-I07
8. Field min-max modifications for a period [ON] F-I08
9. Field with the highest frequency for a period [ON] F-I09
10. Field with the lowest frequency for a period [ON] F-I10
11. Boolean field statistics [ON] F-I11
12. Boolean field occurrences within the table scope [ON] F-I12
13. Group of fields' completeness [ON] F-I13
14. Oversee string field value [ON] F-I14
15. Oversee boolean field value [ON] F-I15
16. Oversee date field value [ON] F-I16
17. Oversee numeric field value [ON] F-I17
18. Number of missing values for a field [ON] F-I18
19. Missing time series for a field [ON] F-I19
20. Number of records by group [ON] F-I20
21. Translation rate applied to a field [ON] F-I21
22. Simple statistics on field value [ON] F-I22
23. Simple statistics on string (text) field value [ON] F-I23
24. Simple statistics on numeric field value [ON] F-I24
25. Field compliance against a pattern [ON] F-I25
26. Time series compliance [ON] F-I27

27. Statistics on field interval value [ON] F-I28
28. Statistics on field relation [ON] F-I29
29. Field value completeness [ON] F-I31
30. Most frequent field values [ON] F-I32
31. Least frequent field values [ON] F-I33
32. Number of not null values for a field [ON] F-I34
33. Number of distinct values for a field [ON] F-I35
34. Number of unique values for a field [ON] F-I36
35. Number of not unique values for a field [ON] F-I37
36. Field maximum length [ON] F-I38
37. Field minimum length [ON] F-I39
38. Field average length [ON] F-I40
39. Average field value [ON] F-I41
40. Median field value [ON] F-I42
41. Field value range [ON] F-I43
42. Highest field value [ON] F-I44
43. Lowest field value [ON] F-I45

27.1 **Field last modification date [ON] F-I01**

Property	Specification
Code	[ON] F-I01
Name	Field last modification date
Use other indicators	N/A
Specification	Computes the last modification date of a field. This date is updated in real-time using a trigger on the table. For modifications on a table performed by methods that do not activate triggers (archive import, dataspace merges) the indicator must use table history to find the date of the last modification. Table history is used when the indicator is executed 'on demand' and only if the 'Use history when not real-time' input parameter is set to 'True'.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	'Field last modification date': timestamp
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	'Use history when not real-time ': boolean • If set to 'True': table history is used when execution is set to 'on demand'. • If set to 'False': table history is not used when execution is set to 'on demand'. Setting this option to 'True' is useful for updating the indicator result when a modification has occurred in the table that bypasses the trigger.
Computation frequency	'Real-time', 'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONFieldLastModificationDate

27.2 **Field updated [ON] F-I02**

Property	Specification
Code	[ON] F-I02
Name	Field updated
Use other indicators	[ON] F-I01 Field last modification date
Specification	Check if the field has been updated during a certain period compared to the current date of the indicator execution. This computation relies on the result values of F-I01 ('Field last modification date').
Field filter predicate	no
Linked records	no
Applied to D.E.C. type	Field
Output parameters	'Field updated': boolean • 'True': the field has been updated • 'False': the field has not been updated 'Date difference (in days)': integer. Number of days since the indicator execution until the field was last modified.
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=yes, label=Maximum of days without modification Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldUpdated

27.3 **Empty field [ON] F-I03**

Property	Specification
Code	[ON] F-I03
Name	Empty field
Use other indicators	N/A
Specification	Compute whether a field is empty for every record of a table. It is executed in real-time when a record is updated and 'on demand' to check all records at once.
Field filter predicate	yes
Linked records	Records with empty fields will-be stored
Applied to D.E.C. type	Field
Output parameters	"Empty field': boolean • True': the field is empty. • 'False': the field is not empty.
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	'Keep True outcome': boolean • 'True': when the option 'save last value only' is true then every 'true' outcome value will be stored. Only 'false' outcome are updated. • 'False': the behaviour of the option 'save last value only' is as usual. Setting this option to 'True' is useful for keeping the history for all instances of 'True' results without keeping the history for 'False' results. Default value='False'
Computation frequency	'Real-time', 'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONEmptyField

27.4 **Number of active users on a field by operation [ON] F-I04**

Property	Specification
Code	[ON] F-I04
Name	Number of active users on a field by operation
Use other indicators	N/A
Specification	This indicator uses the data history. This indicator computes the number of active users by operation on a field during a certain period of time. This computation relies on the EBX® history on the table. The computation is applied for the create, update and delete operations, not for the read. The periodicity of control is used to define the time lag for the computation: from the current execution date of the indicator to the periodicity of control. The computation is performed in an 'absolute' mode, not on a rolling basis. For example: - periodicity of control = 'monthly', - current execution date = January 20, 2014 The computation procedure is as follows: - the data history is used from the oldest date just before the current month January 2014, - from this oldest date, every data history is used to get the number of creation, deletion and modification that have been occurred by user up to the current execution date January 20, 2014. The indicator saves three couples of values: (Nb. of creation, Nb. of user), (Nb. of modification, Nb. of user), (Nb. of deletion, Nb. of user) When the periodicity of control is equal to 'any' then all time is considered.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Number of creation": Integer, "Number of user": Integer, "Number of modification": Integer, "Number of user": Integer, "Number of deletion": Integer, "Number of user": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no

Property	Specification
	Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbActiveUsersOnFieldByOperation

27.5 **Frequency by value [ON] F-I05**

Property	Specification
Code	[ON] F-I05
Name	Frequency by value
Use other indicators	N/A
Specification	The indicator computes the highest and the lowest frequency values for the field. The maximum of output for both highest and lowest frequency values is configured through an input parameter. The possible field data types are: Integer, Decimal, String, Date, Time, and Date time. The indicator does not apply to other data types. Example for a table with the field age as follows (total records: 354) 1 record with age = 10, 3 records with age = 40, 4 records with age = 70, 6 records with age = 41, 10 records with age = 45, 30 records with age = 46, 100 records with age = 33, 200 records with age = 16 The output 'field value, frequency, number of records' are as follows: (16, 56.49%, 200) - (33, 28.24%, 100) - (46, 8.47%,30) - (10, 0.28%, 1) - (40, 0.84%, 3) - (70, 1.12%, 4)
Field filter predicate	yes
Linked records	Records belongs to one of these states will be stored: • Records of the highest frequency • Records of the lowest frequency • Records of either the highest frequency or the lowest frequency
Applied to D.E.C. type	Field
Output parameters	'Most frequent value': String "Most frequent frequency': Decimal "Most frequent Nb. record': Integer "Least frequent value': String "Least frequent frequency': Decimal "Least frequent Nb. record': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - Multiple records are saved in the Flat data report table depending on the configured maximum output number.
Input parameters	"Maximum of output for highest/lowest frequency values": Integer, default value is 3, the maximum is 20
Computation frequency	'On demand'

Property	Specification
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFrequencyByValue

27.6 **Field value outside a limit [ON] F-I06**

Property	Specification
Code	[ON] F-I06
Name	Field value outside a limit
Use other indicators	N/A
Specification	Applied to field of type Integer and Decimal only. The indicator computes if the field value has reached the maximum and/or minimum values configured as thresholds.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	'Value outside the limit': Boolean • 'True': the field value is outside the limit. • 'False': the field value is not outside the limit. 'Field value'': Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real time''
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=yes, label=Minimum value, default value = 10 Maximum threshold=yes, label=Maximum value, default value = 20 Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldValueOutsideLimit

27.7 **Field size outside a limit [ON] F-I07**

Property	Specification
Code	[ON] F-I07
Name	Field size outside a limit
Use other indicators	N/A
Specification	Applied to field of type string only. The indicator computes if the field size has reached the maximum and/or minimum sizes configured as thresholds.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	'Size outside the limit': Boolean • 'True': the size value is outside the limit. • 'False': the size value is not outside the limit. 'Field value'': String
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real time''
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=yes, label=Minimum size, default value = 10 Maximum threshold=yes, label=Maximum size, default value = 20 Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldSizeOutsideLimit

27.8 **Field min-max modifications for a period [ON] F-I08**

Property	Specification
Code	[ON] F-I08
Name	Field min-max modifications for a period of time
Use other indicators	N/A
Specification	This indicator uses the data history. For a period of time, the indicator computes the number of modifications applied to the field and compares it against the minimum and maximum thresholds. The configuration uses the periodicity of control and watchdog (maximum and minimum thresholds). The computation is performed in an "absolute" mode, and not on a rolling basis. For example, for the periodicity "monthly", if the indicator is executed on April 5 then the period is the five first days of April. When the periodicity of control is equal to "any" then all time is considered.
Field filter predicate	yes
Linked records	Modified records will be stored.
Applied to D.E.C. type	Field
Output parameters	"Below min. modifications": Boolean • "True": the number of modifications during the period is below the minimum threshold". • "False": the number of modification during the period is above the minimum threshold or equal to". "Above max. modifications": Boolean • "True": the number of modifications during the period is above the maximum threshold". • "False": the number of modifications during the period is below the maximum threshold or equal to". "Nb. of modifications during the period": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=yes, label=Minimum modification, default value = 10 Maximum threshold=yes, label=Maximum modification, default value = 20 Tolerance number=no

Property	Specification
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldMinMaxModificationsForPeriodTime

27.9 Field with the highest frequency for a period [ON] F-I09

Property	Specification
Code	[ON] F-I09
Name	Field with the highest frequency for a period
Use other indicators	N/A
Specification	The indicator computes the highest frequency value for the field during a period of time. This period is configured by the periodicity of control. The possible field data types are: Integer, Decimal, String, Date, Time, and Date time. The indicator does not apply to other data types. Empty values are not considered to compute the highest frequency. The result is compared against the minimum and maximum thresholds that are configured as watchdogs. The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the indicator is executed on April 5 then the period is the five first days of April. When the periodicity of control is equal to 'any' then all time is considered. Example • 10 records in a table => 5 records with field value = 'A', 3 records with field value = 'B', and 2 records with field value = 'C. • Then the result of the indicator is: Most frequent value = 'A', Most frequent frequency = '50%', Most frequent Nb. records = "5".
Field filter predicate	yes
Linked records	Records with the highest frequency will be stored.
Applied to D.E.C. type	Field
Output parameters	'Below min. highest frequency': Boolean • 'True': the highest frequency is below the minimum threshold. • 'False': the highest frequency is above the minimum threshold or equal to 'Above max. highest frequency': Boolean • 'True': the highest frequency is above the maximum threshold • 'False': the highest frequency is below the maximum threshold or equal to "Most frequent value": String, "Most frequent frequency": Decimal, "Most frequent Nb. records": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void

Property	Specification
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=yes, label=Minimum highest frequency, default value = 5 Maximum threshold=yes, label=Maximum highest frequency, default value = 10 Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldWithHighestFrequencyForPeriod

27.10 **Field with the lowest frequency for a period [ON] F-I10**

Property	Specification
Code	[ON] F-I10
Name	Field with the lowest frequency for a period
Use other indicators	N/A
Specification	The indicator computes the lowest frequency value for the field during a period of time. This period is configured by the periodicity of control. The possible field data types are: Integer, Decimal, String, Date, Time, and Date time. The indicator does not apply to other data types. Empty values are not considered to compute the lowest frequency. The result is compared against the minimum and maximum thresholds that are configured as watchdogs. The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the indicator is executed on April 5 then the period is the five first days of April. When the periodicity of control is equal to 'any' then all time is considered. Example • 10 records in a table => 5 records with field value = 'A', 3 records with field value = 'B', and 2 records with field value = 'C. • Then the result of the indicator is: Least frequent value = 'C', Least frequent frequency = '20%', Least frequent Nb. records = "2"
Field filter predicate	yes
Linked records	Records with the lowest frequency will be stored.
Applied to D.E.C. type	Field
Output parameters	'Below min. lowest frequency': Boolean • 'True': the lowest frequency is below the minimum threshold. • 'False': the lowest frequency is above the minimum threshold or equal to 'Above max. lowest frequency': Boolean • 'True': the lowest frequency is above the maximum threshold • 'False': the lowest frequency is below the maximum threshold or equal to "Least frequent value": string, "Least frequent frequency": Decimal, "Least frequent Nb. records": integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void

Property	Specification
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=yes, label=Minimum lowest frequency, default value = 5 Maximum threshold=yes, label=Maximum lowest frequency, default value = 10 Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldWithLowestFrequencyForPeriod

27.11 **Boolean field statistics [ON] F-I11**

Property	Specification
Code	[ON] F-I11
Name	Boolean field statistics
Use other indicators	N/A
Specification	The indicator saves the value of the fields every time it changes from 'True', 'False' and 'Undefined'. The type of the field must be 'Boolean'.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	'True value': Boolean 'False value': Boolean 'Undefined value': Boolean
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real time'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONBooleanFieldStatistics

27.12 **Boolean field occurrences within the table scope [ON] F-I12**

Property	Specification
Code	[ON] F-I12
Name	Boolean field occurrences within the table scope
Use other indicators	N/A
Specification	The indicator computes the number of 'True', 'False' and 'Undefined' values for the field on the scope of the whole table. The type of the field must be 'Boolean'.
Field filter predicate	yes
Linked records	Records belonging to one of these states will be stored: • Records with 'True' value (default option) • Records with 'False' value • Records with 'Undefined' value
Applied to D.E.C. type	Field
Output parameters	'Nb. of true': Integer 'Nb. of false': Integer 'Nb. of undefined': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONBooleanFieldOccurrencesWithinTableScope

27.13 **Group of fields' completeness [ON] F-I13**

Property	Specification
Code	[ON] F-I13
Name	Group of fields' completeness
Use other indicators	N/A
Specification	The indicator computes the completeness of the group of fields. For example, if the group contains 5 fields and two are empty then the result is 60%. The computation is performed at the level of a group of fields for a record. This is not an average at the scope of the whole table.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Group of fields
Output parameters	"Group of fields completeness rate': Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'Real time'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONGroupOfFieldsCompleteness

27.14 **Oversee string field value [ON] F-I14**

Property	Specification
Code	[ON] F-I14
Name	Oversee string field value
Use other indicators	N/A
Specification	When the field value is equal to one of the values defined as input parameters then the indicator saves this information. This indicator works for field of type "String" only. To allow statistics the indicator saves systematically, through a boolean result, if the field is equal or not to one of the values defined as input parameters.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Oversee check": Boolean • "True": the value of the field is within one of defined as input parameters • "False": the value of the field is not within the list defined as input parameters "Oversee value": String
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value to oversee": String[*] "Case sensitive": Boolean • "True": the control is case sensitive • "False": the control is not case sensitive "Is empty value": Boolean • "True": accept case empty value • "False": do not accept case empty
Computation frequency	"Real time"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no

Property	Specification
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONOverseeStringFieldValue

27.15 **Oversee boolean field value [ON] F-I15**

Property	Specification
Code	[ON] F-I15
Name	Oversee boolean field value
Use other indicators	N/A
Specification	When the field value is equal to one of the values defined as input parameters then the indicator saves this information. A maximum of three values can be configured. This indicator works for field of type "Boolean" only. To allow statistics the indicator saves systematically, through a boolean result, if the field is equal or not to one of the values defined as input parameters.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Oversee check": Boolean • "True": the value of the field is within one of defined as input parameters • "False": the value of the field is not within the list defined as input parameters "Oversee value": String
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value to oversee": Boolean (only "True", "False" and "Undefined" are permitted)
Computation frequency	"Real time"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONOverseeBooleanFieldValue

27.16 **Oversee date field value [ON] F-I16**

Property	Specification
Code	[ON] F-I16
Name	Oversee date field value
Use other indicators	N/A
Specification	When the field value is equal to one of the values defined as input parameters then the indicator saves this information. This indicator works for field of type "Date" only. To allow statistics the indicator saves systematically, through a boolean result, if the field is equal or not to one of the values defined as input parameters.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Oversee check": Boolean • "True": the value of the field is within one of defined as input parameters • "False": the value of the field is not within the list defined as input parameters "Oversee value": Date
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value to oversee": Date[*] "Is empty value": Boolean • "True": accept case empty value • "False": do not accept case empty value
Computation frequency	"Real time"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONOverseeDateFieldValue

27.17 **Oversee numeric field value [ON] F-I17**

Property	Specification
Code	[ON] F-I17
Name	Oversee numeric field value
Use other indicators	N/A
Specification	When the field value is equal to one of the values defined as input parameters then the indicator saves this information. This indicator works for field of types "Integer" and "Decimal" only. To allow statistics the indicator saves systematically, through a Boolean result, if the field is equal or not to one of the values defined as input parameters.
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Oversee check": Boolean • "True": the value of the field is within one of defined as input parameters • "False": the value of the field is not within the list defined as input parameters "Oversee value": Decimal (if Integer then it is converted into Decimal)
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value to oversee": Decimal[*] "Is empty value": Boolean • "True": accept case empty value • "False": do not accept case empty value
Computation frequency	"Real time"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONOverseeNumericFieldValue

27.18 **Number of missing values for a field [ON] F-I18**

Property	Specification
Code	[ON] F-I18
Name	Number of missing values for a field
Use other indicators	N/A
Specification	This indicator computes the number of times the field value is empty on the whole scope of the table. It also give the percentage of empty field value based on the number of total records in the table. Input parameters are used to give the string values that are considered as missing values (E.g. Unknown, Not available, etc.).
Field filter predicate	yes
Linked records	Records with missing values will be stored.
Applied to D.E.C. type	Field
Output parameters	"Number of missing value": Integer "Percentage of missing value": Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Value similar to empty": String[*] "Is empty value": Boolean • "True": accept case empty value • "False": do not accept case empty
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONNbMissingValuesForField

27.19 **Missing time series for a field [ON] F-I19**

Property	Specification
Code	[ON] F-I19
Name	Missing time series for a field
Use other indicators	N/A
Specification	This indicator is applied to a field of type Date and Date time. It allows one to check if the time between the two nearest dates in the future and the past exceeded a certain duration. The indicator works on the date and date time. For instance: (R2, date = May 10, 2014), (R3, date = May 11, 2014), (R1, date = June 06, 2014), (R5, date = June 07, 2014), (R4, date = June 22, 2014). With a duration "1 day", then depending on the record on which the indicator is executed here are the results: • On record 01, result in future = not exceeded, result in past = exceeded • On record 02, result in future = not exceeded, result in past = not exceeded • On record 03, result in future = exceeded, result in past = not exceeded
Field filter predicate	yes
Linked records	no
Applied to D.E.C. type	Field
Output parameters	"Record predicate": String. Record on which the indicator is executed "Is missing time series in the future": Boolean - True: the time between the two records is over the duration in the future - False: the time between the two records in not over the duration in the future "Missing time record in the future": String (empty if no missing time in the future) "Exceeded time in the future": Integer (empty if no missing time in the future) "Is missing time series in the past": Boolean • True: the time between the two records is over the duration in the past • False: the time between the two records in not over the duration in the past "Missing time record in the past": String (empty if no missing time in the past) "Exceeded time in the past": Integer (empty if no missing time in the past)
Storage procedure	"Real-time": the results are systematically saved. "On demand": the results are saved in case of at least a "Is missing time series"="True"
Reporting table	'Flat data report' - Multiple records are saved in the Flat data report table.
Input parameters	"Maximum duration in the future": Integer, default value = 1 day "Maximum duration in the past": Integer, default value = 1 day "Maximum output when 'on demand' execution": Integer, default value = 20 "Is ASC": "True": sort records by ascending, "False": sort records by descending

Property	Specification
Computation frequency	"Real-time"; "On demand"
Periodicity of control and watchdog	Periodicity of control=no, Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	Trigger (create, update)
Save last value only	Configuration
Email alert	Configuration
Data view	ONMissingTimeSeriesForField

27.20 **Number of records by group [ON] F-I20**

Property	Specification
Code	[ON] F-I20
Name	Number of records by group
Use other indicators	N/A
Specification	This indicator computes the number of records in the table by group. This group is configured by selecting a field in the table (Applied to type D.E.C Field). For instance, the table 'Client' has a field 'FKTypeClient'. This field is used to group the number of records by type of clients. It is possible to configure the maximum number of groups to compute. When the actual number of groups in the table is higher than this maximum, a default group is created to compute all the remaining records. A parameter allows you to decide if the groups are fed in priority with the highest number of records or the lowest ones.
Field filter predicate	yes
Linked records	Records belonging to these states will be stored: • Records of each group (default option) • Records of the highest group • Records of lowest group Remaining records of other groups are not stored.
Applied to D.E.C. type	Field
Output parameters	"Group": String "Number of records': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each group.
Input parameters	"Other group name ": String "Maximum number of groups ": Integer. If undefined or '0' then it means unbounded. "Is highest groups fed in priority': Boolean. If 'Yes' then the highest groups are fed in priority, otherwise this is the lowest ones
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no

Property	Specification
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONOperationNumberOfRecordsByGroup

27.21 **Translation rate applied to a field [ON] F-I21**

Property	Specification
Code	[ON] F-I21
Name	Translation rate applied to a field
Use other indicators	N/A
Specification	This indicator computes the translation rate of a field in a table. The field is a group or complex data type. It represents a label or a label and description. Only the label is used to compute the result. The first occurrence gives the main language, the second the translation. The translation rate is a ratio between the translation per record and the total record in the table. The translation is not available when: - at least one occurrence is empty. - the first and second occurrence are same.
Field filter predicate	yes
Linked records	Records without the translation will be stored.
Applied to D.E.C. type	Field (is complex data type)
Output parameters	"Translation rate": Percentage
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONTranslationRateAppliedToAField

27.22 **Simple statistics on field value [ON] F-I22**

Property	Specification
Code	[ON] F-I22
Name	Simple statistics on field value
Use other indicators	N/A
Specification	This indicator computes a set of elementary statistics on a field value as described below. The examples are based on the following list of records and values for a field: "a, a, b, c, d, e, e, e, null". • Number of values: computes the number of records with a not null or empty field value. Eg. result = 8. • Number of null / empty values: computes the number of records with a null or empty field value. Eg. result = 1. • Number of different values. Eg. result = 5. • Number of unique values: Eg. result = 3. • Number of duplicate values: Eg. result = 2. • Number of equal values: Counts the number of times a value occurs. The value to search for is passed as input to the indicator. Using the current example, if a value of 'e' is used, the result would be 3. If left empty, the indicator returns a value of '0', This parameter can be very useful when counting the number of times a default value appears.
Field filter predicate	yes
Linked records	"Records with values not null or empty": Boolean "Records with null or empty values": Boolean "Records with different values": Boolean "Records with unique values": Boolean "Records with duplicate values": Boolean "Records with values equal to a value": Boolean
Applied to D.E.C. type	Field
Output parameters	"Number of values": Integer "Number of null or empty values": Integer "Number of different values": Integer "Number of unique values": Integer "Number of duplicated values": Integer "Number of values equals to a value": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Count number of values": Boolean

Property	Specification
	"Count number of null or empty values": Boolean "Count number of different values": Boolean "Count number of unique values": Boolean "Count number of duplicated values": Boolean "Count number of values equals to a value": Boolean "Values similar to empty": String[*] "Is undefined boolean considered null or empty": Boolean, default value = No "Value to count': String
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONSimpleStatisticsOnFieldValue

27.23 Simple statistics on string (text) field value [ON] F-I23

Property	Specification
Code	[ON] F-I23
Name	Simple statistics on string (text) field values
Use other indicators	N/A
Specification	This indicator computes a set of elementary statistics on a field value with a data type of string (text) to get the following information on its size: • Length. • For a maximum set of values (configured by Input parameters): highest length, lowest length.
Field filter predicate	yes
Linked records	Records of the highest length. Records of the lowest length.
Applied to D.E.C. type	Field (String, Text)
Output parameters	"Highest length': Integer "Lowest length': Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - Multiple records are saved in the Flat data report table depending on the configured maximum output number.
Input parameters	"Count null characters as 1 size": Boolean, default value = Yes "Count white spaces as 1 size": Boolean, default value = Yes "Maximum number of outputs for highest/lowest length": Integer, default value is 3, the maximum is 20
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONSimpleStatisticsOnStringTextFieldValue

27.24 **Simple statistics on numeric field value [ON] F-I24**

Property	Specification
Code	[ON] F-I24
Name	Simple statistics on numeric field values
Use other indicators	N/A
Specification	This indicator computes a set of elementary statistics on a field value with a numeric data type (Integer, Decimal) to get the following results: • Average value. • Median value. When odd series the median value is the middle value of the series. When pair series the median value is the average of the two values of the middle of the series. • First quartile. Q1 = ¼ * Nb. of values. The first quartile is equal to the value in the Q1 position in the ordered series of value (rounded up in case of decimal). • Third quartile. Q3 = ¾ * Nb. of values. The third quartile is equal to the value in the Q3 position in the ordered series of value (rounded up in case of decimal). • Range value. Difference between the biggest value minus the lowest value.
Field filter predicate	yes
Linked records	N/A
Applied to D.E.C. type	Field (Integer, Decimal)
Output parameters	"Average": Decimal "Median": Decimal "First quartile": Decimal "Third quartile": Decimal "Range": Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Count null / empty values': Boolean, default value = No "Values similar to empty": Decimal[*]
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no

Property	Specification
Save last value only	Configuration
Email alert	Configuration
Data view	ONSimpleStatisticsOnNumericFieldValue

27.25 **Field compliance against a pattern [ON] F-I25**

Property	Specification
Code	[ON] F-I25
Name	Field compliance against a pattern
Use other indicators	N/A
Specification	This indicator computes the number of times a field is compliant with a regular expression pattern that is configured when defining the indicator: • Number of valid values. • Number of invalid values.
Field filter predicate	yes
Linked records	Records with valid values: Boolean Records with invalid values: Boolean
Applied to D.E.C. type	Field
Output parameters	"Number of valid value": Integer "Number of invalid value": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Regular expression to check": String
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONComplianceAgainstAPattern

27.26 **Time series compliance [ON] F-I27**

Property	Specification
Code	[ON] F-I27
Name	Time series compliance
Use other indicators	N/A
Specification	This indicator checks whether dates are within an interval that is configured when defining the indicator. It also checks that a field start date is before the end date: • Number of invalid dates. • Number of start dates not before the end date.
Field filter predicate	yes
Linked records	Records with date outside the interval: Boolean Records with start date not before the end date: Boolean
Applied to D.E.C. type	Field (Date, Date-time)
Output parameters	"Number of invalid date": Integer "Number of start date not before the end date": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Checking based on date interval": Boolean, default value = Yes "Interval - Start date": Timestamp "Interval - End date": Timestamp "Checking based on start date before end date": Boolean, default value = Yes "End date field": Field of type date in the related D.E.C. table
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONTimeSeriesCompliance

27.27 **Statistics on field interval value [ON] F-I28**

Property	Specification
Code	[ON] F-I28
Name	Statistics on field interval value
Use other indicators	N/A
Specification	This indicator computes the number of times a field value is within a pre-defined interval: • Number of values under the minimum. • Number of values above the maximum. • Number of values in the interval.
Field filter predicate	yes
Linked records	Records with value under the minimum: Boolean Records with value above the maximum: Boolean Records with value within the interval: Boolean
Applied to D.E.C. type	Field (Integer, Decimal)
Output parameters	"Number of value under the minimum": Integer "Number of value above the maximum": Integer "Number of value within the interval": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Min. value": Decimal "Max. value": Decimal "Is min. value within the interval": Boolean, default value = Yes "Is max. value within the interval": Boolean, default value = Yes
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration

Property	Specification
Data view	ONStatisticsOnFieldIntervalValue

27.28 **Statistics on field relation [ON] F-I29**

Property	Specification
Code	[ON] F-I29
Name	Statistics on field relation
Use other indicators	N/A
Specification	This indicator computes the number of times a relation (foreign key) is null, broken or normal.
Field filter predicate	yes
Linked records	Records with null relations. Records with broken relations. Records with normal relations.
Applied to D.E.C. type	Field (Foreign keys)
Output parameters	"Number of null relations": Integer "Number of broken relations": Integer "Number of normal relations": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	N/A
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONStatisticsOnFieldRelation

27.29 **Field value completeness [ON] F-I31**

Property	Specification
Code	[ON] F-I31
Name	Field value completeness
Use other indicators	N/A
Specification	This indicator computes the percentage of fulfillment of a field against all records in the table.
Field filter predicate	yes
Linked records	Records with null or empty values will be stored.
Applied to D.E.C. type	Field
Output parameters	"Percentage of fulfillment": Decimal "Number of records with null or empty values": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Values similar to empty": String[*]
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONFieldValueCompleteness

27.30 **Most frequent field values [ON] F-I32**

Property	Specification
Code	[ON] F-I32
Name	Most frequent field values
Specification	The indicator computes the most frequent values for a field. You configure the maximum number of outputs using the indicator's input parameter. The following provides an example using a table's **Age** field (50 total records): • 10 records with age = 25 • 20 records with age = 30 • 15 records with age = 35 • 5 records with age = 40 If you set the maximum number of outputs to 2, the indicator would output the two most frequently occurring value pairs: (20,30) and (15,35) When the maximum number of outputs is unbounded, all of the value pairs would be output in descending order.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time, XML Name
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Most frequent values Number of records (a count of the number of occurrences of each value): integer
Input parameters	Maximum number of output (the number of values to display, starting with the most frequently occurring): • Default value: 3 • Min value: 1 • Max value: unbounded
Available display modes	Bar, pie, line, and spark line charts

27.31 **Least frequent field values [ON] F-I33**

Property	Specification
Code	[ON] F-I33
Name	Least frequent field values
Specification	The indicator computes the least frequent values for a field. You configure the maximum number of outputs using the indicator's input parameter. The following provides an example using a table's **Age** field (50 total records): • 10 records with age = 25 • 20 records with age = 30 • 15 records with age = 35 • 5 records with age = 40 If you set the maximum number of outputs to 2, the indicator would output the two least frequently occurring value pairs: (5,40) and (10,25) When the maximum number of outputs is unbounded, all of the value pairs would be output in ascending order.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time, XML Name
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Least frequent values Number of records (a count of the number of occurrences of each value): integer
Input parameters	Maximum number of output (the number of values to display, starting with the most frequently occurring): • Default value: 3 • Min value: 1 • Max value: unbounded
Available display modes	Bar, pie, line, and spark line charts

27.32 **Number of not null values for a field [ON] F-I34**

Property	Specification
Code	[ON] F-I34
Name	Number of not null values for a field
Specification	The indicator returns the number of not null values.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Number of not null values.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

27.33 **Number of distinct values for a field [ON] F-I35**

Property	Specification
Code	[ON] F-I35
Name	Number of distinct values for a field
Specification	The indicator computes the number of distinct value for a field.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Number of distinct values.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

27.34 **Number of unique values for a field [ON] F-I36**

Property	Specification
Code	[ON] F-I36
Name	Number of unique values for a field
Specification	The indicator computes the number of values which occur only one time among all values.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Number of unique values.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

27.35 **Number of not unique values for a field [ON] F-I37**

Property	Specification
Code	[ON] F-I37
Name	Number of not unique values for a field
Specification	The indicator computes the number of values which occur more than one time among all values.
Applies to	Integer, Decimal, String, Boolean, Date, Time, and Date time
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Number of not unique values.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

27.36 **Field maximum length [ON] F-I38**

Property	Specification
Code	[ON] F-I38
Name	Field maximum length
Specification	The indicator returns the length of the longest field value.
Applies to	String
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Length of the longest field value.
Input parameters	Count null characters as 1 size (default value: Yes) Count white spaces as 1 size (default value: Yes)
Available display modes	Digital (default), line chart, bar chart, sparkline

27.37 **Field minimum length [ON] F-I39**

Property	Specification
Code	[ON] F-I39
Name	Field minimum length
Specification	The indicator computes the length of the shortest field value.
Applies to	String
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Length of the shortest field value
Input parameters	Count null characters as 1 size (default value: Yes) Count white spaces as 1 size (default value: Yes)
Available display modes	Digital (default), line chart, bar chart, sparkline

27.38 **Field average length [ON] F-I40**

Property	Specification
Code	[ON] F-I40
Name	Field average length
Specification	The indicator computes the average length of a field value.
Applies to	String
Linked records	Yes.
Applied to D.E.C. type	Field
Output parameters	Average length of a field value: sum of length of all distinct values of a field divided by the number of distinct values
Input parameters	Count null characters as 1 size (default value: Yes) Count white spaces as 1 size (default value: Yes)
Available display modes	Digital (default), line chart, bar chart, sparkline

27.39 **Average field value [ON] F-I41**

Property	Specification
Code	[ON] F-I41
Name	Average field value
Specification	The indicator computes the sum of all values of the field in the table divided by the number of non-null values. If all values are null, the result is ‘NULL’.
Applies to	Integer, Decimal
Linked records	No
Applied to D.E.C. type	Field
Output parameters	Average of a field's values.
Input parameters	None
Available display modes	Digital, line chart, bar chart, spark line chart

27.40 **Median field value [ON] F-I42**

Property	Specification
Code	[ON] F-I42
Name	Median field value
Specification	The indicator computes the median of a numeric series. It returns the value which divides all the values sorted in 2 sub lists of the same size. If the number of values is odd, the result is the middle value of the list of all the values sorted. If the number of values is even, the result is the mean of the two values in the middle of the list of all the values sorted. If all values are null, the result is ‘NULL’.
Applies to	Integer, Decimal
Linked records	No
Applied to D.E.C. type	Field
Output parameters	Median of a field's values.
Input parameters	None
Available display modes	Digital, line chart, bar chart, spark line chart

27.41 **Field value range [ON] F-I43**

Property	Specification
Code	[ON] F-I43
Name	Field value range
Specification	The indicator computes the difference between the highest value and the lowest value of a numeric series.
Applies to	Integer, Decimal
Linked records	No
Applied to D.E.C. type	Field
Output parameters	Range of a field's values.
Input parameters	None
Available display modes	Digital, line chart, bar chart, spark line chart

27.42 **Highest field value [ON] F-I44**

Property	Specification
Code	[ON] F-I44
Name	Highest field value
Specification	The indicator returns the highest value among all values of a field. If all values are null, the result is ‘NULL’.
Applies to	Integer, Decimal
Linked records	Yes
Applied to D.E.C. type	Field
Output parameters	Highest field value.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

27.43 **Lowest field value [ON] F-I45**

Property	Specification
Code	[ON] F-I45
Name	Lowest field value
Specification	The indicator returns the lowest value among all values of a field. If all values are null, the result is ‘NULL’.
Applies to	Integer, Decimal
Linked records	Yes
Applied to D.E.C. type	Field
Output parameters	Lowest field value.
Input parameters	None
Available display modes	Digital (default), line chart, bar chart, sparkline

CHAPTER 28

Indicators applied to a workflow

This chapter contains the following topics:

1. Number of workflow publications [ON] W-I01
2. Number of open workflow instances per publication [ON] W-I02
3. Nb. of work items per state for a workflow publication [ON] W-I03
4. Task average processing time - workflow publication [ON] W-I04
5. Longest task duration [ON] W-I05
6. Workflow publication average processing time [ON] W-I06
7. Completed workflow instances since last execution [ON] W-I08
8. Workflow instances statistics [ON] W-I09
9. Task acceptance statistics for a workflow publication [ON] W-I10

28.1 **Number of workflow publications [ON] W-I01**

Property	Specification
Code	[ON] W-I01
Name	Number of workflow publications
Use other indicators	N/A
Specification	Compute the number of active and inactive workflow publications existing in the repository. Note: when a workflow is published multiple times, the user has the choice of replacing the current publication, in which case EBX® saves a snapshot of the publication and makes it inactive before updating. These publications are visible in Administration workflow and can be activated again if desirable.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	"Number of active publications": integer "Number of inactive publications: integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	N/A
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbWorkflowPublication

28.2 **Number of open workflow instances per publication [ON] W-I02**

Property	Specification
Code	[ON] W-I02
Name	Number of open workflow instances per publication
Use other indicators	N/A
Specification	Compute the number of workflow instances for a workflow publication
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	"Number of open instances": integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	N/A
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbWorkfowInstancesPerPublication

28.3 Nb. of work items per state for a workflow publication [ON] W-I03

Property	Specification
Code	[ON] W-I03
Name	Number of work items per state for a workflow publication
Use other indicators	N/A
Specification	For all instances of a workflow publication the indicator computes the number of work items for each possible state: allocated, offered, started, completed and error.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	"Number of allocated work items": integer "Number of offered work items": integer "Number of started work items": integer "Number of completed work items": integer "Number of error work items":integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	N/A
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	No
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbWorkItemStateForWokflowPublication

28.4 **Task average processing time - workflow publication [ON] W-I04**

Property	Specification
Code	[ON] W-I04
Name	Task average processing time for a workflow publication
Use other indicators	N/A
Specification	This indicator computes the average processing time of each task for all the instances of a workflow publication during a period (periodicity of control). The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the 'monthly' periodicity, if the indicator executes on April 5, then the period is the first five days of April. You can also configure a user (input parameter) when the computation must be applied to only a user.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	"Average processing time": Interval (the format is defined by configuring the input parameter "Interval format") "Task name": String "User": User profile
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each task.
Input parameters	"Maximum of outputs":Integer (default = unbounded) "User": User profile (if undefined then the computation is achieved for all users and profiles). "Interval format": enumeration, with such possible values: (x weeks, y days), (x days, y hours), (x days, y hours, z minutes, w seconds), etc. "Calculate from the time offered or allocated": If set to 'Yes', a task's processing time will be calculated from the moment it is offered or allocated. Otherwise the calculation uses the start time of the task.
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONTaskAverageProcessingTimeForAWorkflowPublication

28.5 **Longest task duration [ON] W-I05**

Property	Specification
Code	[ON] W-I05
Name	Longest task duration
Specification	This indicator computes the tasks with the longest durations for a wokflow publication during a period (periodicity of control). The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the 'monthly' periodicity, if the indicator executes on April 5, then the period is the first five days of April. If the periodicity of control is set to 'any' then all time is considered. In this case, the 'From date' output is the creation time of the task, and the 'To date' is the indicator execution time. If the periodicity of control is set to 'none' then the input parameters are used. All instances of the publication are used. Only the tasks which have the started date in the range of the periodicity get computed. The duration is the difference between the started and the completed states. A task that is not completed is considered to have completed date equal to the date of the indicator execution. The maximum number of tasks durations is configured through the input parameter 'Maximum of output'. You can also configure a user (input parameter) when the computation must be applied to a user only.
Applied to D.E.C. type	Worklfow
Output parameters	"Task name": String "Task duration of a workflow instance": Interval (The duration between the start time and end time of a workflow instance's task represented through the 'Interval format'.) "Task average duration of all workflow instances": Interval (The average duration between the start time and end time of a task of all workflow instances represented through the 'Interval format'.) "From date": Timestamp "To date": Timestamp "User": User profile
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each task.
Input parameters	"Maximum of output": Integer (default value = 1) "From date": Timestamp "To date": Timestamp "User": User-profile (if undefined then the computation is achieved for all users and profiles). "Interval format": enumeration, with such possible values: (x weeks, y days), (x days, y hours), (x days, y hours, z minutes, w seconds), etc. "Calculate from the time offered or allocated": If set to 'Yes', a task's processing time will be calculated from the moment it is offered or allocated. Otherwise the calculation uses the start time of the task. "Average calculation for all instances": If set to 'Yes', the indicator will compute the average duration of a task for all instances. Otherwise it will compute the task duration for each instance separately.

Property	Specification
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any, none Minimum threshold=no, Maximum threshold=no, Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONLongestTaskDuration

28.6 **Workflow publication average processing time [ON] W-I06**

Property	Specification
Code	[ON] W-I06
Name	Workflow publication average processing time
Use other indicators	N/A
Specification	This indicator computes the average processing time for a workflow publication during a period (periodicity of control). The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the 'monthly' periodicity, if the indicator executes on April 5, then the period is the first five days of April. If the periodicity of control is set to 'any' then all time is considered. In this case, the 'From date' output is the creation time of the task, and the 'To date' output is the indicator execution time. If the periodicity of control is set to 'none' then the input parameters are used. All completed instances of the publication are used. The duration is the difference between the started and the completed date of all tasks. You can also configure a user (input parameter) when the computation must be applied to a user only.
Linked records	no
Applied to D.E.C. type	Worklfow
Output parameters	"Workflow publication average processing time': Interval (the format is defined by configuring the input parameter "Interval format") "From date": Timestamp "To date": Timestamp "User": User-profile
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"From date": Timestamp "To date": Timestamp "User": User-profile (if undefined then the computation is achieved for all users and profiles). "Interval format": enumeration, with such possible values: (x weeks, y days), (x days, y hours), (x days, y hours, z minutes, w seconds), etc. "Calculate from the time offered or allocated": If set to 'Yes', a task's processing time will be calculated from the moment it is offered or allocated. Otherwise the calculation uses the start time of the task.
Computation frequency	"On demand"

Property	Specification
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any, none Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONWorkflowPublicationAverageProcessingTime

28.7 **Completed workflow instances since last execution [ON] W-I08**

Property	Specification
Code	[ON] W-I08
Name	Completed workflow instances since last execution
Use other indicators	N/A
Specification	This indicator's goal is to provide reporting on the number of workflow instances closed during a period of time (time elapsed since 2 executions of the workflow). Coupled with the scheduler it can provide information on the efficiency of a team to process a particular workflow over time. For ex: if executed once a month, the final output can show if the team is improving it's "performance" or not.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	"Number of completed workflow instances": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONClosedWorkflowInstanceSinceLastExecution

28.8 **Workflow instances statistics [ON] W-I09**

Property	Specification
Code	[ON] W-I09
Name	Workflow instances statistics
Use other indicators	N/A
Specification	Compute the numbers of workflow instances in different states (In progress, Rejected/Cancelled, and Validated) and the average validation duration for a workflow publication during a period. Only terminated tasks are considered for the validation duration. The computation is performed in an 'absolute' mode, not on a rolling basis.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	'Number of instances in progress': Integer. Not yet finished instances. 'Number of rejected/cancelled instances': Integer. Rejected or manually cancelled instances. 'Number of validated instances': Integer. Successfully finished instances. 'Average validation duration': Interval (the format is defined by configuring the input parameter 'Interval format').
Supported chart types	Line chart: All outputs Pie chart: • Number of instances in progress • Number of rejected/cancelled instances • Number of validated instances Bar chart: All outputs
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	'Interval format': enumeration, with such possible values: (x weeks, y days), (x days, y hours), (x days, y hours, z minutes, w seconds), etc.
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly (default), weekly, daily, any. Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no

Property	Specification
Save last value only	Configuration
Email alert	Configuration
Data view	ONWorkfowInstancesStatistics

28.9 **Task acceptance statistics for a workflow publication [ON] W-I10**

Property	Specification
Code	[ON] W-I10
Name	Task acceptance statistics for a workflow publication
Use other indicators	N/A
Specification	This indicator computes the number of accepted work items and the number of rejected work items together with their corresponding percentage of each task for all instances of a workflow publication during a period. The computation is performed in an 'absolute' mode, not on a rolling basis.
Linked records	no
Applied to D.E.C. type	Workflow
Output parameters	'Task name': String 'Number of acceptances': Integer 'Number of rejections': Integer 'Acceptance percent': Percentage 'Rejection percent': Percentage
Supported chart types	Line chart: All output parameters (limited to the first sequence) Pie chart: • Number of acceptances • Number of rejections Bar chart: • Task name • Number of acceptances • Number of rejections
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each task.
Input parameters	N/A
Computation frequency	'On demand'
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly (default), weekly, daily, any. Minimum threshold=no Maximum threshold=no

Property	Specification
	Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONTaskAcceptanceStatisticsForWokflowPublication

CHAPTER 29

Indicators applied to a dataset - dataspace

This chapter contains the following topics:

1. Dataset completeness rate [ON] D-I01
2. Dataset freshness [ON] D-I02
3. Number of operations on the tables in a dataset [ON] D-I03
4. Dataspace information [ON] D-I04
5. Nb. of dataspaces and snapshots without description [ON] D-I08
6. Nb. of child dataspaces - snapshots created for a given period [ON] D-I09
7. Dataspace lifetime [ON] D-I10

29.1 **Dataset completeness rate [ON] D-I01**

Property	Specification
Code	[ON] D-I01
Name	Dataset completeness rate
Use other indicators	N/A
Specification	This indicator computes the 'completeness rate' of every table in the dataset and then computes the average rate. The completeness computation follows the rules described for the indicator 'TI-04 Table completeness rate'.
Linked records	no
Applied to D.E.C. type	Dataset
Output parameters	"Dataset completeness rate": Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONDatasetCompletenessRate

29.2 **Dataset freshness [ON] D-I02**

Property	Specification
Code	[ON] D-I02
Name	Dataset freshness
Use other indicators	N/A
Specification	This indicator computes the 'freshness' of every table in the dataset and then computes the average rate. The freshness computation follows the rules described for the indicator 'TI-06 Table freshness'.
Linked records	no
Applied to D.E.C. type	Dataset
Output parameters	"Dataset freshness (in days)": Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONDatasetFreshness

29.3 **Number of operations on the tables in a dataset [ON] D-I03**

Property	Specification
Code	[ON] D-I03
Name	Number of operations on tables in a dataset
Use other indicators	N/A
Specification	This indicator retrieves the most updated values of the number of operations (creation, modification, deletion) of every table in the dataset and computes and saves the total and the average results. This indicator uses the data history.
Linked records	no
Applied to D.E.C. type	Dataset
Output parameters	"Total number of creation": Integer "Total number of modification": Integer "Total number of deletion": Integer "Average number of creation": Decimal "Average number of modification": Decimal "Average number of deletion": Decimal
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Chart display mode": String. To display either the total numbers or the average numbers for charts.
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONNumberOfOperationsOnTablesInDataSet

29.4 **Dataspace information [ON] D-I04**

Property	Specification
Code	[ON] D-I04
Name	Dataspace information
Use other indicators	N/A
Specification	This indicator computes and saves four values applied to the dataspace: - number of open dataspaces - number of close dataspaces - number of open version (snapshot) - number of close version (snapshot)
Linked records	no
Applied to D.E.C. type	Dataspace
Output parameters	"Number of open dataspaces": Integer "Number of close dataspaces": Integer "Number of open version (snapshot)": Integer "Number of close version (snapshot)": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONDataspaceInformation

29.5 **Nb. of dataspaces and snapshots without description [ON] D-I08**

Property	Specification
Code	[ON] D-I08
Name	Number of dataspaces and snapshots without description
Use other indicators	N/A
Specification	This indicator computes the number of dataspaces and snapshots for a dataspace without any description (short label and long description are empty). This indicator computes for all descendants of the selected dataspace. The use of the "Use closed snapshots" and "Use closed dataspace" is an option.
Linked records	no
Applied to D.E.C. type	Dataspace
Output parameters	"Number of dataspaces without any description": Integer "Number of snapshots without any description": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Use closed dataspaces": Boolean "Use closed snapshots": Boolean
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONNumberOfDataSpaceSnapshotsWithoutAnyDescription

29.6 **Nb. of child dataspaces - snapshots created for a given period [ON] D-I09**

Property	Specification
Code	[ON] D-I09
Name	Number of child dataspaces and snapshots created for a given period
Use other indicators	N/A
Specification	This indicator computes the number of created child dataspaces and snapshots for a dataspace during a period (periodicity of control). The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the indicator is executed on April 5 then the period is the five first day of April. If the periodicity of control is 'any' then all time is considered. In this case the output "from date" is the creation time of the dataspace, and the output "To date" is the execution time of the indicator. If the periodicity of control is 'none' then the input parameters are used. The use of the "Use closed snapshots" and "Use closed dataspace" is an option.
Linked records	no
Applied to D.E.C. type	Dataspace
Output parameters	"Number of child dataspaces created": Integer "Number of snapshots created": Integer "From date": Timestamps "To date": Timestamps
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	"Use closed dataspaces": Boolean "Use closed snapshots": Boolean 'From date': Timestamps 'To date': Timestamps
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any, none Minimum threshold=no Maximum threshold=no Tolerance number=no

Property	Specification
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONNumberOfCreatedChildDataSpaceForAPeriod

29.7 **Dataspace lifetime [ON] D-I10**

Property	Specification
Code	[ON] D-I10
Name	Dataspace lifetime
Use other indicators	N/A
Specification	This indicator computes the dataspace lifetime in days, between its creation and its closure. If the dataspace is not closed, then the lifetime value is from its creation time to the execution time. If the relational dataspace is closed, this indicator will appear at the master reference service to compute all closed dataspaces that are configured with this indicator. The same computation is performed for every child of the dataspace except if the input parameter 'Compute parent dataspace only' is set to 'True'.
Linked records	no
Applied to D.E.C. type	Dataspace
Output parameters	'Dataspace name': String "Lifetime (days)": Interval (the format is defined by configuring the input parameter "Format Day + Time")
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table for each dataspace.
Input parameters	"Compute parent dataspace only": Boolean 'Interval format': enumeration, with such possible value: (x weeks, y days), (x days, y hours), (x days, y hours, z minutes, w seconds), etc.
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=no Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONDataSpaceLifetime

CHAPTER 30

Indicators applied to an operation

This chapter contains the following topics:

1. Number of operation execution [ON] O-I01
2. Operation average execution time [ON] O-I02

30.1 **Number of operation execution [ON] O-I01**

Property	Specification
Code	[ON] O-I01
Name	Number of operation execution
Use other indicators	N/A
Specification	This indicator computes the number of times an operation has been started based on the log from the EBX® Activity Monitoring Add-on. A period can be used to compute the result. This period is configured by the periodicity of control. The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the indicator is executed on April 5 then the period is the five first days of April. When the periodicity of control is equal to 'any' then all time is considered. The property 'Start date' of the EBX® Activity Monitoring Add-on log is used to compute the number of execution during a period.
Linked records	no
Applied to D.E.C. type	Operation (selection of an operation in the table Operation of the EBX® Activity Monitoring Add-on)
Output parameters	"Product name": String "Operation': String "Number of operation execution": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration
Email alert	Configuration
Data view	ONNbOfOperationExecution

30.2 **Operation average execution time [ON] O-I02**

Property	Specification
Code	[ON] O-I02
Name	Operation average execution time
Use other indicators	N/A
Specification	This indicator computes the average execution time of an operation based on the log from the EBX® Activity Monitoring Add-on. A period can be used to compute the result. This period is configured by the periodicity of control. The computation is performed in an 'absolute' mode, and not on a rolling basis. For example, for the periodicity 'monthly', if the indicator is executed on April 5 then the period is the five first days of April. When the periodicity of control is equal to 'any' then all time is considered. An operation execution log is used for the computation if the property 'End date' is available in the EBX® Activity Monitoring Add-on log. When the property 'End date' is empty, it means that the operation is not yet terminated, then it is ignored to compute the average. The property 'Start date' of the EBX® Activity Monitoring Add-on log is used to compute the operation average execution time during a period.
Linked records	no
Applied to D.E.C. type	Operation (selection of an operation in the table Operation of the EBX® Activity Monitoring Add-on)
Output parameters	"Product name": String "Operation': String "Operation average execution time (in minutes)": Integer
Storage procedure	Any resulting value is stored
Reporting table	'Flat data report' - One record is saved in the Flat data report table.
Input parameters	Void
Computation frequency	"On demand"
Periodicity of control and watchdog	Periodicity of control=yearly, semester, quarterly, monthly, weekly, daily, any Minimum threshold=no Maximum threshold=no Tolerance number=no
Probe	no
Save last value only	Configuration

Property	Specification
Email alert	Configuration
Data view	ONOperationAverageExecutionTime

Release Notes

CHAPTER 31

Version 2.8.10

Released: January 2023

This chapter contains the following topics:

1. New features
2. Changes in Functionality
3. Changes in third-party libraries
4. Closed Issues
5. Known Issues

31.1 New features

This release contains no new features.

31.2 Changes in Functionality

This release includes no updated functionality.

31.3 Changes in third-party libraries

This release contains no changes to third-party libraries.

31.4 Closed Issues

[DQID-3503] An HTML block is displayed instead of rendering the user service screen.

31.5 Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- If using a Postgres 9.2 database and you want to replicate add-on tables, table names cannot be longer than 63 characters.

- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

CHAPTER 32

All release notes

This chapter contains the following topics:

1. Version 2.8.10
2. Version 2.8.9
3. Version 2.8.8
4. Version 2.8.7
5. Version 2.8.6
6. Version 2.8.5
7. Version 2.8.4
8. Version 2.8.3
9. Version 2.8.2
10. Version 2.8.1
11. Version 2.8.0
12. Version 2.7.7
13. Version 2.7.6
14. Version 2.7.5
15. Release Note 2.7.4
16. Release Notes 2.7.3
17. Release Notes 2.7.2
18. Release Notes 2.7.1
19. Release Notes 2.7.0
20. Release Notes 2.6.1
21. Release Notes 2.6.0
22. Release Notes 2.5.0
23. Release Note 2.4.0
24. Release Note 2.3.2
25. Release Note 2.3.1
26. Release Note 2.3.0

27. Release Note 2.2.2
28. Release Note 2.2.1
29. Release Note 2.2.0
30. Release Note 2.1.2
31. Release Note 2.1.1
32. Release Note 2.1.0
33. Release Note 2.0.0
34. Release Note 1.6.1
35. Release Note 1.6.0
36. Release Note 1.5.2 fix 001
37. Release Note 1.5.2
38. Release Note 1.5.1 fix 003
39. Release Note 1.5.1 fix 002
40. Release Note 1.5.1 fix 001
41. Release Note 1.5.1
42. Release Note 1.5.0
43. Release Note 1.4.3
44. Release Note 1.4.2
45. Release Note 1.4.1
46. Release Note 1.4.0
47. Release Note 1.3.6
48. Release Note 1.3.5
49. Release Note 1.3.4
50. Release Note 1.3.3
51. Release Note 1.3.2
52. Release Note 1.3.1 fix 001
53. Release Note 1.3.1
54. Release Note 1.3.0 fix 001
55. Release Note 1.3.0
56. Release Note 1.2.0
57. Release Note 1.1.2
58. Release Note 1.1.1 fix 001
59. Release Note 1.1.1
60. Release Note 1.1.0
61. Release Note 1.0.1
62. Release Note 1.0.0

32.1 Version 2.8.10

Released: January 2023

New features

This release contains no new features.

Changes in Functionality

This release includes no updated functionality.

Changes in third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

[DQID-3503] An HTML block is displayed instead of rendering the user service screen.

Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- If using a Postgres 9.2 database and you want to replicate add-on tables, table names cannot be longer than 63 characters.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

32.2 Version 2.8.9

Released: December 2022

New features

This release contains no new features.

Changes in Functionality

This release includes no updated functionality.

Changes in third-party libraries

The Apache Batik library was updated to version 1.16.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- If using a Postgres 9.2 database and you want to replicate add-on tables, table names cannot be longer than 63 characters.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

32.3 **Version 2.8.8**

Released: October 2022

New features

This release contains no new features.

Changes in Functionality

This release includes no updated functionality.

Changes in third-party libraries

This release contains the following changes to third-part libraries:

- The Xalan library was removed.
- The Apache Batik library was updated to version 1.15.
- The taglibs library was removed.
- The FasterXML jackson-databind library was updated 2.14.0-rc2.

Closed Issues

This release contains the following closed issues:

- **[DQID-3454]** The list of dashboards is not sorted in alphabetical order.
- **[DQID-3475]** A vulnerability needs to be fixed.
- **[DQID-3476]** The results display differently in line and bar charts.

Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- If using a Postgres 9.2 database and you want to replicate add-on tables, table names cannot be longer than 63 characters.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

32.4 **Version 2.8.7**

Released: August 2022

New features

This release contains no new features.

Changes in Functionality

This release includes no updated functionality.

Changes in third-party libraries

This release includes no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DQID-3366]** Replication tables cannot be created when the name length exceeds the database's table name limit.
- **[DQID-3418]** The correct status is not displayed after executing an indicator.
- **[DQID-3459]** Charts do not display correctly when workflow tasks have the same name.

Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- If using a Postgres 9.2 database and you want to replicate add-on tables, table names cannot be longer than 63 characters.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

32.5 Version 2.8.6

Released: May 2022

New features

This release contains no new features.

Changes in Functionality

This release includes no updated functionality.

Changes in third-party libraries

The Spring framework was updated to version 5.2.22.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.

32.6 Version 2.8.5

Released: April 2022

New features

This release contains no new features.

Changes in Functionality

This release contains no functionality changes.

Changes to third-party libraries

This release contains the following third-party library updates:

- The FasterXML/jackson-databind library was updated to version 2.13.2.1.
- The Spring framework was updated to version 5.2.20.

Closed issues

This release contains no closed issues.

Known issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.
- The number formatting on charts generated from the API does not follow the EBX® locale.

32.7 Version 2.8.4

Released: March 2022

New features

This release contains no new features.

Changes in Functionality

This release contains no functionality changes.

Changes to third-party libraries

This release contains the following third-party library updates:

- The jQuery library was updated to version 3.6.0.
- The Spring framework was updated to version 5.2.19.
- The Apache Xerces library was updated to version 2.12.2.
- The Apache XML Graphics library was updated to version 2.7.

Closed issues

This release contains the following closed issues:

- **[DQID-3435]** A `StackOverFlowError` occurs when executing the WI04 indicator.
- **[DQID-3437]** All sub workflows do not display in the graph.
- **[DQID-3438]** An error occurs when exporting the dashboard to PDF.

Known issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.
- The number formatting on charts generated from the API does not follow the EBX® locale.

32.8 **Version 2.8.3**

Released: January 2022

New features

This release contains no new features.

Changes in Functionality

This release contains no functionality changes.

Changes to third-party libraries

This release contains no third-party library updates.

Closed issues

[DQID-3433] An error message displays when selecting a record and running one of the add-on's services.

Known issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.
- The number formatting on charts generated from the API does not follow the EBX® locale.

32.9 **Version 2.8.2**

Released: December 2021

New features

This release contains no new features.

Changes in Functionality

This release contains no functionality changes.

Changes to third-party libraries

This release contains the following third-party library updates:

- The Spring Framework was updated to version 5.2.15.
- The jQuery UI library was updated to version 1.13.0.

Closed issues

This release contains the following closed issues:

- **[DQID-3412]** Validate content when running the **Dashboard configure** service.
- **[DQID-3415]** Validate record content when opened from an indicator, the **D.E.C.** table, or the **Correlated watchdog** tab.

Known issues

This release contains the following known issues:

- Dashboard export: There are several differences in styles between the charts on browsers and those in the exported files.
- Flat data report: Dynamic labels and descriptions are not applied when directly accessing the table in the reporting datasets.
- Hierarchy view by data models on the **Indicator on D.E.C.** table: Orders of data elements may not be the same as in the data models.
- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.
- The number formatting on charts generated from the API does not follow the EBX® locale.

32.10 **Version 2.8.1**

Released: June 2021

Updates

This release contains the following updates:

- Spring Data was removed from `ui-framework-dependencies.jar`.
- The Apache Commons IO library was updated to version 2.8.0.

32.11 **Version 2.8.0**

Released: May 2021

Updates

This release contains the following updates:

- The behavior of the **Maximum number of groups** option was updated for grouped results. Now, the number specified by this property determines the number of groups that are computed and the number of groups that display in the indicator.
- The Apache Batik library was updated to version 1.14.

32.12 **Version 2.7.7**

Released: March 2021

Updates

An update was applied to correct an issue with the Apache Standard Taglibs library.

32.13 Version 2.7.6

Released: February 2021

Bug fixes

This release contains the following bug fixes:

- **[DQID-3361]** The date format displayed in dashboards is incorrect.
- **[DQID-3362]** The French translation of "grouped by" was updated.

32.14 Version 2.7.5

Released: January 2021

Featured updates

This release contains the following library updates:

- Apache Standard Taglibs library to version 1.2.3.
- Spring framework library to version 5.2.9.
- Jackson Databind library to version 2.11.2.

Dashboard export templates can no longer include Document Type Definition (DTD) declarations. The add-on will throw an error if this element type is included in a template.

32.15 Release Note 2.7.4

Release Date: September 18, 2020

Featured update

- The add-on has been updated to support the OpenJDK8 and OpenJDK11 libraries.
- Libraries were updated to fix some potential issues.

Bug fixes

This release contains the following bug fixes:

- **[DQID-3321]** Some JAXB libraries need adding to support JDK11.
- **[DQID-3324]** CLONE - [JDK8][F-I31] The chart on the dynamic report screen is displayed incorrectly.

32.16 Release Notes 2.7.3

Release Date: June 23, 2020

Product updates

This release includes an updated version of the jQuery library (version 3.4.0).

Bug fixes

This release includes the following bug fixes:

- **[DQID-3263]** CLONE - [F-I31] A bar chart from a group is not exported correctly in a PDF file.
- **[DQID-3264]** CLONE - The chart title is not aligned on **Dynamic report result** when not focusing on the chart.
- **[DQID-3265]** CLONE - The sparkline chart is not displayed on a dashboard tile.
- **[DQID-3266]** CLONE - The grouping bar chart is displayed in a user-unfriendly manner on the dashboard and the **Query** screen.
- **[DQID-3267]** CLONE - The periodicity of line and bar charts on a full tile is incorrect when users apply a scroll period.
- **[DQID-3268]** CLONE - [Purge indicators] Incorrect results are returned on the **Indicator** and **D.E.C.** fields when executing the **Purge indicators** service.
- **[DQID-3269]** CLONE - Incorrect result are returned after executing the F-I39 indicator with the **Count white spaces as 1 size** field set to **No**.
- **[DQID-3270]** CLONE - The F-I40 indicator returns inconsistent results between the **Overview** and detail result tabs.
- **[DQID-3271]** CLONE - It is not possible to filter invalid records on the **D.E.C.** table.
- **[DQID-3272]** CLONE - An error is displayed after users select a workflow indicator on the **Dynamic report** page.
- **[DQID-3273]** CLONE - The **Export to PDF** button is missing after creating a new tile on a dashboard.
- **[DQID-3274]** CLONE - [Query] D.E.C.s cannot be filtered on the **Filtering by D.E.C.** pane when there is one indicator attached to D.E.C.s in another dataspace.
- **[DQID-3275]** CLONE - [F-I20] The linked record is displayed incorrectly on a bar chart that uses grouping.
- **[DQID-3276]** CLONE - An error occurs in the UI when running the **Purge indicators** service.
- **[DQID-3277]** CLONE - A value is duplicated on the Y axis of line and bar charts when displayed in a small tile.
- **[DQID-3282]** An add-on description in French is not translated.

32.17 **Release Notes 2.7.2**

Release Date: April 20, 2020

Bug fixes

This release includes the following bug fixes:

- **[DQID-3222]** A `NullPointerException` occurs when the grouping function of an indicator is used.
- **[DQID-3260]** [Dashboard] The **Input parameters** field and the **Grouping options** tab are not available in the **Configuration** screen.

- **[DQID-3261]** [Dashboard] There are a redundant date picker and a zoom option on the full size chart tile.

32.18 Release Notes 2.7.1

Release Date: January 15, 2020

Product updates

The TIBCO EBX® Insight Add-on no longer ships with certain third-party Limited General Public License (LGPL) libraries. You must re-package the add-on before you can successfully deploy it. The add-on bundle includes a script to automate this process. Please see the *TIBCO EBX™ Add-ons Versioning and Packaging Guide* for detailed instructions. You can find this guide in the PDF documents included with your add-on bundle, or on *https://docs.tibco.com* under the page dedicated to the TIBCO EBX™ 4.3.2 Add-ons Bundle.

Bug fixes

This release includes the following bug fixes:

- **[DQID-291]** A user un-friendly message is displayed after deleting indicators in a section.
- **[DQID-330]** [Dashboard] The message [Empty value] displays after users add a new indicator using the Dashboard UI.
- **[DQID-563]** [F-I19] Inconsistent result between Execute (on demand mode) and Query (re-time mode) after running the indicator F-I19.
- **[DQID-569]** [LAYOUT][Dashboard] The order of tiles are different after enabling Different tiles by group.
- **[DQID-828]** [ChartAPI] Category bar chart display overlaps when the 'stack' value is No.
- **[DQID-848]** [Integrated 5.9.0] The grouping bar chart is displayed incorrectly on small/big/full tile on dashboard.
- **[DQID-906]** [Integrated 5.9.0] [Dashboard] The field 'Separate tiles by group' is hidden on the 'Add new section' popup.
- **[DQID-1289]** [Dynamic report] Users can still execute an indicator without defining 'Maximum Threshold field'.
- **[DQID-1416]** The information related to the Big data report table should be hidden for the 'D.E.C. purge' service.
- **[DQID-1577]** [Dynamic report] [F-I05,F-I19, F-I20, F-I23, T-I15] No error message displays when users enter an invalid value.
- **[DQID-2878]** [S6] Periodicity of control displays incorrectly on line charts.
- **[DQID-2958]** [Synthesis view]A new ebx window displays inside when clicking on Synthesis view during a purge indicator in progress.
- **[DQID-2992]** [Export PDF file][W-I04] the Digital mode displays on the exported file even though it was not displayed on the dashboard.
- **[DQID-3006]** Incorrect display of special characters on the 'Filtering by D.E.C' box.
- **[DQID-3036]** The digital tiles display inconsistently between the dashboard and the exported PDF file.

- **[DQID-3195]** The sparkline chart displays an empty tooltip on the Analytics view when enabling grouping the indicator.
- **[DQID-3197]** [F-I20, F-I31] The sparkline chart displays incorrectly on the Dashboard when enabling grouping the indicator.

32.19 Release Notes 2.7.0

Release Date: November 8, 2019

New features and updates

This release includes the following new features and updates:

- Dashboard features [p 321]
- Additional updates and enhancements [p 321]

Dashboard features

The following features have been added and updated for add-on dashboards:

- Administrators can now create a dashboard from dataset or dataspace **Actions** menu. Additionally, dashboard configuration settings can be edited directly when viewing a dashboard.
- Administrators can edit indicator configurations using a new option on dashboard tiles without having to navigate to the EBX® Administration area.
- Previously, dashboards were required to have content. To support above features, dashboard sections can now be left blank.
- When refreshing the dashboard view, the dashboard no longer redirects you to the **All** tab. Instead, it remains on the current tab.
- The dashboard refresh icon has been updated so as to differentiate its functionality from refreshing the display vs re-executing indicators.
- You now only have to double-click a section name to edit it.
- You now can enable access to the **Global dashboard** on perspectives. This allows users to select from multiple dashboards.

Additional updates and enhancements

The following lists additional updates and enhancements included in this release:

- How bar charts compute and display values has been updated. Indicator computation values for each bar now take into account the periodicity of control. This means that when users change the displayed periodicity the displayed value changes accordingly.
- The full number up to 9 digits is displayed in the indicator tile. In case the number has more than 9 digits (up to 15 digits), the number displays using scientific notation format. For example, the number 1234567890 will be displayed as 1.2346E+9.
- Pie chart tooltips now show the percentage and data value that correspond to the selected slice.
- Email notifications can now be sent to groups of users included in the same role.
- The **Label** field has been removed from the **Tile layout in dashboard** and **Indicator in section** tables.

Bug fixes

- **[DQID-252]** [Pie chart] Some charts are not shown when viewing an indicator on multiple D.E.C.s with the **Only last measure** option activated.
- **[DQID-257]** [Email] **Filter predicate** is not shown in the content of an email.
- **[DQID-412]** [Query Indicator] The **Clear field** button should be active when users enter date and time manually.
- **[DQID-416]** [Dashboard] The previous value is not shown on the digital mode of an indicator that does not support grouping.
- **[DQID-428]** [Chart API] The x-axis annotation is not fully displayed if it has many characters.
- **[DQID-500]** The list of D.E.C. types is not displayed on the **Data element search** filters of the **D.E.C.** table.
- **[DQID-2853]** [S5] A chart is displayed in different ways between the dashboard and the exported file.
- **[DQID-2854]** [Watchdog] The **Threshold defined at indicator's level** field value is not set when changing the indicator.
- **[DQID-2961]** [All browsers] The borders of the **Add**, **Remove** buttons in the **Purge indicators** service overlap.
- **[DQID-2994]** [Export PDF file][W-I04] All charts except for bar-charts are displayed on the exported file.
- **[DQID-3004]** A text overflow occurs on the **Overview** table when executing D-I01.
- **[DQID-3032]** An exception occurs when executing the F-I44 indicator if the **D.E.C.** field has greater than 15 digits.
- **[DQID-3047]** The date time display on the PDF file is wrong.
- **[DQID-3060]** [Chart API] The line chart disappears on Chart API when the data type of Y is set to boolean.
- **[DQID-3062]** [Chart API] A part of pie chart is hidden when a slice is highlighted.
- **[DQID-3064]** CLONE - [Chart API] The slice of the first pie chart is highlighted when clicking on the slice of the second pie chart.
- **[DQID-3067]** [Chart API] A bar chart does not have enough space for Year when the X axis data type is Date.
- **[DQID-3068]** [Chart API] A stacked bar chart has an exceedingly long Y axis.
- **[DQID-3071]** [Chart API] A customized template is not applied on a chart.
- **[DQID-3072]** CLONE - [Chart API] The slide does not return to the original position after being clicked on.
- **[DQID-3077]** [Chart API] A redundant space and a weird vertical scroll appear when the real legend height is greater than the legend height of the Chart table.
- **[DQID-3080]** CLONE - [Chart API] Labels and bars are not in the same location on the X-axis when users change the bar-width.
- **[DQID-3081]** CLONE - [Chart API] Tooltip description does not correspond to the actual behavior of charts.

- **[DQID-3082]** CLONE - [Chart API] The `CategoryBarChart` displays incorrectly when the number is greater than 10.
- **[DQID-3083]** CLONE - [Chart API] The bar width of a category bar chart is not displayed as being configured.
- **[DQID-3084]** CLONE - [Chart API] The values on bar charts are wrong in stack mode.
- **[DQID-3085]** CLONE - The tooltips are too far away from of their corresponding columns on a barchart.
- **[DQID-3089]** CLONE - [S6][Chart API] The format of numbers on chart API is not following the EBX® locale.
- **[DQID-3125]** Chart display is incorrect when the maximum number of group is set to 0.
- **[DQID-3135]** [Execute-Query] When executing an indicator in a dataspace, the same indicator on another data space is also executed.
- **[DQID-3137]** A tile cannot be added on the Dashboard for an indicator that has the grouping function.
- **[DQID-3150]** [Purge indicators] No matched records are found when executing the **Purge indicators** service on a record with a specified date-time.
- **[DQID-3152]** [Purge indicators] Incorrect results are returned on the Indicator and D.E.C. fields when executing the **Purge indicators** service on a D.E.C.
- **[DQID-3162]** The barchart of F-I20 is displayed incorrectly without grouping.
- **[DQID-3170]** [Chart API] The line chart is displays in a user-unfriendly manner when users enter a value from 4 to 14.
- **[DQID-3184]** [XSS] An XSS issue occurs when running the **Check configuration** service on Insight 2.7.0.
- **[DQID-3188]** [XSS] If the dataspace name contains cross-script, an XSS issue occurs when opening a D.E.C. dataset.

32.20 **Release Notes 2.6.1**

Release Date: August 2, 2019

Bug fixes

- **[DQID-2868]** [S6][Chart API] The Chart API number formatting does not follow the EBX locale conventions.
- **[DQID-3010]** [Chart API] The margins (Top - Left) in the div of the chart cannot be overridden or removed.
- **[DQID-3012]** [Chart API] A redundant scroll bar displays.
- **[DQID-3026]** [Chart API] When using the Chart API, charts can overlap and overflow.
- **[DQID-3041]** Tooltips display too far away from their corresponding columns on bar charts.
- **[DQID-3046]** The legend box is not wrapped in the charts when the legend position is SouthEast or SouthWest.
- **[DQID-3048]** [Chart API] A slice of the first pie chart is automatically highlighted when clicking on the slice of the second pie chart.

- **[DQID-3050]** [Chart API] The legend overlaps the chart when the legend position is NorthWest.
- **[DQID-3052]** [Chart API] The values of a bar chart are wrong when the chart is displayed in stack mode.
- **[DQID-3053]** [Chart API] The actual bar width is wrong after users set the bar width for a category bar chart.
- **[DQID-3054]** [Chart API] A slice does not return to its original position after selection.
- **[DQID-3063]** [Chart API] `CategoryBarChart` displays incorrectly when the number is greater than 10.
- **[DQID-3076]** [Chart API] When the bar width is changed, bars are separated away from each other and their labels are not placed underneath.
- **[DQID-3069]** [Chart API] The instruction in the tooltip does not correspond to the actual behavior of the chart.

32.21 Release Notes 2.6.0

Release Date: June 20, 2019

Updates and enhancements

This release contains the following updates and enhancements:

- The T-I07 indicator's computation frequency can now be set to **On demand**, which means the indicator can be executed at any time.
- The T-I11 indicator's output parameter display has been updated.
- The following new indicators have been added: **Least frequent field values**, **Most frequent field values**, **Field value range**, **Median field value**, and **Average field value**.
- When viewing a dashboard, administrators can now remove indicators from sections and sections from dashboards. These tasks no longer require navigation to the **Administration** area.
- An administrator can now attach indicators to a dashboard directly from the dashboard screen when creating a new tile. This alleviates the requirement of having to attach the indicator to the D.E.C. in the **Administration** tab.
- The process of importing TIBCO EBX® Data Exchange Add-on preferences has been updated.
- Previous results can now be hidden when using the **Digital** display mode.

32.22 Release Notes 2.5.0

Release Date: March 25, 2019

Updates and enhancements

This release contains the following updates and enhancements:

- The dashboard context feature has been removed. This simplifies configuration and indicator access when launching dashboards from the TIBCO EBX® toolbar. Now, the default dashboard automatically displays along with all attached indicators. The **Dashboard** drop-down menu can now be used to access available dashboards.

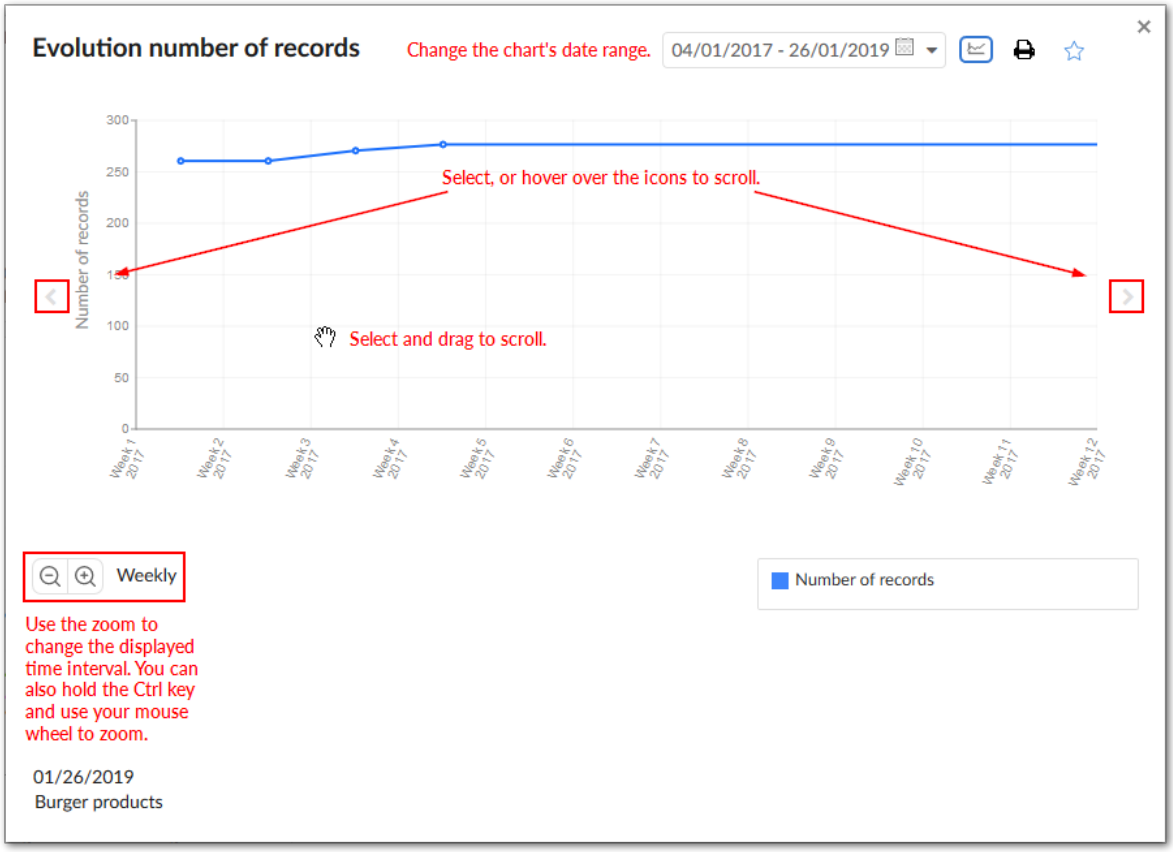
- For line and bar chart improvements, see the section below.
- The W-I04 indicator has been updated to ensure that its output display is more usable.
- Custom charts have been updated to have the same look and feel as those generated using the add-on.
- If the grouping or filter predicate features are active, the T-I03 indicator can now use the linked records feature.
- The following data profiling indicators have been added:
  - F-I34: Number of not null values for a field
  - F-I35: Number of distinct values for a field
  - F-I36: Number of unique values for a field
  - F-I37: Number of not unique values for a field
  - F-I38: Field maximum length
  - F-I39: Field minimum length
  - F-I40: Field average length
  - F-I44: Highest field value
  - F-I45: Lowest field value

Line and bar chart improvements

This release contains the following updates for line and bar charts:

- The number of annotations that display on line and bar chart tiles is now limited to the most relevant results. For example, the display no longer shows results from the current date when an indicator has not been executed recently. This can make it easier to read certain charts by reducing the number of results shown. Now, if an indicator hasn't been executed in 6 months, its tile only displays the most recent and prior executions.
- The X-axis annotation formatting for bar charts has been improved and aligns with the existing behavior of line charts. For example, when the display periodicity is set to **Daily**, the annotations include the date of execution.
- An improved scroll feature for line and bar charts has been implemented. When viewing a full size chart that includes more values than the chart can display, you can hover your mouse over the displayed arrows to the right and left of the chart, or select and drag the chart. The displayed time interval can also be changed by zooming in and out. Zooming in shows smaller, more focused

intervals and vice versa when zooming out. The maximum zoom level for bar charts is daily and line charts can zoom in to the day and hour.



Known limitations

This release contains the following known limitations:

- The date format used in the calendar and on chart axis annotations behaves as follows:
  - English: MM/dd/yyyy
  - French: dd/MM/yyyy
  - All other locales will follow English.
- The number formatting on charts generated from the API does not follow the EBX® locale.

Bug fixes

This release includes the following bug fixes:

- **[DQID-307]** [S1][IE] Indicator labels are not fully displayed in the synthesis view.
- **[DQID-376]** Some escaped characters are not properly encoded.
- **[DQID-784]** [Query] Execution of queries on the **Filter by current user** mode do not behave as expected.
- **[DQID-862]** [Sparkline chart] The colors of the sparkline chart in an exported file are not the same as those on the dashboard.

- **[DQID-965]** [S1][Dashboard] Incorrect behavior occurs when viewing tiles on a dashboard from a table.
- **[DQID-2811]** Some French messages have not been translated.

32.23 Release Note 2.4.0

Release Date: October 26, 2018

Updates and enhancements

This release contains the following updates and enhancements:

- The EBX® Insight Add-on has undergone significant updates to ensure compatibility with the EBX® 5.9.0 GA release.
- Indicators on workflow publications make use of the new EBX® API to ensure consistent results. For more information, see the EBX® Release Note documentation on workflows.
- You can now temporarily deactivate indicator execution.
- The Dashboard service has been updated so that its look and feel is consistent with that of configured perspectives.
- Now, when you launch the Dashboard from a table, it prioritizes display of indicators related to the current table and associated components.
- The **Scroll mode** button has been removed as part of an ongoing process to improve interaction with line and bar charts. It will be made available again in a future release.

Bug fixes

This release includes the following bug fixes:

- **[32848]** Retrieve the publication name of a workflow to ensure the consistency of the workflow indicators results.
- **[33323]** The **Delete** service is hidden after duplicating a record on the **Indicator definition** table.
- **[33991]** Issues running the **Purge indicators** service.
- **[34906]** The **Filter by correlation** field is missing on dashboards in perspectives.
- **[35150]** Bar charts are not displayed on small dashboard tiles.

32.24 Release Note 2.3.2

Release Date: October 12, 2018

Bug fixes

[36045] A 404 error occurs when opening a dashboard and the add-on is deployed on a WebLogic server.

32.25 Release Note 2.3.1

Release Date: July 31, 2018

New features

This release contains the following updates:

- Multiple dashboard sections can now have the same label.
- The behavior of the F-I20 indicator has been updated to correctly reflect grouping feature functionality.

Bug fixes

This release includes the following bug fixes:

- **[33157]** The dashboard cannot be closed when accessed from a workflow task.
- **[33608]** The SVG generated by the chart API not is correctly dimensioned.
- **[34287]** Dashboard icons cannot be displayed if EBX® is configured in a sub folder of the domain.

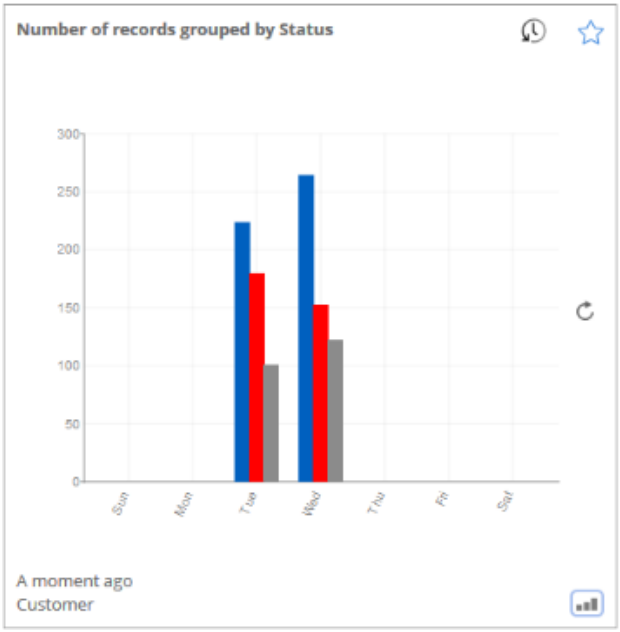
32.26 **Release Note 2.3.0**

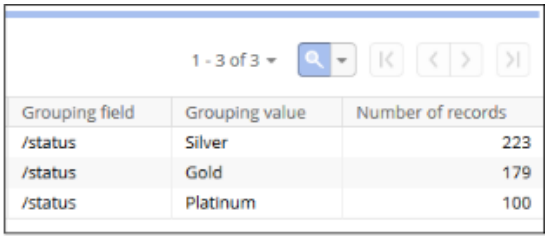
Release Date: July 4, 2018

New features

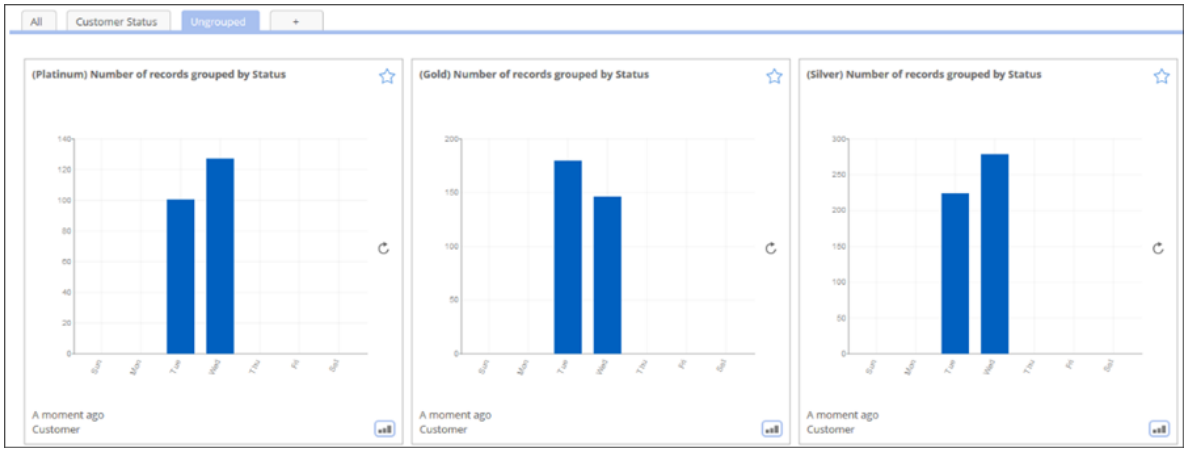
You can now group indicator execution results by value. For example, you could group results using the Status field in a Customer table. Indicators would display how many customers hold Silver, Gold, or Platinum status. You can apply the group feature to the following indicators: T-I03, F-I20, F-I31, T-I04, F-I13 and F-I18. For more details, see Overview of grouping values [p 59].

The following image shows the grouping feature when viewed in a dashboard and a tabular view of query results:

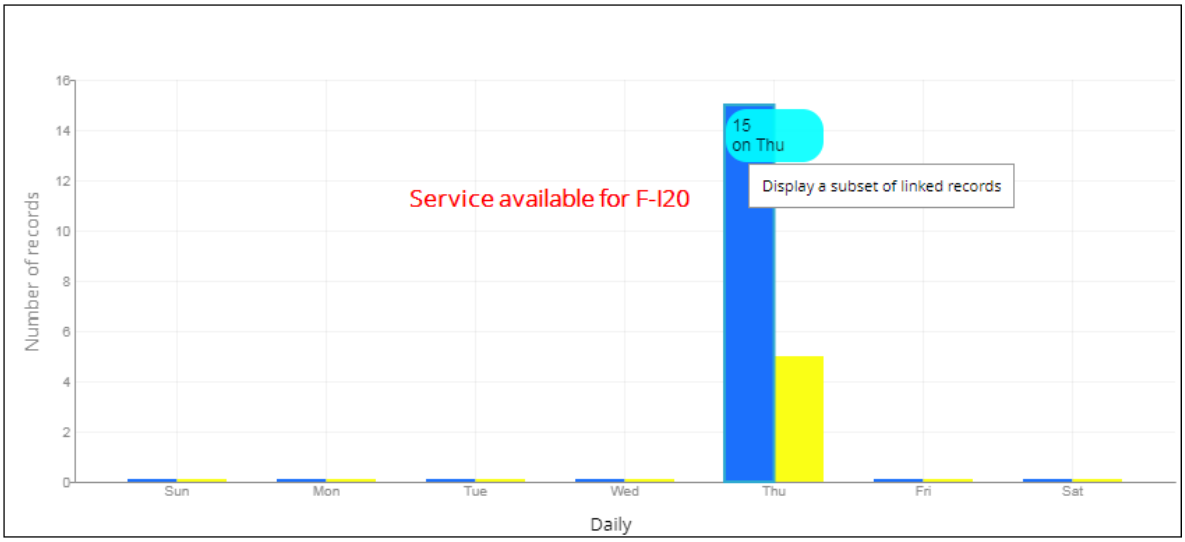




Additionally, groups can be separated so that they each display in a different dashboard tile (shown below). This can be useful to see the development of a single value over time.



When you group results, you have the option of setting a limit on the number of groups and the order in which they display. Any groups of values not displayed due to setting a limit are included in an "Other" group. When using the F-I20 indicator, the **Display a subset of linked records** is now available to display a tabular view of records in the "Other" group.



New features in the API

The following new features are available in the API:

- A new sparkline chart is available.
- Sparkline chart output can be filtered by clicking on its corresponding legend.
- Hovering over a line, bar, pie, or sparkline chart highlights its corresponding legend.
- Hovering over a legend highlights its corresponding line, bar, pie, or sparkline chart.

Bug fixes

This release includes the following bug fixes:

- **[32713]** No error message is displayed after deleting sections in the dashboard.
- **[33442]** On line chart API, the lines and points are not highlighted when hovering over a point.

32.27 Release Note 2.2.2

Release Date: May 02, 2018

New features

The following new features and enhancements are included in this release:

- Updates were made to take into account the latest version of the TIBCO EBX™ Digital Asset Manager Add-on.

New features in the API

- Line and bar chart output can be filtered by clicking items in the chart's legend.
- Chart legend appearance has been improved.
- The orientation of X axis labels has been improved.
- Value display has been updated and can be customized.

32.28 Release Note 2.2.1

Release Date: March 16, 2018

New features

The following new features and enhancements are included in this release:

- Updates were made to take into account the latest version of the Common Add-on.
- The list of available indicators in the **Attach indicators to D.E.C.** service is now filtered according to the D.E.C.
- Tile label display has been updated to improve readability.
- To improve dashboard tile display, line charts no longer include the circles that represent data points. The data points still display in full screen mode.
- Display of text for time duration in dashboard tiles has been improved.
- You can now customize Boolean value output colors using the **Chart preference table**.
- Design elements in exported PDFs of the dashboard are now consistent with dashboard design.

Bug fixes

- **[31459]** A white page displays when users create tiles for a dashboard after deleting its section.
- **[31537]** Percentage values are incorrectly displayed on chart.

32.29 Release Note 2.2.0

Release Date: January 31, 2018

New features

This release of the EBX® Insight Add-on focuses on improvements to performance and usability for the dashboard and indicators. The following sections highlight these updates:

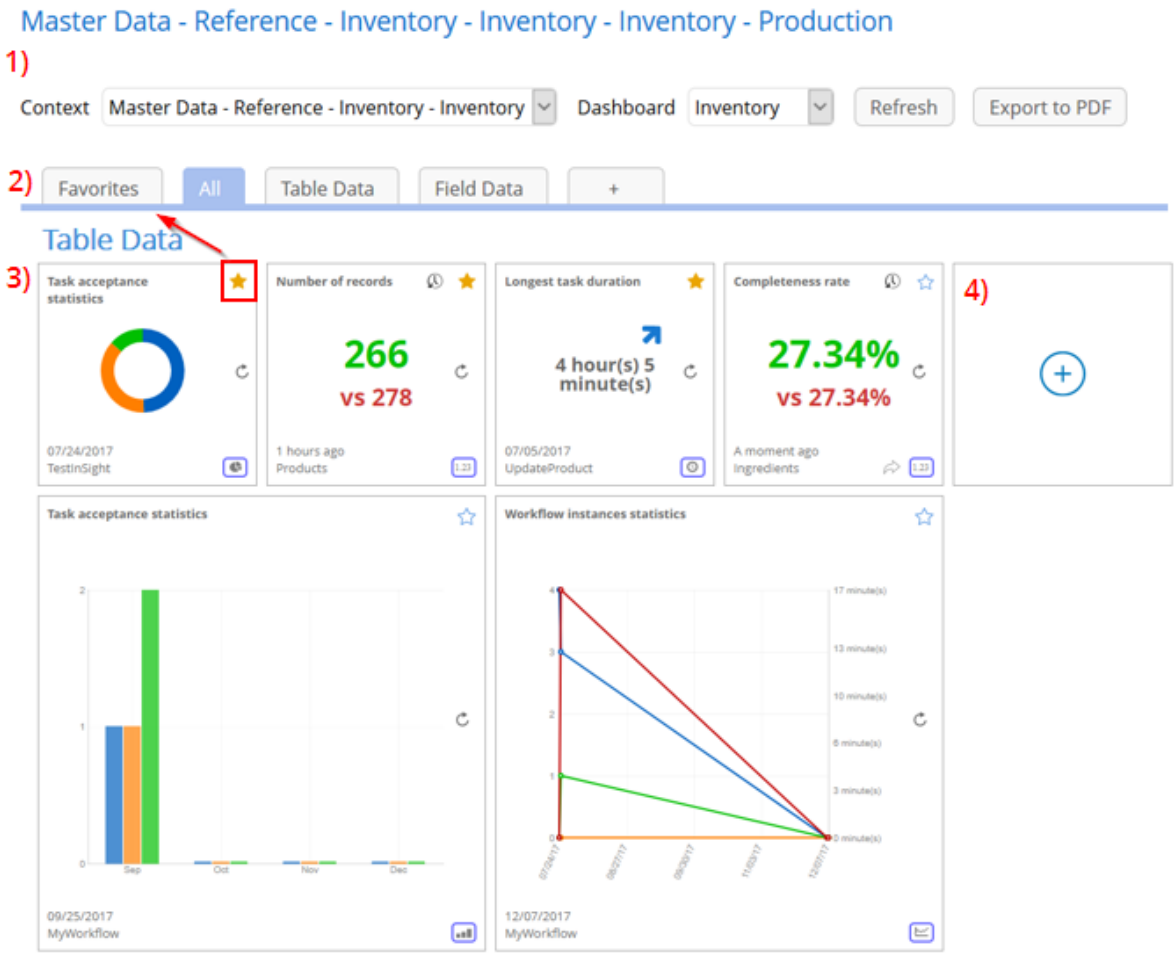
- Dashboard layout [p 331]
- Indicator tiles [p 333]
- Additional improvements [p 339]

Dashboard layout

The following list describes the highlighted areas of the image below:

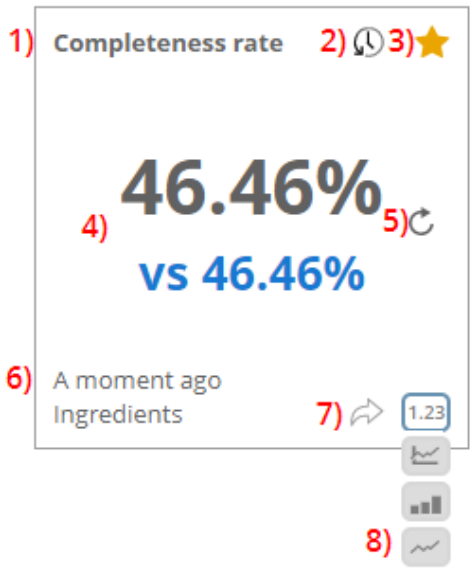
1. The title displays the current context, dashboard configuration, and storage location. In addition to using the dropdown lists to change these options, you can refresh, and export a PDF of the current dashboard.
2. Tabs provide navigation to dashboard sections, which are all visible from the **All** tab. Two tabs of note are the **Favorites** tab and the tab with the **+** icon. The **Favorites** tab displays all starred tiles for the current dashboard. The **+** tab displays for users with administrative privileges and allows you to quickly add a new section to the dashboard.
3. The image shows examples of large and small indicator tiles. Generally speaking, large tiles work better for line and bar charts with multiple outputs, whereas small tiles work well to display numeric output and pie and sparkline charts.

4. This tile displays if you have administrative privileges; click here to add an additional tile to the dashboard section.



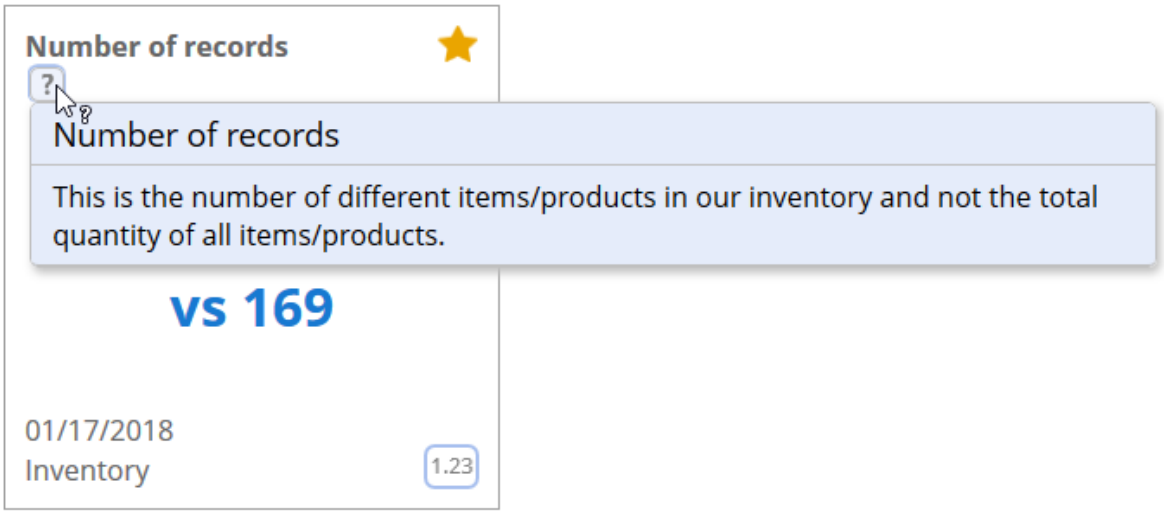
Indicator tiles

Tiles offer digital and chart type display modes. The image below is an example of digital display mode. Callouts identify main features which are described in the list below:



1. The tile's title corresponds to the indicator's name, or business label if one exists.
2. If enabled, you can open a tabular view displaying previous indicator execution.
3. Toggling the favorites icon determines whether this tile displays in the dashboard's **Favorites** section.
4. Indicator output displays in the center of the tile. The default output format (digital, or chart type) can be set be administrators.
5. The refresh icon enables on-demand execution of the indicator.
6. The information displayed here shows this indicator's time of last execution (above) and the related D.E.C.'s label (below).
7. If enabled, you can view the indicator's linked records.
8. You can click this icon to toggle the display mode—if additional modes are available.

You can now customize descriptive information about indicators in the **Indicator on D.E.C.** table by adding a business label and description. When users mouse over the label, they can click the **Show detail** icon to view the description.



Digital display tiles

Tiles that display measurement over time have an icon that shows the trend between the current and previous execution (shown left). Additionally, for time based indicators, you can configure interval format display. If needed, the add-on can automatically adjust the output format so that only relevant information is shown. Indicator tiles that display feedback from numerical measurement display the current value vs the previous computation (shown right).

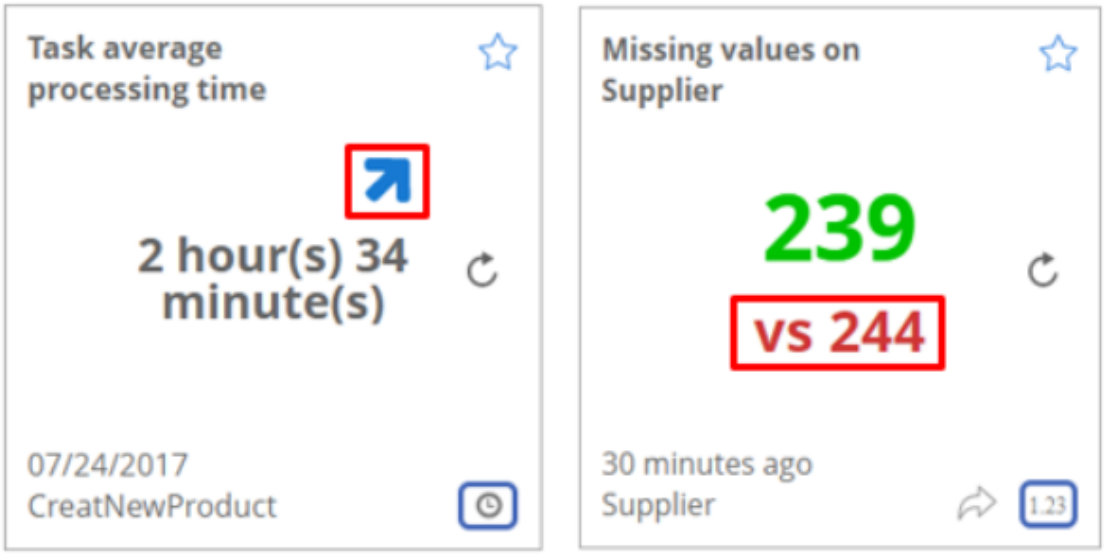


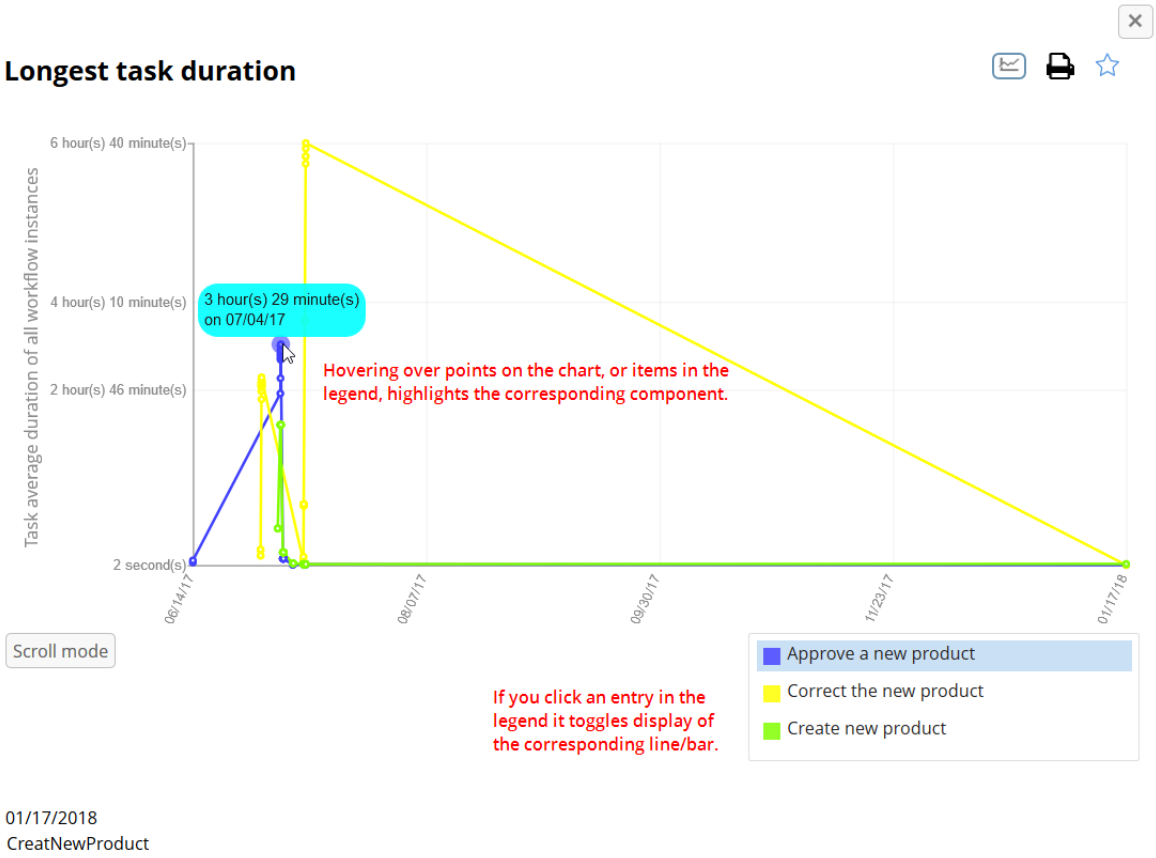
Chart tile improvements

You can double-click a chart to expand it. The following sections highlight the new sparkline chart type and the updated functionality for expanded charts.

Line and bar charts

The following highlights new features when interacting with line charts; bar charts (not shown) share these features:

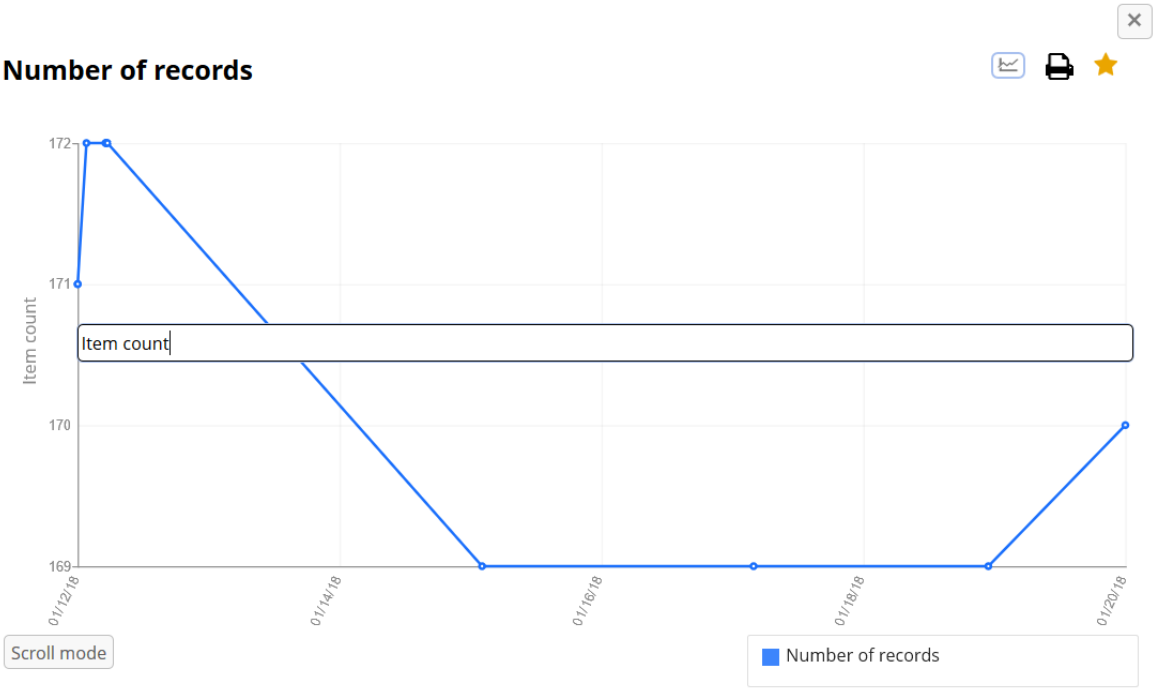
- You can select an entry in the legend to toggle display of the corresponding line/bar. If you hover your mouse over an entry in the legend, the add-on highlights the associated line/bar. You can also hover over points/bars on the chart to display details.



01/17/2018
CreatNewProduct

- The display location for labels (along the Y axis) has been optimized. As highlighted in the above image, one of the new features conveniently allows you to filter display of lines/bars. Since the output displayed on the graph may no longer match the labels, the add-on automatically updates the displayed label to the optimal location.

- If enabled, users can click the axis label to edit it while viewing the indicator:



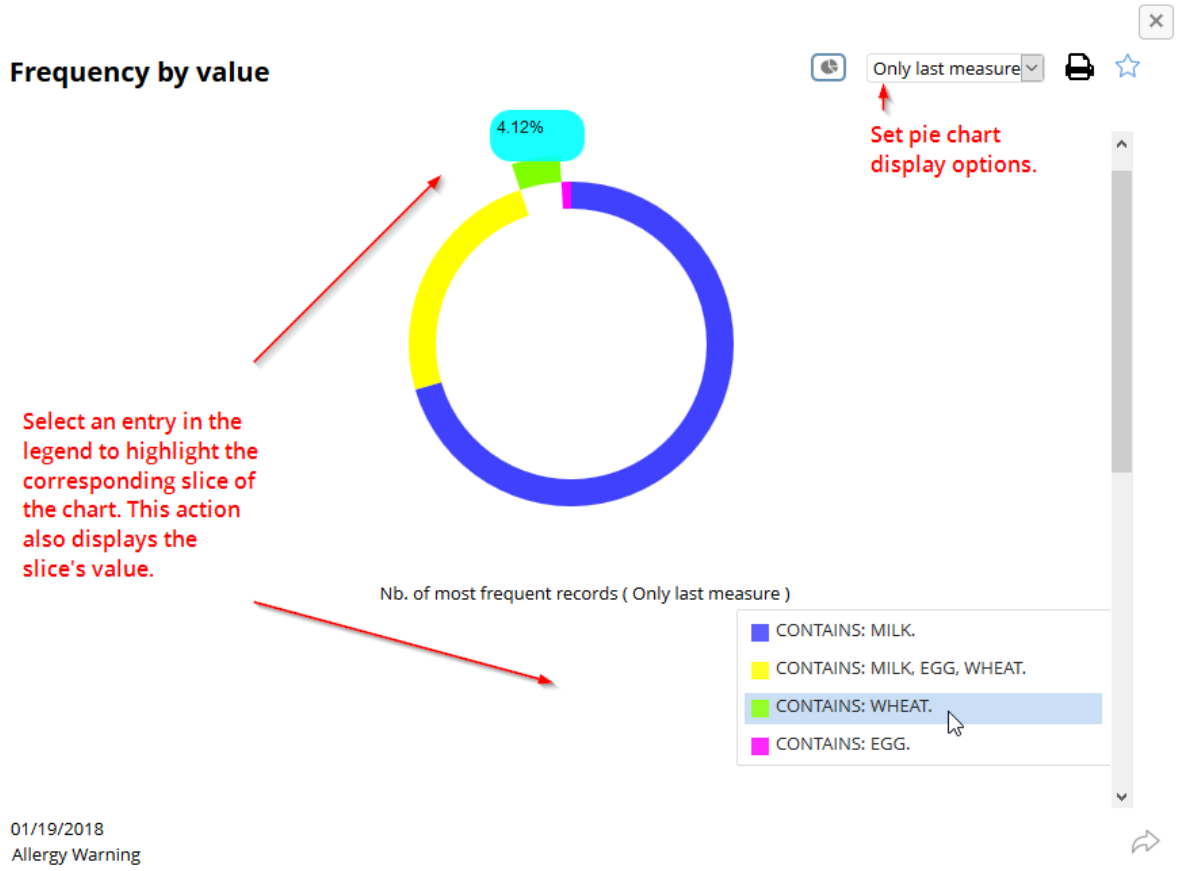
A moment ago
Inventory

- Clicking **Scroll mode** when viewing a line chart displays a table containing the chart's values and as you move your cursor along the X axis, the corresponding value is highlighted in the table.



Pie charts

As shown below, pie charts enable functionality similar to line and bar charts, with subtle differences.



Displaying linked records from charts

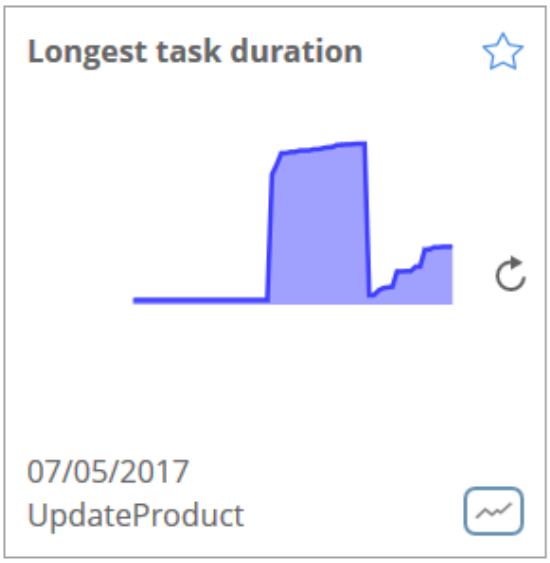
If an admin has enabled the **Linked record** service for your profile, you can use the **Display a subset of linked records** to open a tabular view of records linked to chart values. Depending on the chart type, you can access this service when:

- Pie charts: selecting a section to highlight it. Then, right-click the section and select the service.
- Bar charts: right-clicking on a bar and selecting the service.
- Line charts: right-clicking a value point and selecting the service.
- Sparkline charts: hovering your cursor on the chart until the value displays. Then, right-click and select the service.

New chart type

Sparkline charts are now available for selection to display indicators with numeric outputs and display a visual representation of data trends. As with other charts, you can double-click tiles from the

dashboard to open an expanded view. When expanded, the chart legend displays and, similar to line and bar charts, you can filter displayed values, highlight data points, and view linked records.



Additional improvements

In addition to the above mentioned improvements:

- The add-on provides an auto-incremented value for **Code** field when you create a new dashboard, or section.
- To lift restrictions on which indicators can be added to sections, the **Section type** field has been removed.

Bug fixes

[26074] The interval axis of a chart does not follow interval format set in the **Indicator on D.E.C.** table.

32.30 **Release Note 2.1.2**

Release Date: December 22, 2017

New features

Updates were made to take into account the latest version of the TIBCO EBX™ Match and Cleanse Add-on (1.12.2.).

32.31 **Release Note 2.1.1**

Release Date: December 15, 2017

Data exchange 2.4.0 integration

Updates were made to leverage capabilities included in the latest version of the TIBCO EBX™ Data Exchange Add-on (2.4.0.).

32.32 Release Note 2.1.0

Release Date: August 3, 2017

New features for Dynamic report

- Indicators can now be applied to rolling periods. The configuration information for rolling periods can be entered in a new UI. This option is only available for indicators that support periodical computation.
- An aggregate report can now be generated for an indicator's D.E.C.s. A single chart can be displayed from multiple D.E.C.s using a new display mode. This can be a chart using any of the types supported for the indicator. Depending on configuration settings, the chart can show either total or average values.

New indicators

The following new workflow indicators are now available and their calculation is based on business groups and monthly periods:

- The number of workflow instances in different states and the average validation duration during a period of time can be calculated by [ON] W-109.
- The number of accepted and rejected workflow items—including the corresponding completion percentage for each task—can be calculated by [ON] W-110.

Dashboard and chart improvements

- A dashboard context can be defined at a more abstract data element concept level. 'Cross contexts' is a new special context used to signify that a dashboard will display the tile of any context configured to use it.
- It is now possible to define URLs that link to different dashboards of the same context in Workflow and Perspective.
- Pie charts can now be rendered for indicators which return multiple outcomes.

Indicator improvements

- Filter predicate declaration has been improved for indicators and all table, group and field indicators will support filter predicates. Also, filter predicates will be available for real-time indicators.

Bug fixes

- **[24232]** An exception occurs if you execute an indicator configured with an absolute path in filter predicate.
- **[24633]** [Export PDF file] [F-I19] There is an incorrect display of the default pie chart option if you select 'Average'.
- **[25109]** The error message is incorrect when entering an invalid value for the 'From date' field in Query.
- **[25263]** [Bar chart] [F-I23] The bar chart is not a multiple sequence chart.

- **[25657]** [F-I23] The label of 'Maximum number of outputs for highest/lowest frequency values' input parameter is incorrect.
- **[25660]** [F-I24] You cannot enter a negative value into the 'Values similar to empty' field of F-I24 indicator.
- **[26260]** [Documentation][F-I05] The description of the 'Least frequent value' output in the indicator definition is incorrect.
- **[26279]** [Filter predicate] An exception is raised in the log when you run an Indicator with a related XPath in filter predicate.
- **[26343]** [Pie chart][W-I05, T-I15, F-I05, F-I08] Alignment issue occurs when you view pie chart.
- **[26398]** [Line chart] [F-I04] There is a shortage of 'Number of deletions' output on the filter option of line chart.
- **[26475]** There is an inconsistent date format between the tabular and analytics views.

32.33 **Release Note 2.0.0**

Release Date: December 16, 2016

Indicator improvements

- The 'Big data report' table has been replaced with a new flat table. It contains dynamic field labels and descriptions, which can adapt to any indicator without having to add extra fields for new outputs.

  From now on, all built-in indicators will only support this new reporting table.

  To transfer existing reporting data to the flat data table, you should run the 'Migrate to the "Flat data report" table' service on the 'Indicator definition' table in the TIBCO EBX® Insight Add-on. This should be done after upgrading to this version. The 'Big data report' table will not be supported in the future.

  Please see the 'New features in the API' section for more information regarding how to declare the new reporting table in an indicator implementation.
- It is now possible to define a table predicate for an indicator in the 'Indicator on D.E.C.' table to filter records before calculating the results.

  Please refer to the 'Indicators portfolio' documentation for more information.

Data Element Concept improvements

- Hierarchy views by data models are now supported for the 'D.E.C. (Data Element Concept)' table and the 'Indicator on D.E.C.' table.

  Those hierarchy views must be updated manually by executing the 'Update the hierarchy view by data models' service on the 'D.E.C. (Data Element Concept)' table to align with the structures of configured data models.

Chart improvements

- Bar charts for indicators are now supported to display the average results grouped by period.
- All line charts now support line filter.

Dashboard improvements

- It is now possible to configure the available display modes for a dashboard tile.
- Results within a time slice and the tabular result view for a dashboard tile are now configurable for certain user profiles.
- By double-clicking a chart inside a dashboard tile, you can now view a medium size chart.
- The 'Open charts' action now supports the 'Only last measure' pie chart mode.
- The indicator label for a dashboard tile can now be overwritten in the 'Indicators in section' table.

New features in the API

- A new method to get the definition of the Flat data table in the same manner as BigDataDefinition has been added to the IndicatorDefinition interface.

  The FlatDataDefinition and BigDataDefinition of an indicator must be declared to migrate the existing reporting records from the 'Big data report' table to the 'Flat data report' table.

  If both FlatDataDefinition and BigDataDefinition are declared, the results of the indicator will be saved in the 'Flat data report' table.
- In order to support the reporting tables in general, new classes and methods in the API have been provided to replace those that only supported the 'Big data report' table.

  You can find additional information regarding these changes in the EBX® Insight Add-on API's sample code.
- A new method has been added to the IndicatorDefinitionContext interface to get the table filter predicate configured for an indicator.

Bug fixes

- **[21866]** [Dashboard] No pie chart is displayed when all numeric results of an indicator are zeros.
- **[21941]** There are duplicated preferences when exporting reporting data to Excel.
- **[21973]** [D.E.C. purge] It is impossible to purge when the query permission is not set for all datasets in the Indicator permission.
- **[23063]** [Indicator views] A redundant view displays after running the service if an indicator already has a manually created custom view.
- **[23071]** You can still execute services when you do not have sufficient permission on the reporting data set.
- **[23475]** [Line chart] The date of the X axis is not visible for charts with a single point.

32.34 **Release Note 1.6.1**

Release Date: October 12, 2016

Indicator improvement

- All workflow indicators now support both the default mode and the legacy mode of the user task creation.

Bug fixes

- **[22397]** [API] [Indicator] Incorrect execution results of indicators extending DefaultDECIndicator or DefaultWorkflowIndicator.

32.35 **Release Note 1.6.0**

Release Date: September 9, 2016

New features

- Dashboards can be exported to PDFs.

New features in the API

- It is possible to use an API to export dashboards without using the 'Dashboard' service.

32.36 **Release Note 1.5.2 fix 001**

Release Date: June 16, 2016

Bug fixes

- **[20812]** An unexpected error occurs when the indicator returns a null value.
- **[20819]** [Chart API] Tool-tips remain visible after moving the mouse out of the chart.
- **[20861]** [Chart API] Charts are not displayed when the data contains special characters.

32.37 **Release Note 1.5.2**

Release Date: April 13, 2016

New features for D.E.C. configuration

- You can utilize the new table filter to query D.E.C. records which are invalid or belong to a specified data element.
- You can now remove D.E.C. records along with their relevant indicator on D.E.C using the 'D.E.C. purge' service.

Indicator improvements

- You can now filter an Indicator result's relevant records using one of its linked record options if they are available.
- All workflow indicators have been updated to support only the new user task creation default mode in EBX® 5.7.0.
- The time interval data type is now supported for charts.

New indicators

- Simple statistics on field value [ON] F-I22.

- Simple statistics on string (text) field value [ON] F-I23.
- Simple statistics on numeric field value [ON] F-I24.
- Field compliance against a pattern [ON] F-I25.
- Time series compliance [ON] F-I27.
- Statistics on field interval value [ON] F-I28.
- Statistics on field relation [ON] F-I29.
- Field value completeness [ON] F-I31.

Please refer to the 'Indicators portfolio' documentation for more information.

Updated indicators

- A new input option has been added to the following indicators to allow calculating a task's processing time from when it was offered or allocated:
  - Task average processing time for a workflow publication [ON] W-I04.
  - Longest task duration [ON] W-I05: Including the ability to calculate the average task duration for all instances.
  - Workflow publication average processing time [ON] W-I06.
- Task average processing time for a workflow publication [ON] W-I04: The chart for this indicator displays duration values grouped by task.
- Longest task duration [ON] W-I05: The chart for this indicator displays duration values grouped by task.
- Matching statistics [ON] T-I08: The chart for this indicator displays numbers of records grouped by matching state.

Please refer to the 'Indicators portfolio' documentation for more information.

Execution and query UI improvements

- Improvements have been made to the 'Execute and query' service and the synthesis view to match EBX®'s look and feel.
- A compact view of the indicator result UI is now available and provides more space to explore reporting data.
- Various tool-tips have been added to all tabs in the execution and query UI to provide more service configuration information.

Bug fixes

- **[18415]** [All browsers] Alignment problem on Query and Purge screens when resizing pane.
- **[18600]** [Indicator query] Charts are not available for the 'Nearest' query option with full date-time specified.
- **[18923]** You can now configure datasets for indicator execution in the 'Indicator on D.E.C.' table to avoid duplication of execution on all datasets that share the same data model.
- **[18967]** [W-I05] Duration of a task returns when it is deallocated.

New features in the API

- A new method has been added to get the configured dataset for execution from the definition context.
- New methods have been added to get and set the reference reporting path for a linked record option in the linked record definition.
- In addition to providing the default implementations for optional indicator properties, it is possible to define business behavior in the new DefaultDECIndicator and DefaultWorkflowIndicator classes.

API improvements

- It is now possible to register multiple Indicator definition instances of the same Java introspection class. This facilitates grouping similar Indicator definitions without having to declare a lot of classes.

32.38 **Release Note 1.5.1 fix 003**

Release Date: February 26, 2016

Updated indicators

On-demand execution is now available for the following indicators by activating the target table and field's history:

- Table last modification date [ON] T-I01
- Field last modification date [ON] F-I01

Please refer to the 'Indicators portfolio' documentation for more information.

32.39 **Release Note 1.5.1 fix 002**

Release Date: February 4, 2016

Bug fixes

- **[19145]** The dashboard UI cannot load when the language is set to French.
- **[19256]** Charts are displayed incorrectly when applying the 'Most recent' and 'Oldest' mode filters.
- **[19258]** [Dashboard] Should display Indicator label or Indicator code when the dashboard label for an Indicator is missing.

32.40 **Release Note 1.5.1 fix 001**

Release Date: January 18, 2016

Bug fixes

- **[19022]** The label is missing on the 'Correlated watchdog indicator results for dashboard' service.

32.41 Release Note 1.5.1

Release Date: November 19, 2015

Bug fixes

- **[18060]** Raised watchdog indicators can now be displayed in the dashboard UI.

32.42 Release Note 1.5.0

Release Date: September 16, 2015

Watchdog indicator

- You can now declare a watchdog indicator through a logical expression that handles any number of the indicator's outputs. In the previous version, the boolean output is available only to declare a watchdog. For instance, you can combine the outputs 'date' and 'number of operation' into a logical expression to raise an alert.

Correlated watchdog indicators

- You can combine two or more watchdog indicators into a correlated watchdog to raise an alert spanning indicators results. For instance, you can oversee the correlation of the indicators 'Number of records' and 'Missing value'.
- The correlation results are saved with the indicator outputs, and display in the UI query and the dashboard.

New indicators

See the 'Indicators portfolio' document for more information.

- Task average processing time for a workflow publication [ON] W-I04.
- Longest task duration [ON] W-I05.
- Workflow publication average processing time [ON] W-I06.

32.43 Release Note 1.4.3

Release Date: July 31, 2015

Bug fixes

- An error message is generated when registering an erroneous Indicator definition before the add-on is started.

32.44 Release Note 1.4.2

Release Date: June 29, 2015

Bug fixes

- You can now define two graphs in the same page with the Chart API.
- The system can work normally after deleting a data set configured for a dashboard context.

32.45 **Release Note 1.4.1**

Release Date: June 10, 2015

Updated indicators

See the 'Indicators portfolio' document for more information.

- Number of operations on the tables in a dataset [ON] D-I03: This indicator now computes both total numbers of operations and average numbers of operations on all tables in a dataset. A new input parameter has been added to display either the total results or the average results for charts.

32.46 **Release Note 1.4.0**

Release Date: June 4, 2015

Execution and query

- You can now filter indicator results by D.E.C. types. For instance, these filters allow you to see the results for a 'Table' D.E.C. only, or 'Field', 'dataspace', etc.

New indicator synthesis view

- A new UI is available to display indicator results as a condensed computation. For instance, if the 'Number of records' indicator is queried on three tables, the synthesis view displays the average of the three results. The synthesis displays - in a condensed view - the digital results (number) the boolean, the percentage (graphical bars) and the dates.

Dashboard

- The dashboard tile now holds an info-tip displaying the indicator's full label and its business description.
- Dashboards integrated inside the 'TIBCO EBX™ Information Governance Add-on' (IGov) add-on: In some models, EBX® Insight Add-on might be configured to show indicators for tables and fields. In IGov, these indicators will be shown if the administered items for target tables and fields are configured in EBX® Insight Add-on. A new tab named 'Quality' in IGov's UI shows indicator dashboards configured for administered items.

Configuration

- You can now overwrite the following properties when configuring the 'Indicator on D.E.C.' table: 'Input parameters', 'Saving options' and 'Linked record' options.
- The 'Indicator view' table now filters by the selection of dataset storage.
- You can now configure many email recipients and use the CC, BCC declaration.

Services

- A new 'Attach indicators to D.E.C.s' service (D.E.C. table) allows you to easily create the 'Indicators on D.E.C.' configuration.
- The 'D.E.C. creation' service (D.E.C. table) allows you to easily create the different type of D.E.C.s (Table, Field, dataspace, etc.). This service replaces the 'D.E.C. table creation' and 'D.E.C. field creation' services.

Linked records

- You can now configure an indicator to save 'linked records' in the results table. For instance, the 'Number of missing values for a field' indicator saves the list of records for which the field is missing. This list of 'Linked records' is displayed through the UI query and dashboards (new service in the title dashboard).
- The list of indicators supporting 'Linked records' is as follows (see the 'Indicators portfolio' document for more information):
  - Table updated [ON] T-I02.
  - Table completeness rate [ON] T-I04.
  - Matching statistics [ON] T-I08.
  - Number of missing values in a table [ON] T-I16.
  - Number of validation items (error, warning) [ON] T-I17.
  - Empty field [ON] F-I03.
  - Frequency by value [ON] F-I05.
  - Field min-max modifications for a period [ON] F-I08.
  - Field with the highest frequency for a period [ON] F-I09.
  - Field with the lowest frequency for a period [ON] F-I10.
  - Boolean field occurrences within the table scope [ON] F-I12.
  - Number of missing values for a field [ON] F-I18.
  - Number of records by group [ON] F-I20.
  - Translation rate applied to a field [ON] F-I21.

New indicators

See the 'Indicators portfolio' document for more information.

- Matching statistics [ON] T-I08.
- Number of validation items (error, warning) [ON] T-I17.
- Translation rate applied to a field [ON] F-I21.
- Number of dataspaces and snapshots without description [ON] D-I08.
- Number of child dataspaces and snapshots created for a given period [ON] D-I09.
- Dataspace lifetime [ON] D-I10.
- Number of operation execution [ON] O-I01.

- Operation average execution time [ON] O-I02.

Updated indicators

See the 'Indicators portfolio' document for more information.

- Frequency by value [ON] F-I05.
- Field with the highest frequency for a period [ON] F-I09.
- Field with the lowest frequency for a period [ON] F-I10.
- Number of operation by the most and least active user on a table [ON] T-I15.

New features in the API

- Three new D.E.C. types have been added: 'Operation' (TIBCO EBX™ Activity Monitoring Add-on), 'Business rule' and 'Permission rule' (TIBCO EBX™ Rules Portfolio Add-on).
- Support for the complex data types for the D.E.C. 'Indicator on D.E.C.' and indicators execution.
- Two new indicator value types have been added: 'Percentage value' and 'Interval value'.
- Support for enumerations and HTML component types for indicator input parameters.
- New methods have been added to declare the indicator business description, to define that an indicator has many result records in the 'Big data report' table, and to define the business for linked records.
- For other improvements, please refer to the Java doc.

Backward compatibility

- Since EBX® Insight Add-on 1.4.0 introduces some new features, there is some backward compatibility:
  - Defining and implementing indicators: New mandatory methods in IndicatorDefinition and IndicatorDefinitionContext.
  - Other changes: New mandatory methods in DataElementConcept and IndicatorStorage.

32.47 **Release Note 1.3.6**

Release Date: April 27, 2015

Bug fixes

- An unexpected error occurs when running service "Update D.E.C. labels" on the hierarchy view "By DEC" of "Indicator on D.E.C." table.
- Only the result tab is available when all Indicators on D.E.C. of an Indicator are deleted and another one is created.

32.48 **Release Note 1.3.5**

Release Date: April 9, 2015

Permission optimizations

The computation of the permissions has been optimized.

32.49 **Release Note 1.3.4**

Release Date: January 26, 2015

Dashboard

- When an indicator returns multiple results, you can now select the result to use for tile display. The tiles can be customized by user-profile.

New API

- API to draw charts based on data values regardless of indicator management. This API allows you to fully control how charts display data in EBX® to complement the EBX® Insight Add-on charts and dashboards.

New indicators

See the 'Indicators portfolio' document for more information.

- Number of records by group [ON] F-I20.

32.50 **Release Note 1.3.3**

Release Date: November 19, 2014

Filter results by current user

- Add an option in the configuration allowing to show the "Filter results by current user" option in the Query tab of the service "Execution and query".
- Add the ability to filter the results by current user in the query tab of the service "Execution and query" if this option is activated in the configuration.
- Add an option in the Dashboard allowing to filter by current user the results of an indicator's tile.

32.51 **Release Note 1.3.2**

Release Date: November 10, 2014

UI improvement

- The menu action in tile dashboard is improved to be more flexible. If the indicator does not support any charts, the open chart and change display mode in menu action for a dashboard tile is not presented.
- The result content in "Check configuration" service will display with full height.

Bug fixes

- When an owner with an empty email is added to a D.E.C. record, indicators on this D.E.C. won't save the results in the Big data table when executed.
- In some configurations, the context selection is not displayed fully list after changing to [Workflow] context.
- Block on Dashboard tile when displaying Dashboard of a context contains special characters.
- Pie chart doesn't work when the data includes the comma character.
- Section label displays wrongly after changing Section type from D.E.C. type to Business type.

32.52 **Release Note 1.3.1 fix 001**

Release Date: September 30, 2014

Bug fixes

- Cannot delete the preference if a user isn't in Administrator role.

32.53 **Release Note 1.3.1**

Release Date: September 12, 2014

API

New API to get information from the configuration.

32.54 **Release Note 1.3.0 fix 001**

Release Date: August 7, 2014

Indicator results view

For the indicators having results of type Boolean, the result view is enriched with the two properties "Watchdog on" and "Sent email".

Bug fixes

- When a dashboard configuration had no 'Default data storage', it made unavailable the other dashboards.
- In some configurations, the 'workflow' context in the dashboard menu entailed unexpected errors.
- The dashboard name is added in the title of the dashboard view.

32.55 **Release Note 1.3.0**

Release Date: July 17, 2014

Watchdog

You can now declare watchdogs and apply them to any Boolean type output parameters. For instance, the 'Empty field' indicator returns a boolean value of 'True' when the field is undefined. On this output, a watchdog can be configured to automatically raise an alert.

Direct modification of the pre-built indicator definitions

You can now configure pre-built indicator definitions properties.

UI improvement

- You can now collapse and expand the 'Classification' and 'Preference' query criteria.
- The query's dates selection has undergone usability improvements.

Email management

- The automatic email notification is now performed when a watchdog raises an alert.
- Pre-defined variables are now available to dynamically enrich templates emails and include for example: ${table} (current table's label in execution time), ${field} (current field's label in execution time), ${workflow} (current workflow's label in execution time).

New UI services

- The 'Refresh label from data model' service is used to re-align Data Element Concept (D.E.C.) labels when the logical names in the data model have changed (also applied to workflow and dataspace names).
- The 'Create Indicator view declaration' service is used to automatically create a declaration of the views in the 'Indicator view' table.

Dashboard

- A dashboard can now be configured with sections of 'Business' types that contain several indicators of any D.E.C. type.
- A tile can now be configured with a default display mode: digital, chart and pie-chart.
- You can now select which dashboard to display from a list of available dashboards.
- A dashboard can now be configured for a context based on a dataspace, dataset and table. Depending the dataspace, dataset and table on which the user is working, the appropriate dashboard attached to this context displays.
- A new button allows a user to execute a dashboard refresh.
- In EBX® 5.5, the dashboards are displayed through an icon located on the EBX® toolbar.
- A tile is now enriched with actions that are available to users that open the graph and change the display mode (digital, chart, pie-chart).

Analytics view

- The chart options (colors, line width, etc.) can now be configured by user-profiles and/or indicators.

- It is now possible to dynamically choose a filter to apply on results. This filter must be declared in the Indicator implementation (refer to the API).

New indicators

See the 'Indicators portfolio' document for more information.

- Number of active users on a table by operation [ON] T-I11.
- Number of missing values in a table [ON] T-I16.
- Field min-max modifications for a period [ON] F-I08.
- Oversee string field value [ON] F-I14.
- Oversee boolean field value [ON] F-I15.
- Oversee date field value [ON] F-I16.
- Oversee numeric field value [ON] F-I17.
- Number of missing values for a field [ON] F-I18.
- Missing time series for a field [ON] F-I19.
- Dataset completeness rate [ON] D-I01.
- Dataset freshness [ON] D-I02.
- Number of operations on the tables in a dataset [ON] D-I03.
- Dataspace information [ON] D-I04.

Java API changes

- The API has been improved to manage input parameters with new data types such as numeric, boolean, date. Now, you can manage multi-occurred input parameters.
- A new API is available to access to the tables used for result storage: Big Data Report, Indicator Report and Indicator Value.
- For other improvements, refer to the Java doc.

32.56 **Release Note 1.2.0**

Release Date: March 31, 2014

Preference management and indicator classifications

- The query and execution of the indicators rely on the management of preferences. A preference is a group of indicators ready to execute or query.
- The query and execution list of indicators can be filtered by indicator classification.

New services

- The new service 'Indicator on Data Element Concept (D.E.C.) creation' allows attaching one indicator to all D.E.C.s in a data storage automatically.
- The new service 'Purge indicators' allows physically deleting the indicator results depending on criteria based on the dates and the D.E.C. types.

Dashboard

It is now possible to configure dashboards to display the indicator results. A dashboard is made up of one or more tiles showing the indicator results in an easy to read layout (specific data, color coding, etc.).

New indicators

See the 'Indicators portfolio' document for more information.

- Number of operations by the most and least active user on a table [ON] T-I15.
- Number of active users on a field by operation [ON] F-I04.
- Field value outside a limit [ON] F-I06.
- Field size outside a limit [ON] F-I07.
- Field with the highest frequency for a period [ON] F-I09.
- Field with the lowest frequency for a period [ON] F-I10.
- Boolean field statistics [ON] F-I11.
- Boolean field occurrences within the table scope [ON] F-I12.
- Group of fields' completeness [ON] F-I13.

Indicator name changes

- 'Table not updated [ON] T-I02' has been renamed 'Table updated'.
- 'Field not updated [ON] F-I02' has been renamed 'Field updated'.

Migration of indicator definitions

A service 'Migrate indicators definition' must be executed to make existing indicator definitions compatible with version 1.2.0. This service is located on the table 'Indicator definition' in the configuration. It is only executed once to perform the migration.

Java API changes

- Pie chart support.
- Support for indicators with the D.E.C. type of 'Is group' and for managing watchdogs of the decimal data type (previously only the Integer data type was supported for watchdog configuration).
- Improvement of the API to filter compatible D.E.C.s by indicator.
- Other improvements: See the JavaDoc.

32.57 **Release Note 1.1.2**

Release Date: January 14, 2014

New indicators

See the 'Indicators portfolio' document for more information.

- Table freshness [ON] T-I06.
- Number of operations on a table [ON] T-I07.
- Frequency by value [ON] F-I05.
- Completed workflow instances since last execution [ON] W-I08.

32.58 Release Note 1.1.1 fix 001

Release Date: December 23, 2013

Bug fixes

Fix a bug when using a custom directory.

32.59 Release Note 1.1.1

Release Date: December 18, 2013

Permission management

The performance of the report display has been improved to manage a large number of D.E.C. and indicators (thousands of D.E.C.).

Label management

The D.E.C. label of type field is now prefixed with the name of the related table.

Operation

The operation 'D.E.C. creation field' can be configured to create all fields of all tables in a dataset.

32.60 Release Note 1.1.0

Release Date: December 10, 2013

Permission management

It is now possible to configure the business permissions applied to the execution and querying of indicators. These permissions complement the EBX® standard permissions.

For example, permissions can be configured such that a given user is not permitted to access to a table according to EBX® permissions, but is authorized to execute certain indicators on that table. Moreover, the permissions are configured by dataset context and D.E.C. to filter the indicators that are permitted, depending on the environments execution.

New service to create D.E.C. fields automatically

It is now possible to automatically create all D.E.C. fields for a table.

New user interface

The execution, query and results of indicators are now separated into tabs, and the results can be filtered by D.E.C.

The indicators applied to workflows are launched from the reference dataspace.

The 'dates selector' component has also been improved to be able to query by date ranges.

New types of graphs

It is now possible to configure and use graphs with multi-curves.

Also, the type 'pie chart' is now available.

New indicators

See the 'Indicators portfolio' document for more information.

- Number of workflow publications [ON] W-I01.
- Number of open workflow instances per publication [ON] W-I02.
- Number of work items per state for a workflow publication [ON] W-I03.
- Table completion rate [ON] T-I04.
- Record creation matching state [ON] T-I12.
- Record modification matching state [ON] T-I13.

API

The API has been improved to allow implementing new indicators.

32.61 **Release Note 1.0.1**

Release Date: October 8, 2013

New updates

Display has been improved in order to minimize memory usage on the client-side.

A new identifier allows retrieving all indicators executed at the same time in the 'Big Data' table.

Bug fixes

- **[8274]** On Firefox 3.6, the paging mechanism on tabs for display results does not work.

32.62 **Release Note 1.0.0**

Release Date: September 30, 2013

EBX® Insight Add-on provides a portfolio of ready-to-use indicators to monitor the quality of data over time. This portfolio can be further enriched with custom indicators. The indicators can be used to assess the quality of any asset known to EBX®, such as tables, fields, workflows, dataspaces, data sets, and business rules.

List of indicators provided with the add-on

See the 'Indicators portfolio' document for more information.

Indicators applied to a table

- Table last modification date [ON] T-I01.

- Table not updated [ON] T-I02.
- Number of records [ON] T-I03.

Indicators applied to a field

- Field last modification date [ON] F-I01.
- Field not updated [ON] F-I02.
- Empty field [ON] F-I03.

Configuration of the indicators

- Watchdogs, Periodicity of control.
- Automatic creation of the Data Element Concepts on which indicators are associated.
- Computation frequency: on demand, real-time, time-line.

Graphs

Results are displayed through graphs in (x,y).

API

API to publish bespoke indicators into the add-on. These bespoke indicators benefit of the configuration and the execution framework provided by the add-on.