TIBCO EBX® Insight Add-on (New)

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CHAPTER **1**

About add-on permissions

This chapter contains the following topics:

1.1 Overview

Administrators must grant user profiles access to add-on functionality, such as the creation of dashboards and automated data profiling, via the add-on's permission settings. This section provides an overview of how add-on permission settings function and some example use cases. See Managing permissions [p 15] for instructions on setting permissions to grant users access to add-on functionality.

1.2 Understanding permissions

Add-on permissions apply at the global (add-on) and dashboard levels:

- Permissions at the global level:

  - Govern access to the add-on's services, which allow access to and creation of dashboards and indicators. Only profiles registered in the add-on's **Global permissions** table can access dashboards.

  - Can follow or override EBX® permissions. This determines what EBX® assets are available for indicators to monitor and report on.

- Permissions at the dashboard level indicate a profile's relationship with a dashboard. A dashboard owner has CRUD ability and can share with viewers. Viewers can view, but not change dashboards. Additionally, dashboard permissions are aligned with add-on permissions at the global level. If a viewer doesn't have permission to view some assets on a shared dashboard, they are hidden.

The following table illustrates permission behavior by showing allowable actions for users with various permission settings:

Profile	Sales dashboard permissions	Profile included in **Global permissions** table	**Service permission** option enabled	Allowable actions
Bob	Owner	Yes	Yes	CRUD on this dashboard Can create new dashboards
Mary	Owner	No entry		Cannot access or create dashboards
Steve	Viewer	Yes	Yes	View-only for this dashboard Can create new dashboards
Jane	Viewer	Yes	No	View-only for this dashboard Cannot create new dashboards

Example use cases

In the example use cases below, let's assume we have a user profile 'Alice'. Alice's profile is registered with the add-on.

The following image presents a scenario where EBX® assets and Alice's corresponding table permissions are displayed. An administrator has also created record level permissions in the DMA where Alice only sees the records of active users:
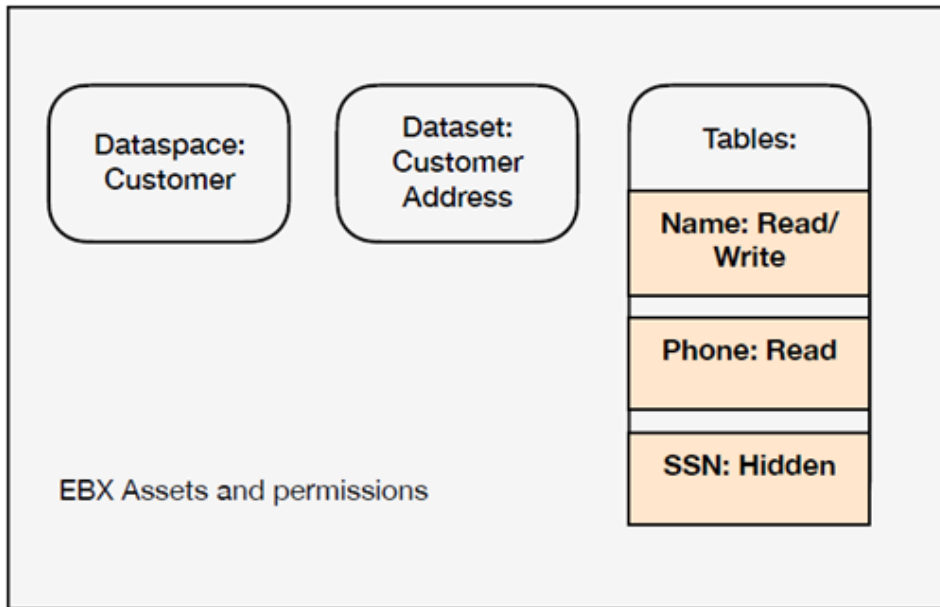
Creating a new indicator

For permissions related to creating a new table indicator:

- Alice creates a new section in a dashboard where she is an 'owner'.
- The list of tables available to select depends on her global permission settings. If permissions are set to:
  - **Bypass EBX Permission**: She can select the 'Name', 'Phone' and 'SSN' tables.
  - **Follow EBX table and field level permission**: She can only select the 'Name' and 'Phone' tables.

- **Follow EBX record level permission**: She can only select the 'Name' and 'Phone' tables. And in this case, the results she sees are only "active" customers due to the record level permissions in the DMA.

Displaying indicators

For permissions related to loading a dashboard:

- Alice loads a dashboard that has the following indicators:

  1. Function T01 on the 'Name' table.

  2. Function T01 on the 'Phone' table.

  3. Function T01 on the 'SSN' table.

- The indicators that display depend on her global permission settings. If permissions are set to:

  - **Bypass EBX permission**: She can see the indicators that display data from the 'Name', 'Phone' and 'SSN' tables.

  - **Follow EBX table and field level permission**: She can only see the indicators that display data from the 'Name' and 'Phone' tables. When she executes these indicators, their values are based on all data contained in the tables.

  - **Follow EBX record level permission**: She can only see the indicators that display data from the 'Name' and 'Phone' tables. When she executes these indicators, she only sees values based on record level permissions. For example, if a table had 1000 customers and 300 were inactive, the indicator results would only be based on the 700 active customers. The indicator results cannot be shared with other users when this permission setting is applied.

  > **Note**
  >
  > When the **Bypass EBX Permissions** option is enabled for a profile, they can see data values shown on indicators that they do not have permission to see in EBX®. However, they cannot access the underlying records. For example, they can see the most frequently occurring values for fields. However, they cannot use the add-on's linked records service to access the records.

CHAPTER **2**

Managing permissions

This chapter contains the following topics:

1. Overview
2. Managing permissions

2.1 Overview

End user access to add-on functionality depends on how you set permissions. Users with permission to manually create dashboards can also set permissions for dashboards they create by specifying *owners* and *viewers*. Owners can create indicators and edit dashboards, but viewers have read-only access. However, keep in mind that only user profiles added to the **Global permissions** table can access dashboards. This means that even if a dashboard owner allows a profile to access a dashboard, that profile cannot view the dashboard without an entry in the **Global permissions** table. The following topic describes how to set permissions.

2.2 Managing permissions

To manage permission settings:

1. Open the **Administration** panel and navigate to *TIBCO EBX® Insight Add-on (New) > Permissions > Global permissions*.

2. Specify whether this is a restrictive policy. When more than one policy is active for a user or profile, the most restrictive policy is used.

3. Create a new record:

    1. Select the '+' icon.

    2. **Profile:** Use the menu to select the profile that these permission settings apply to. A profile can refer to an individual user, or group of users.

    3. **Permission strategy:** Choose the appropriate permission strategy from the menu. The strategies are defined as follows:

        - **Follow EBX table and field level permission** The add-on will follow all permission settings for the specified profile as set in EBX® for tables and fields.

        - **Follow EBX record level permissions** The add-on will follow all EBX® permissions and follow any record level permissions specified in the DMA.

- **Bypass EBX permission:** The add-on ignores EBX® permission settings and enables reporting on hidden assets.

  > **Note**
  >
  > When multiple permissions are set for profiles, the most restrictive settings are applied. For example, if the **Permission strategy** for a user is set to **Bypass EBX permission**, but he is part of a group where **Follow EBX permission** is applied, the more restrictive **Follow EBX permission** strategy is applied to this user.

4. **Service permissions:** Determines whether this profile can:
   - Access the **Create a dashboard** service to manually create new dashboards.
   - Use the **Launch data profiling** service to use the add-on's automated profiling to profile a table's data. Note that this service is always subject to the **Follow EBX permission** permission strategy.

   Deactivate permissions for these services if you only want the profile to have access to dashboards where they are included as a viewer or owner.

4. Save and close the record.

See also

About add-on permissions [p 11]

About the add-on [p 22]

CHAPTER **3**

Dashboards and profiling in custom perspectives

This chapter contains the following topics:

1. Overview

3.1 Overview

As an administrator, you can configure EBX® perspectives to allow users to display and create dashboards and run data profiling on a predefined table. To facilitate this, the add-on provides the following services accessible as perspective actions:

- **[ebx-addon-dpra] Create a dashboard**: This service allows users to create their own dashboards from within a custom perspective.

- **[ebx-addon-dpra] Dashboard**: This service provides access to existing dashboards.

- **[ebx-addon-dpra] Launch data profiling**: This service launches data profiling on a specific table.

> **Note**
>
> If a user creates a dashboard while in a custom perspective, they can save and edit it. However, they cannot access it again from the custom perspective unless it is added to the **[ebx-addon-dpra] Dashboard** service's **Target dashboards** list.

Adding dashboard and profiling features to a perspective

The following describes how to allow users to access dashboards from an *existing* custom perspective. If you have not already created a custom perspective, see the EBX® product documentation for more information.

To add a dashboard to a perspective:

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

2. Select the desired perspective.

3. Under **Graphical interface configuration**, select **Perspective Menu** and create a new record under the desired section or group.
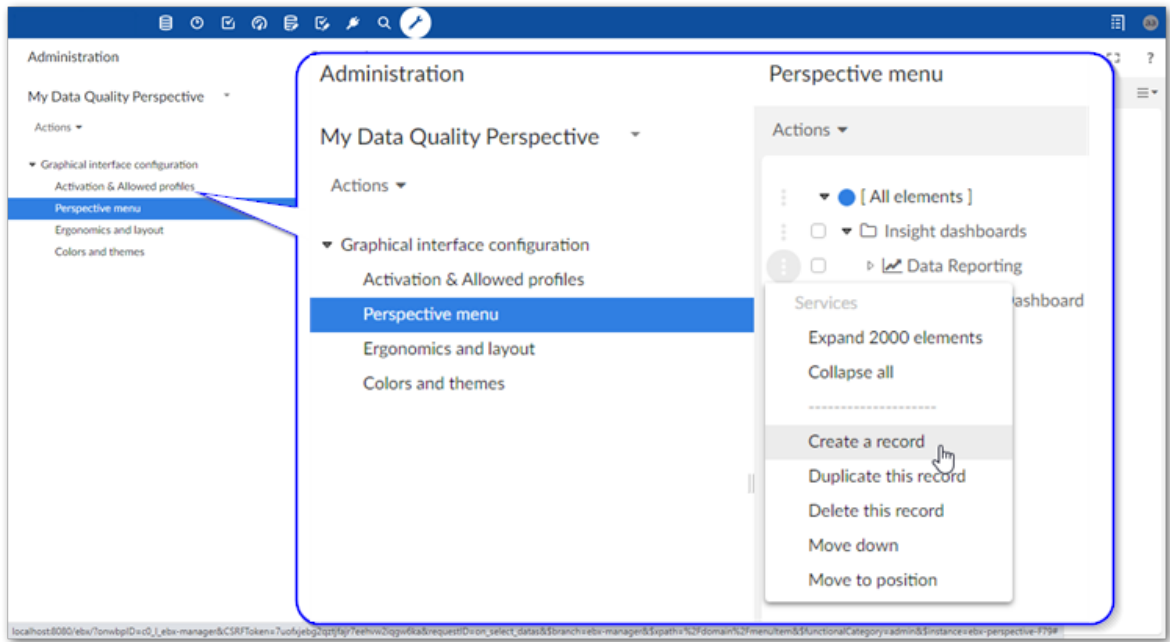

4. Create an action by setting the following options:

   • **Type**: Be sure this is set to **Action**.

   • **Parent**: This value is automatically set based on where you created the new record.

   • **Icon**: Optionally, select an icon or provide a URL to an image to identify this service in the perspective.

   • **Label**: The value entered here displays in the custom perspective.

   • **Action**: Select one of the following options:

      • **[ebx-addon-dpra] Create a dashboard**: This option allows users to create new dashboards from the perspective. You must provide a dataspace identifier when using this option.

      • **[ebx-addon-dpra] Dashboard**: This option enables you to define a list of existing dashboard that users can open. To include a dashboard, enter its **Id** in the **Target dashboards** field. If you want to provide multiple dashboards, use a semicolon to separate entries. To find a dashboard identifier: select **TIBCO EBX® Insight Add-on (New)** in the **Administration** area, and expand the **Dashboard configuration** group. You can get the identifier from each dashboard's **Id** field.

      • **[ebx-addon-dpra] Launch data profiling**: This option allows users to run the **Launch data profiling** service on the table you specify using the **Input parameters**.

5. Save and close.

The following image shows an example of a perspective that includes dashboards. 1) The two dashboards under the **Data Reporting** group access different sets of dashboards related to product

and customer data, respectively. The **Create New Dashboard** option allows the user to create new dashboards. 2) Shows the **Perspective menu** hierarchy used to achieve the layout.
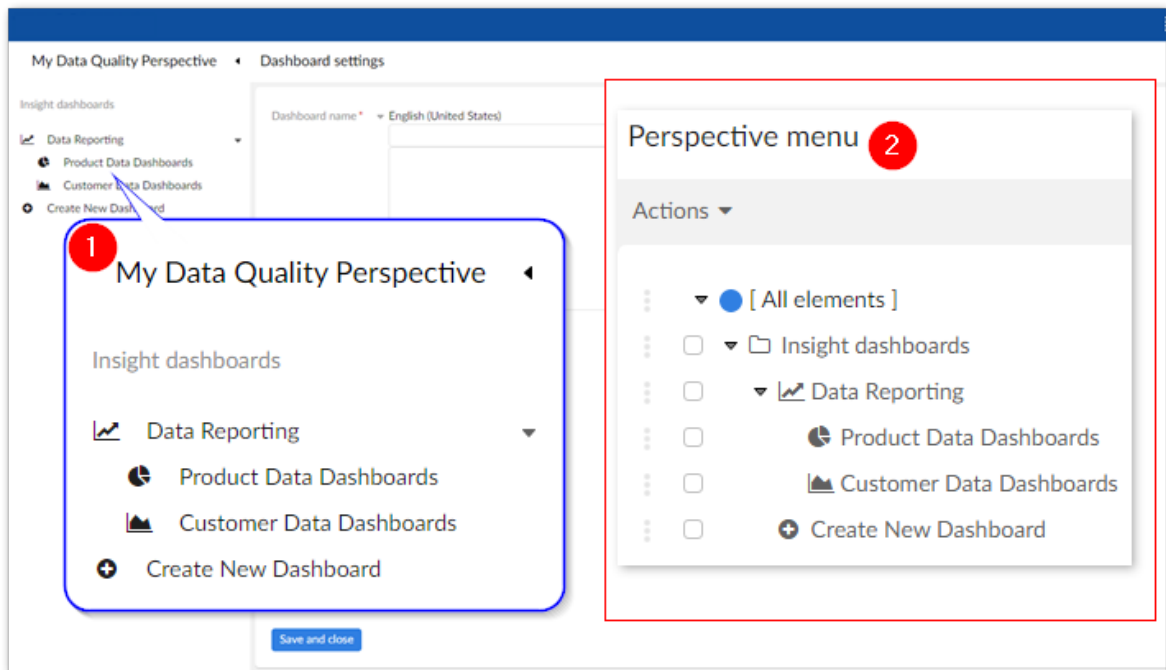
User Guide

CHAPTER **4**

About the add-on

This chapter contains the following topics:

1. Data profiling overview
2. Add-on reporting components
3. Automatic profiling
4. Manually configured profiling

4.1 Data profiling overview

The TIBCO EBX® Insight Add-on (New) allows you to profile your data. Profiling can help you to determine whether data is fit for consumption by other business units or systems in your organization. Profiling involves measuring, monitoring, and reporting on specific characteristics, or dimensions, that indicate overall data quality.

The add-on allows you to use two methods to profile data: Automated profiling and Manually configured profiling. The following table highlights features, benefits, and drawbacks of each type:

| Profiling type	End user configuration	Knowledge of data structure	Customization of output	Scope	Sharing and collaboration	Summary
Automated	Not required	Not required	Not available	Individual tables	Not available	Simple to use, but less customizable
Manual	Choosing data, dimensions, creating and configuring add-on components	Should understand data structure, which data should be included and which dimensions are meaningful to measure	Customizable options include look, feel, and how reports display and organize results	Unbounded	Available	Highly customizable, but requires time and effort to configure

4.2 Add-on reporting components

The main components the add-on uses to communicate profiling results are *dashboards*, *sections*, and *indicators*. Dashboards and the sections within them categorize and organize indicators. Each indicator presents visual feedback on a specific data dimension. As highlighted in the following sections, the dashboards for manual and automatic profiling differ slightly.

4.3 Automatic profiling

When enabled by an administrator [p 15] for your user profile, you can run the **Launch data profiling** service to automatically generate a report on table data. The report includes a dashboard with sections

and indicators that correspond to the table and its fields. The indicators that display in the **Fields** section are determined by the data type of each field. You can drill down on the field indicators to see additional indicators for each field. Again, the available indicators are based on the field data types.

The following image shows an dashboard generated after automatically profiling a table:
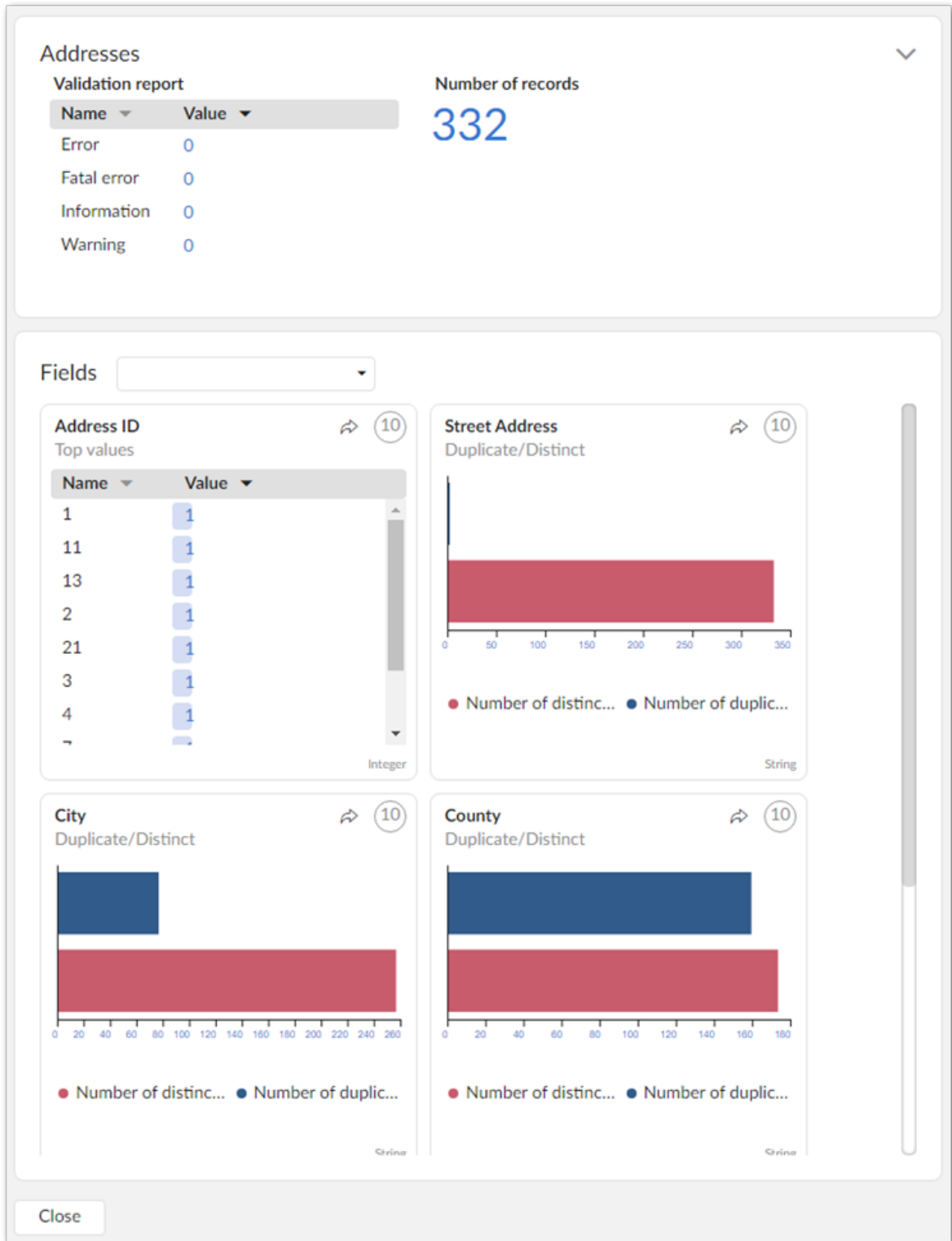
4.4 **Manually configured profiling**

After creating dashboards [p 27] and sections [p 31] to organize results, you configure an indicator [p 35] by pointing it to a TIBCO EBX® asset, such as a table or field. You specify how the asset is profiled by choosing a function that measures one of the asset's dimensions. Measurable dimensions, include completeness, accuracy, and precision. Some of the built-in functions to measure these dimensions compute the number of missing or null values in a table, or the average length of values in a given field.

Before configuring indicators, you might want to take the time to understand which dimensions are valuable for a particular dataset and how they should be measured. For example, to ensure marketing resources are properly allocated, you might configure an indicator to ensure a certain number of a customer table's email address field are not null.

The following dashboard shows a manually configured dashboard:
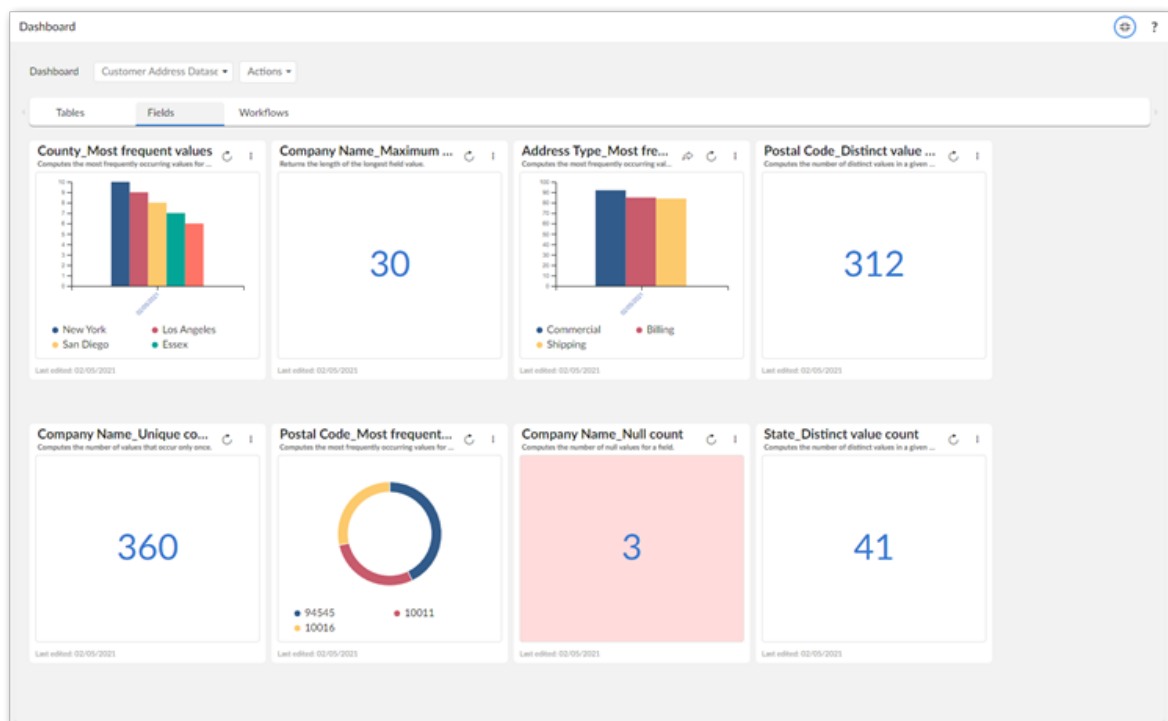
See also

> *Creating dashboards* [p 27]
>
> *Adding sections* [p 31]
>
> *Creating indicators* [p 35]

CHAPTER **5**

Launching automated data profiling

To perform automated data profiling:

1. Navigate to the table containing the data you want to profile.

2. From the table's **Actions** menu, select *Insight (New) > Launch data profiling*.

> **Note**
>
> If you do not see this service in the menu, check with an administrator to ensure you have sufficient permission to run the service.


Automatic profiling results are shown below. The first results that display correspond to the Addresses table. The section underneath shows the table's fields. You can:

- Drill down to see more results for each field by clicking on an indicator in the area outside of the chart.

- View linked records by clicking the ⇗ icon.

- Use the **Fields** drop down to locate a field. Note you can select a field by clicking to open the menu, or type a field's name to locate it.

> **Note**
>
> The following data types are not supported and not included in profiling results: associations, multi-value FKs, selected nodes and multi-value groups.
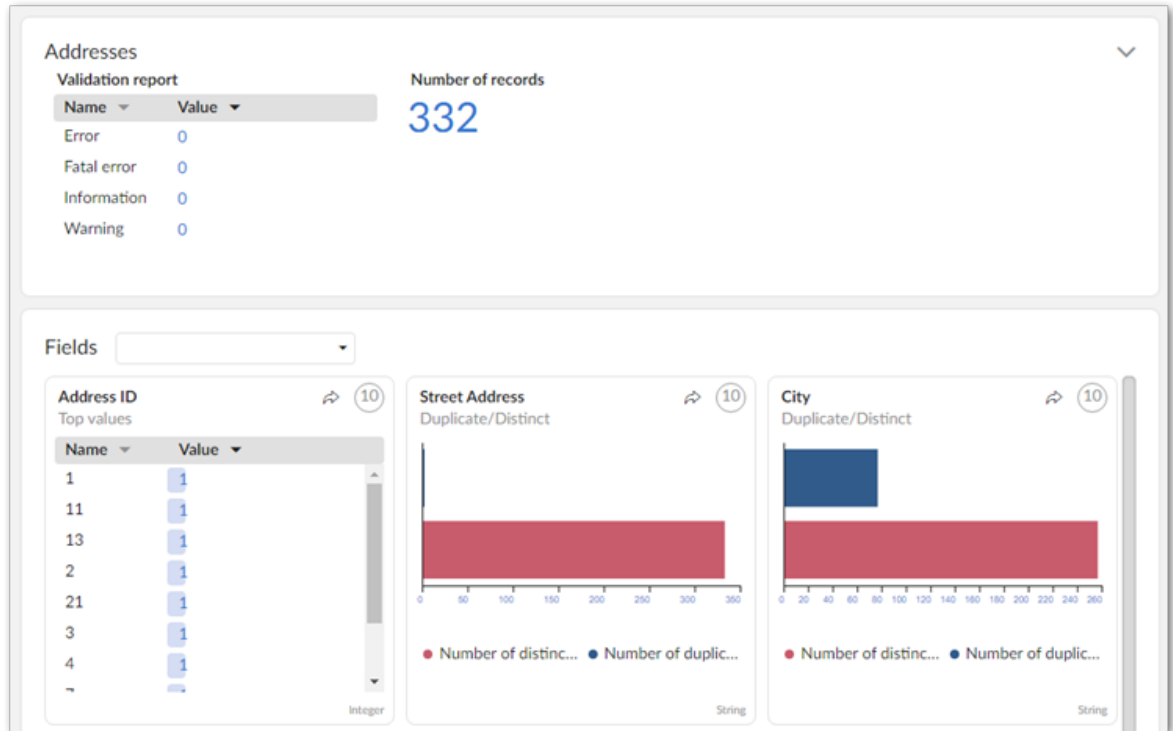
CHAPTER **6**

Creating dashboards

This chapter contains the following topics:

6.1 **Overview**

Dashboards act as containers and serve several purposes:

- They organize sections and indicators at the highest level.
- They play a role in access control.
- They are the main entry point for viewing indicators.

A section's main purpose and function is, at a mid-level, to allow you to group indicators according to your taxonomical requirements.

The image below shows an example where the dashboard represents a dataset and each section an asset type contained in the dataset:
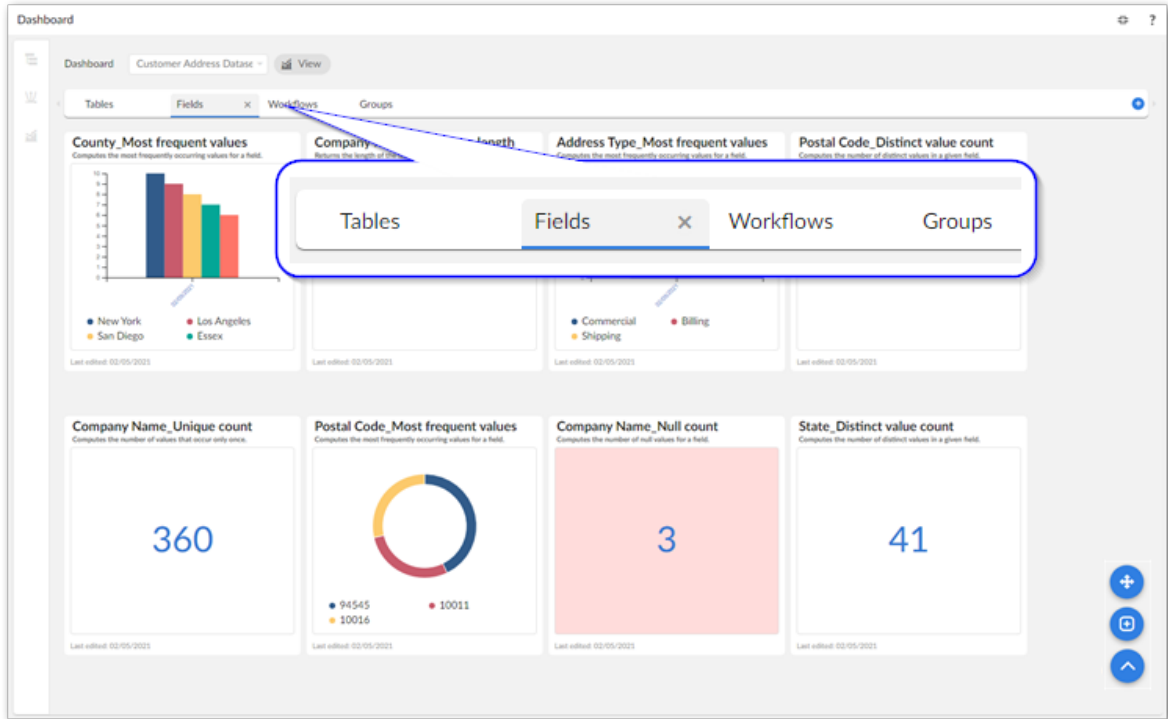
The next section describes how to get started using the add-on by creating a dashboard.

6.2 Creating a dashboard

You can use the **Create a dashboard** service to create a dashboard. After an administrator has enabled this service for your EBX® profile, you can access the service in the following locations:

- Open the **Actions** menu when viewing a dataspace or dataset. You must use this method when creating your first dashboard.

- When viewing an existing dashboard, open the **Actions** menu.

> **Note**
>
> You can only add indicators to *sections* in a dashboard. See Adding sections [p 31] for instructions on adding sections.

The following image and descriptions highlight options:

---
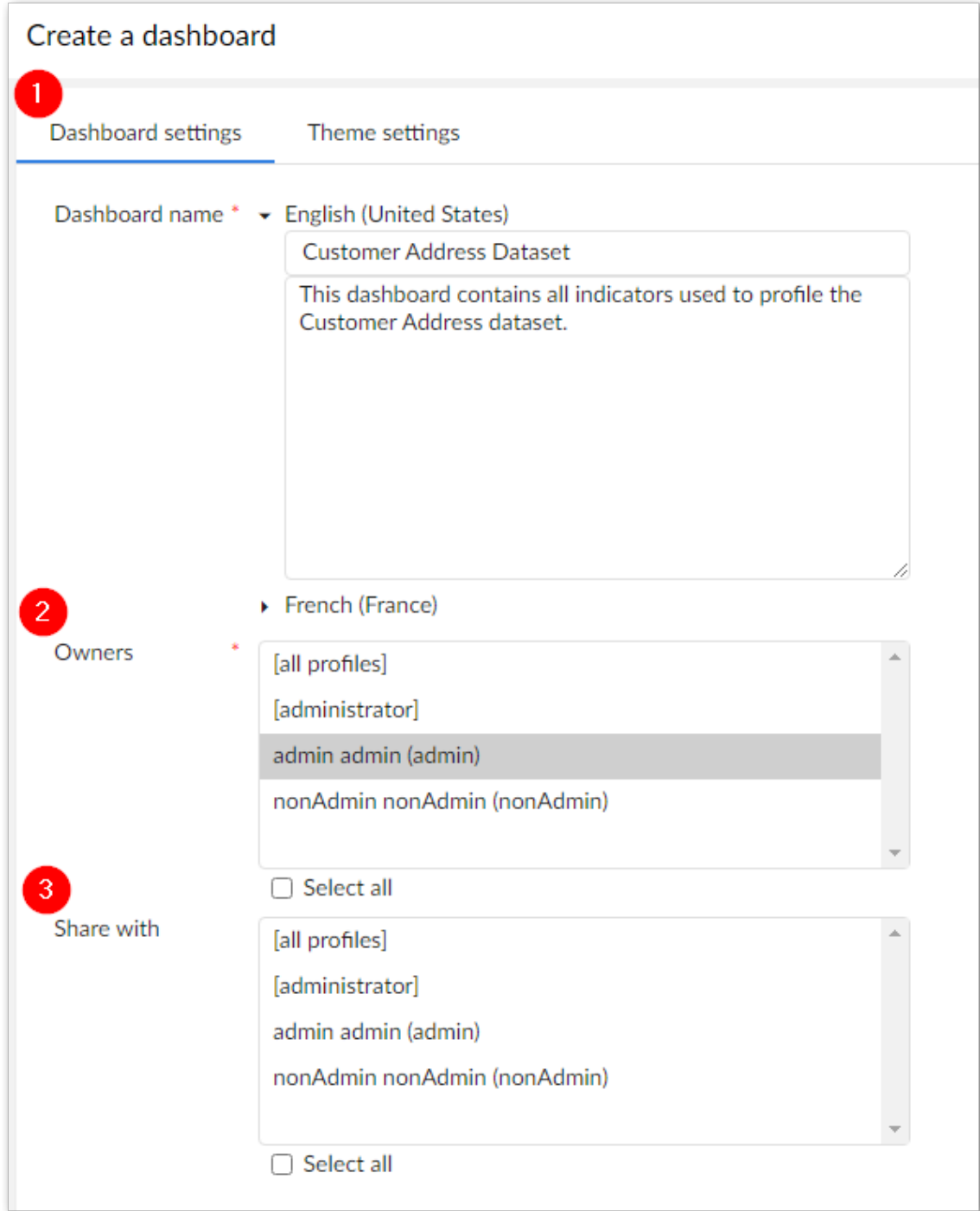
1) Dashboard settings, Theme settings, Dashboard name:

The **Dashboard settings** tab allows you to name and describe the dashboard. Additionally, it provides options for sharing and allowing other profiles to edit.

The **Theme settings** tab allows you to select, create and edit themes to adjust the dashboard look and feel. Theme settings apply to indicator charts and legends.

	Add the localized name and optionally a description for this dashboard.
2) Owner:	Set the owners of this dashboard. Owners have CRUD capabilities. By default the owner is set to you.
	Note that all profiles are shown here. However, before a user can access any dashboard, an administrator must add the user's profile to the add-on's permissions table.
3) Share with:	Choose one or more users or profiles to share the dashboard with. The allowed profiles can select this dashboard from their list of available dashboards.

After saving and closing, your new dashboard displays in edit mode where you can add sections and indicators.

See also

Adding sections [p 31]

Creating indicators [p 35]

CHAPTER **7**

Adding sections

This chapter contains the following topics:

## 7.1 **Overview**

Sections display as tabs in a dashboard and allow you to group indicators. For example, you might want to consolidate all indicators that apply to tables in one section and those that apply to fields in another.

7.2 **Adding sections**

To add a section:

1. Open a dashbord in edit mode. This happens when you:
   - create and save a new dashboard. See for additional details.

- view an existing dashboard and use the **Actions** menu to select **Edit dashboard**.
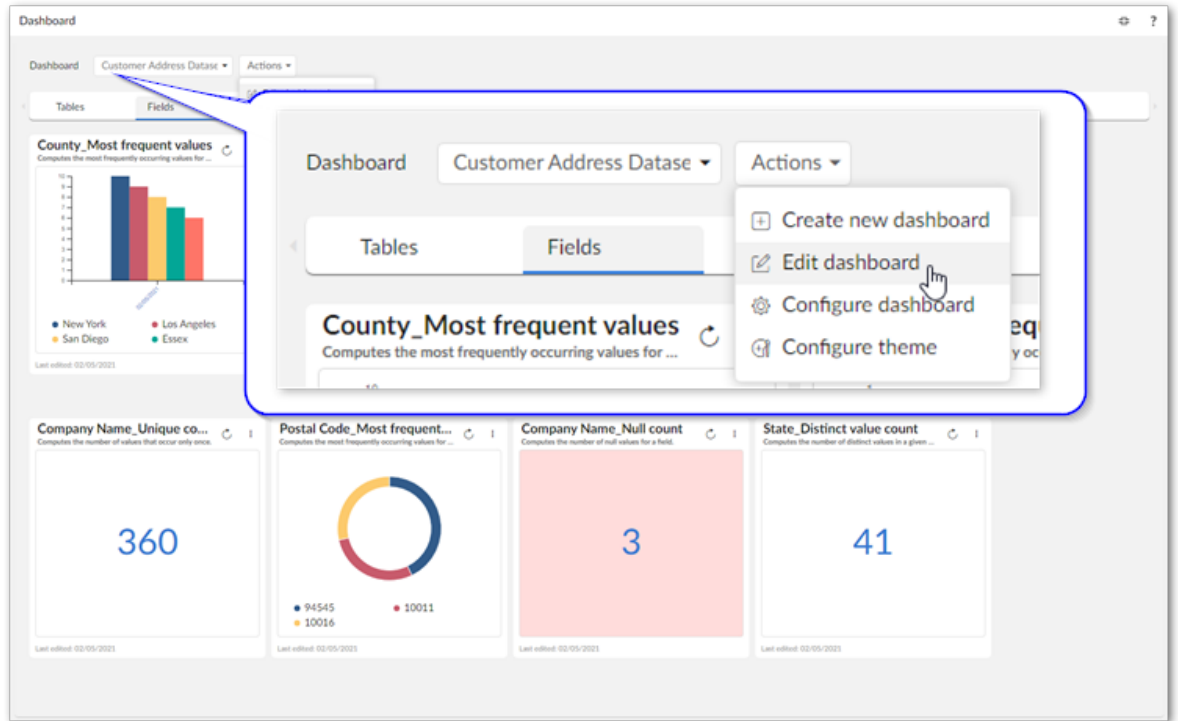
2. Select the plus icon on the section bar to add a section and give it a name:
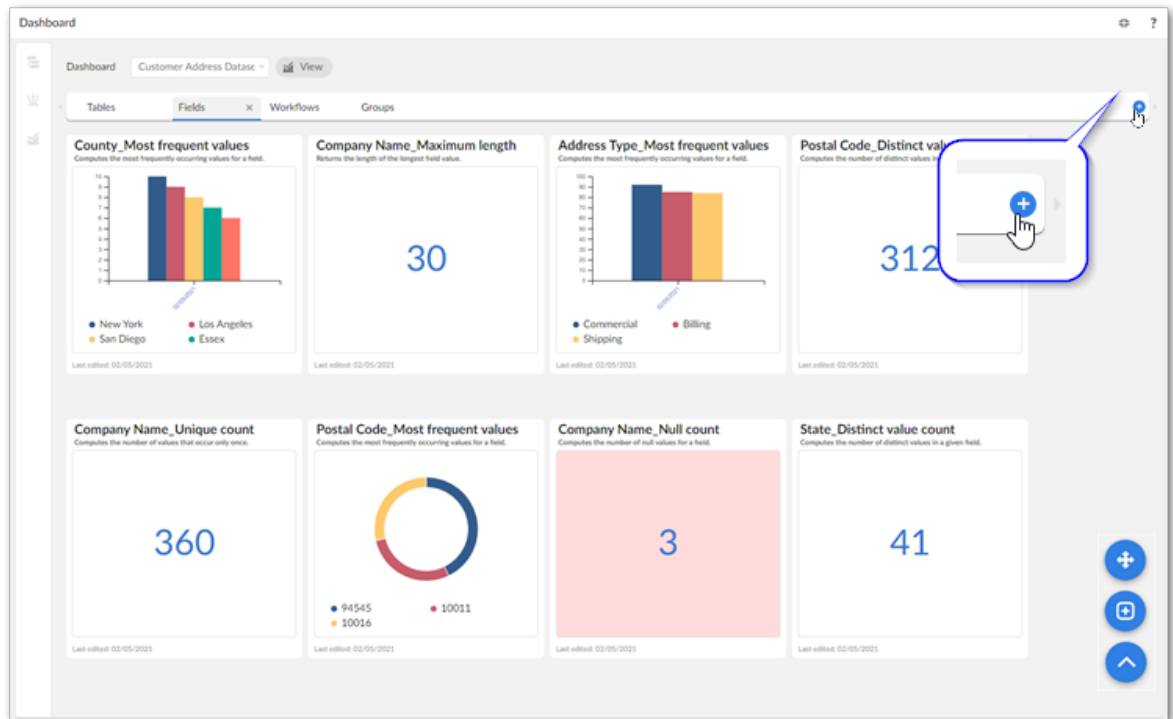
Now you are ready to create some indicators!

See also

Creating dashboards [p 27]

CHAPTER **8**

Creating indicators

This chapter contains the following topics:

8.1 Overview

Indicators can help you understand your data by measuring data quality dimensions of EBX® assets and providing visual feedback. This enables you to discover and monitor the actual structure, content, and quality of EBX® assets.

The add-on affords you the flexibility to choose from several built-in display options for results: charts, graphs, and a digital readout. Additionally, the linked record feature allows you to efficiently navigate to profiled assets.

As outlined below, when you create an indicator, you link it with a specific data asset. Then, you specify which dimension you want to profile and the technique used to profile. At this point you can optionally set additional configuration options.
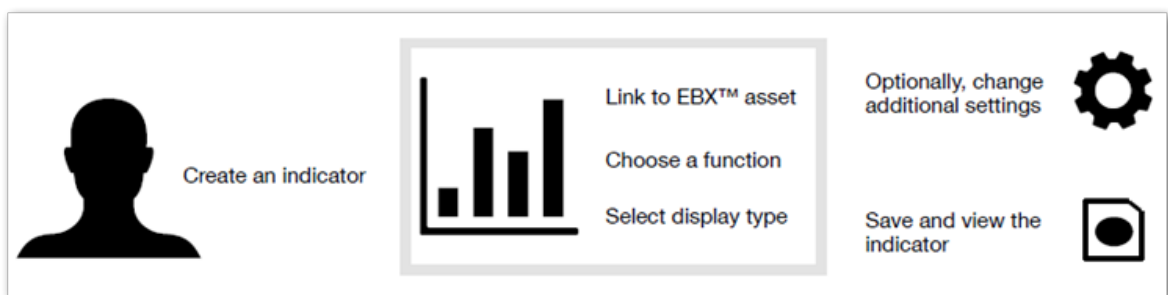
> **Attention**
>
> Before creating an indicator, the dashboard must be in edit mode and at least one section must exist. See Creating a dashboard [p 28] and Adding sections [p 31] for more information.

8.2 Creating indicators

To create an indicator:

1. Create the indicator:

1. Select the section where you want to add the indicator.
2. Select the '+' icon to create the indicator.
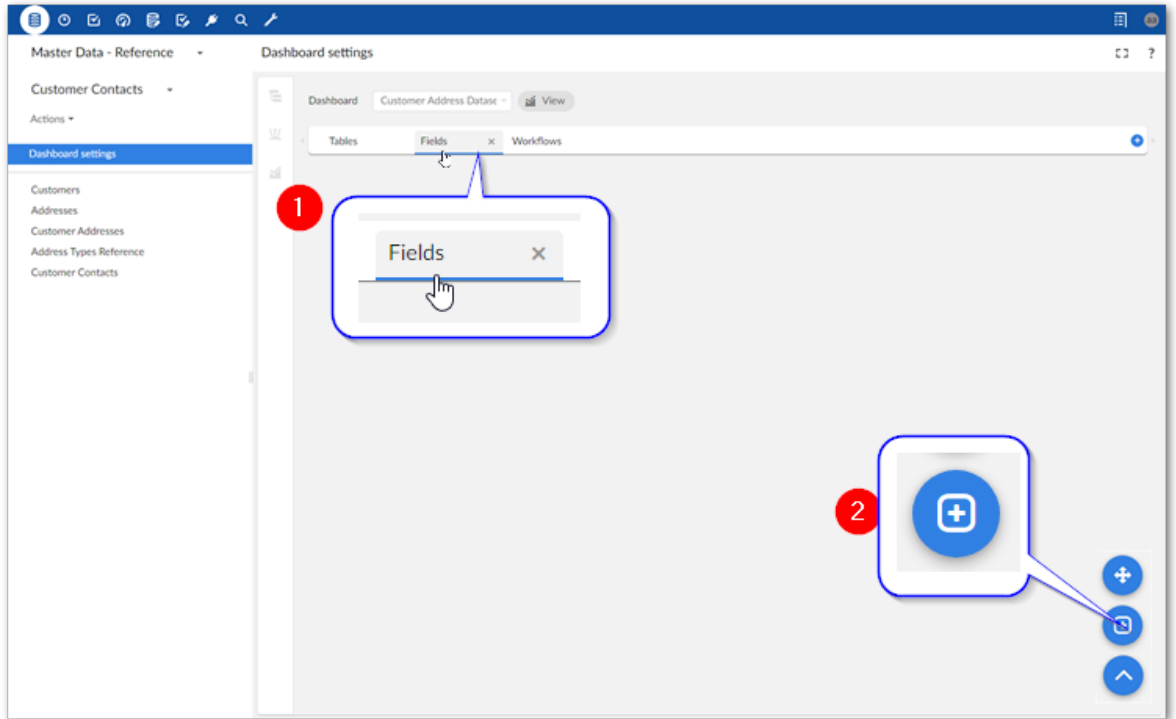
As shown below a blank indicator displays. Note that you can edit its title and description by double-clicking **Indicator title**.

2. Specify an asset, function, and optional display:

1. Use the **Asset type** menu to choose the asset type. Depending on the type of asset you select, you might have to provide additional details. For example, to select a field, you must point to the correct dataspace, dataset, and table.
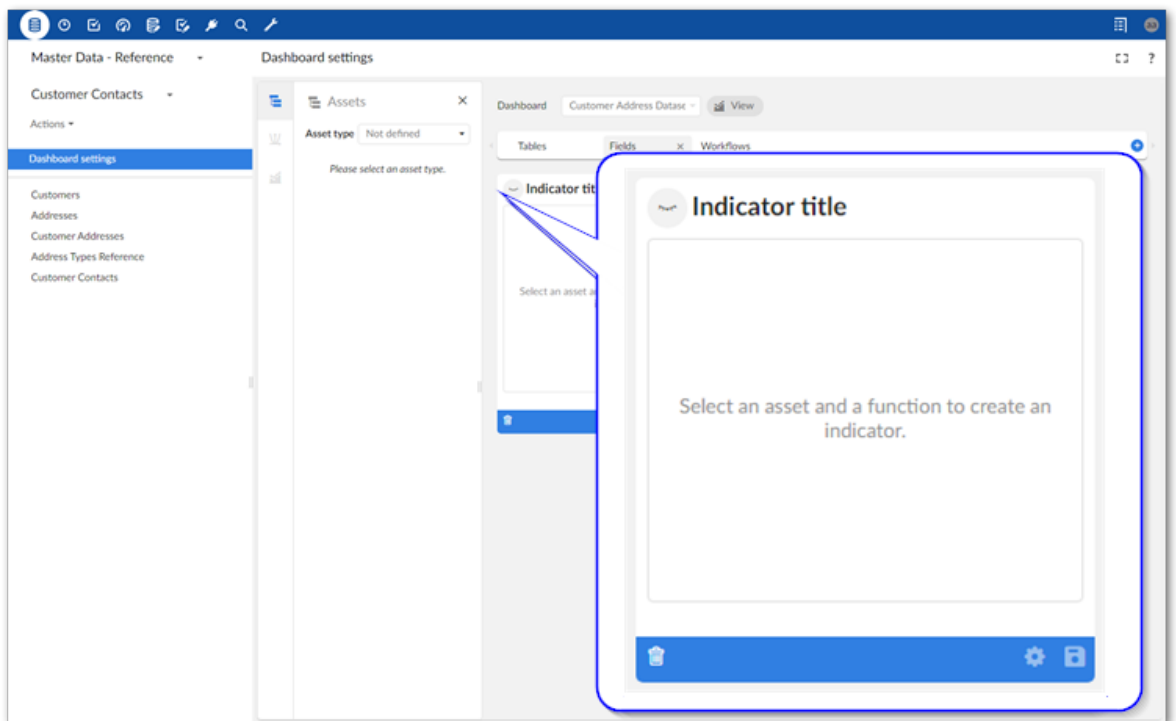
   > **Note**
   >
   > While creating an indicator, as long as you have not yet saved it, you can select the 'x' to remove the selected asset or function. After saving, you can remove the asset, but the option to remove the function is locked.

   Attention

   At this time some EBX® asset data types are not supported. These are hidden from this view.
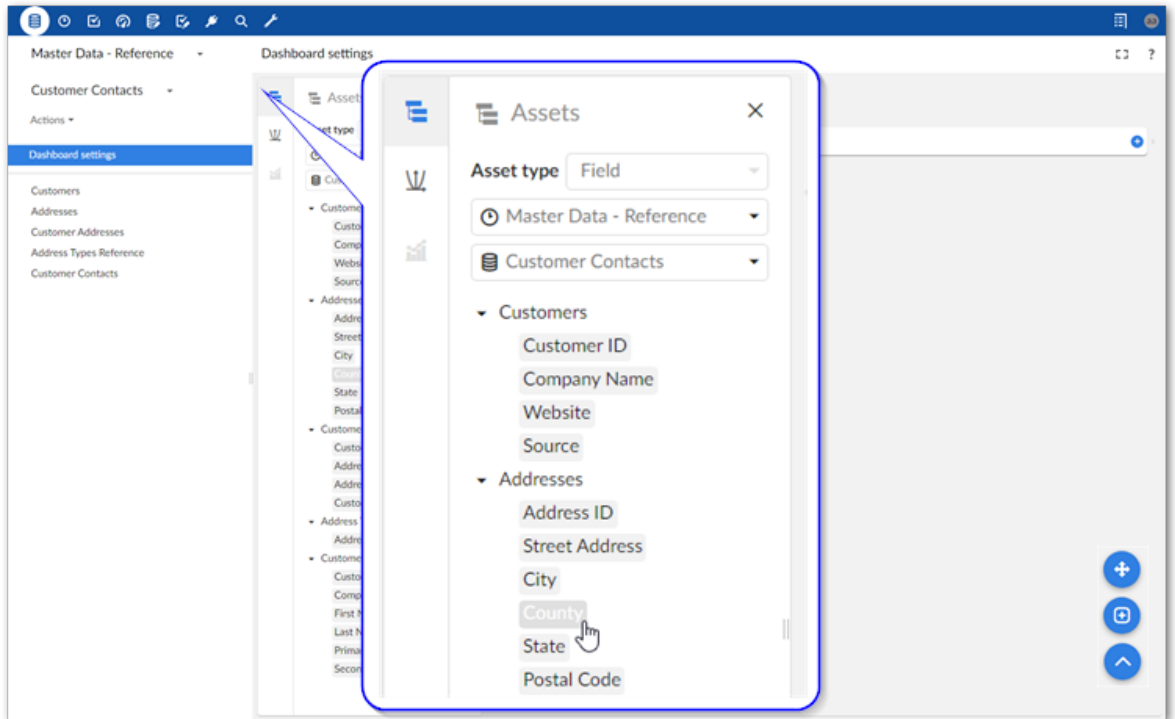
2. Select the desired function:

> **Note**
>
> The functions available are specific to the type of asset chosen for this indicator.
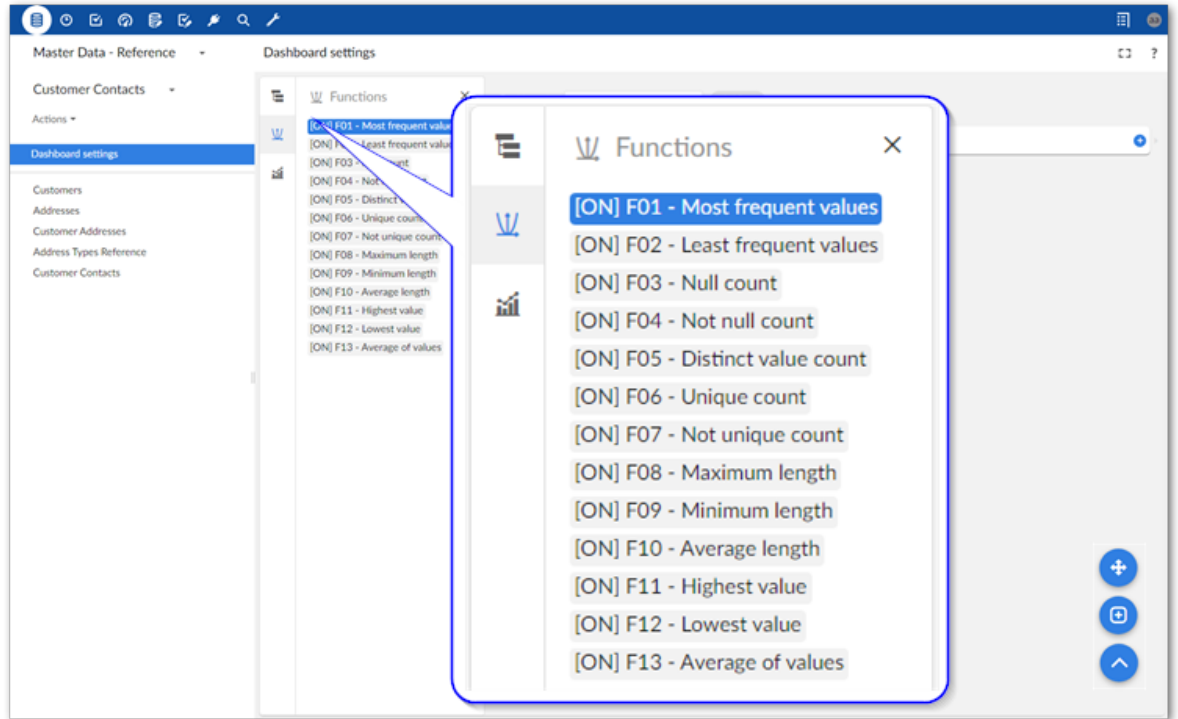
3. 1) Optionally, change the display setting. 2) Save the indicator.

Note

You can select the indicator's gear icon to change additional settings. See Configuring indicators [p 41] for more information about these options.

CHAPTER **9**

Configuring indicators

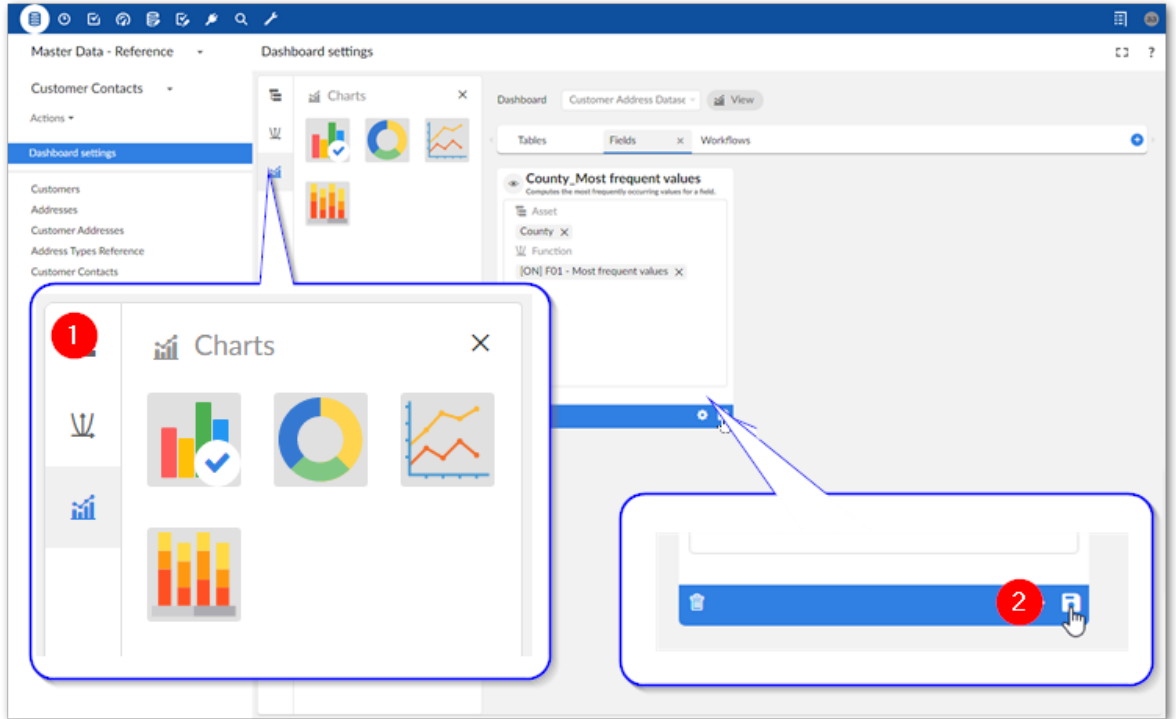This chapter contains the following topics:

9.1 Overview

When you first create an indicator, the add-on sets default options to expedite the creation process. You can adjust these settings at any time to meet specific business requirements. The following sections describes how to access these settings.

9.2 Configuring an indicator

To configure indicator settings:

1. Access configuration options when:

    1. Creating an indicator by selecting the indicator's 'gear' icon.

    2. Accessing a dashboard in the view mode by selecting an existing indicator's menu and choosing **Edit indicator**. Select the indicator's 'gear' icon to change settings.

    3. Viewing a dashboard in edit mode, select the indicator you want to edit and then select the 'gear' icon.

2. Use the **Indicator configuration** window to update settings:

The following image and list of tab descriptions provides an overview of configuration options.
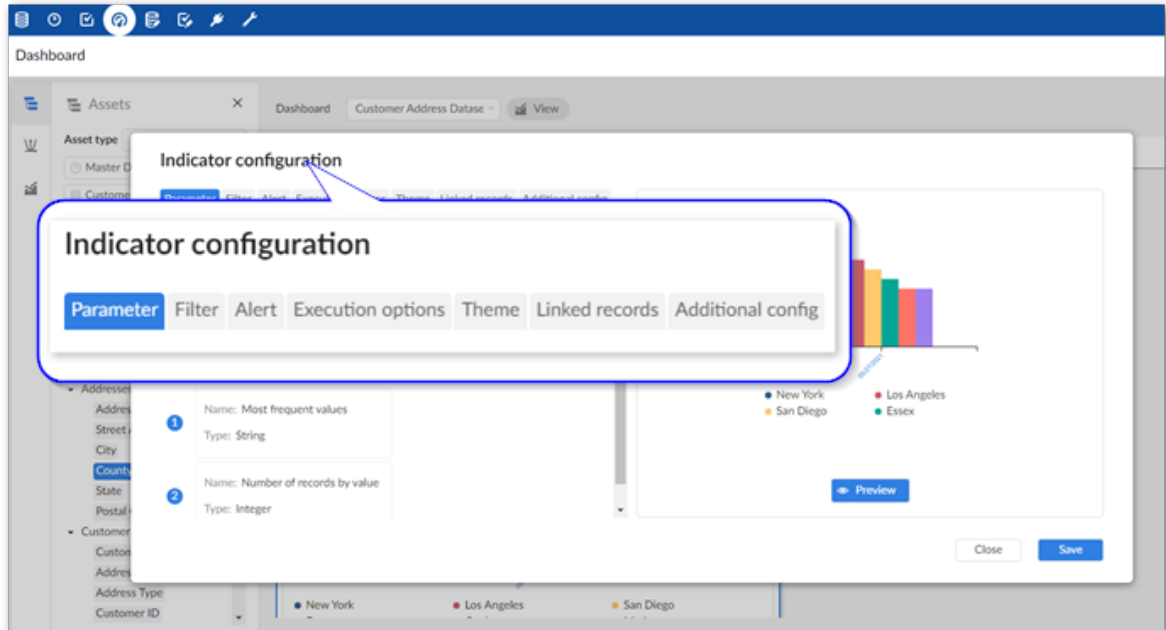
1. **Parameter** tab: Make any needed adjustments to the input parameters. Note that depending on the type of indicator, this tab might display non-editable information only. Among other things, input parameters can tell the add-on how to process a data asset and how to pass information presented visually. For example, setting the **Most frequent values** indicator to 3, displays the top three values returned by the indicator. The output parameter applies to the value returned by the indicator. Adjustments generally determine how data is formatted in the indicator display.

2. **Filter** tab: Create a filter to apply this indicator to a subset of table records. For example, you might want to filter an Employee table to only show employees hired after 01/05/2019. You would select the following options: **Field**: Hire date, **Operator**: is greater, **Value**: 01/05/2019. Note that the operators available to select and acceptable field values are based on the field's data type.

3. **Alert** tab: Set alerts that change the indicator tile's background and optionally sends an email when triggered. For example, you might want to set an alert to send an email notification when the number of missing field values is equal or greater than 19. You would select the following options: **Operator**: >=, **Value**: 19. You can also change the background color that indicates an alert was raised and add email recipients who are notified when an alert is raised.

   > **Note**
   >
   > To send email notifications, you must configure the SMTP server in your `ebx.properties` file. For instructions, see the *TIBCO EBX® Administration Guide*.

4. **Execution options** tab: This tab allows you to specify how this indicator executes. On demand (default) or Schedule, or a combination of these options.

5. **Chart theme** tab: Select the theme that determines chart display options. From this tab you can also select **Manage** to create new themes and edit existing ones.

6. **Grouping** tab (not shown): Enable and specify options to group this indicator's results.

7. **Linked records** tab: Enable and specify options for linked records.

> **Note**
>
> Currently, linked record display is limited to 1000 records.

8. **Additional config** tab: allows you to:

- Change indicator tile size. You can specify whether this indicator displays in a large or small size.

- Set the computation periodicity for indicators. Currently, this is available for indicators that use the **Number of operations** and **Number of users by operations** functions.

3. Preview and save changes.

CHAPTER **10**

Changing tile position

This chapter contains the following topics:

10.1 **Overview**

If you can access a dashboard's edit mode, you can re-order and save the position of the indicator tiles.

10.2 **Moving indicator tiles**

To change the order of a dashboard's indicator tiles:

1. Open a dashboard in edit mode:

   1. Select the desired dashboard.

2. Click *Actions > Edit dashboard*.
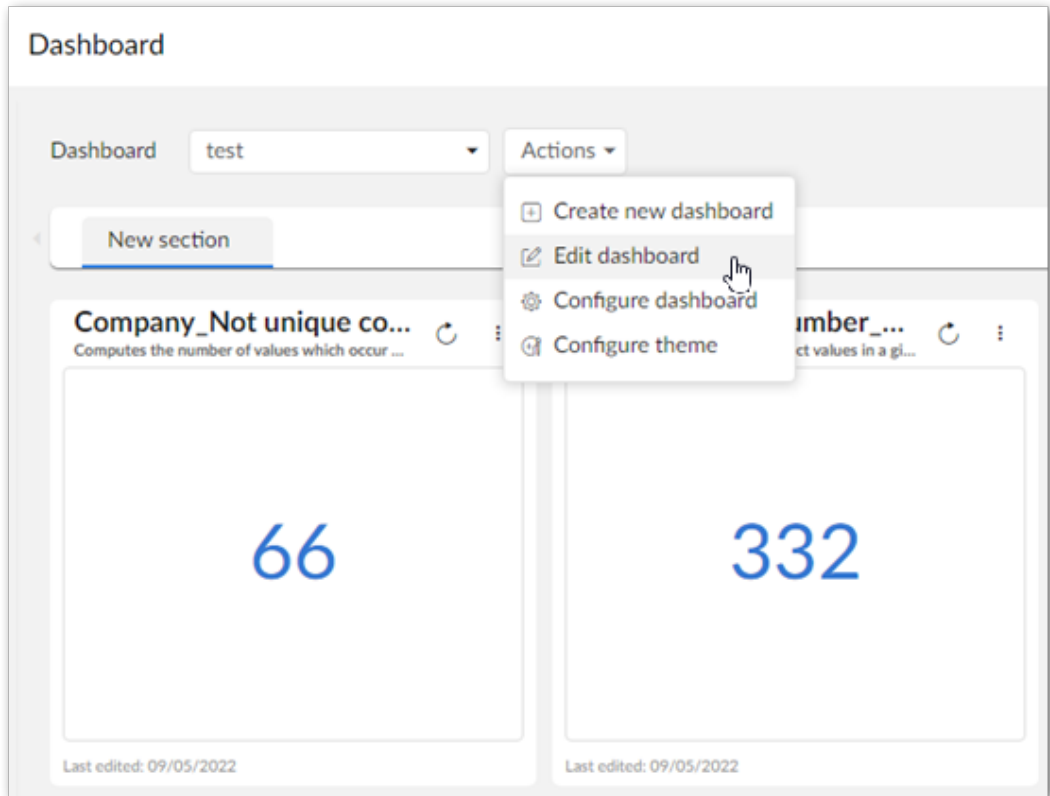
2. Click the move tiles button in the bottom-right corner of the dashboard.
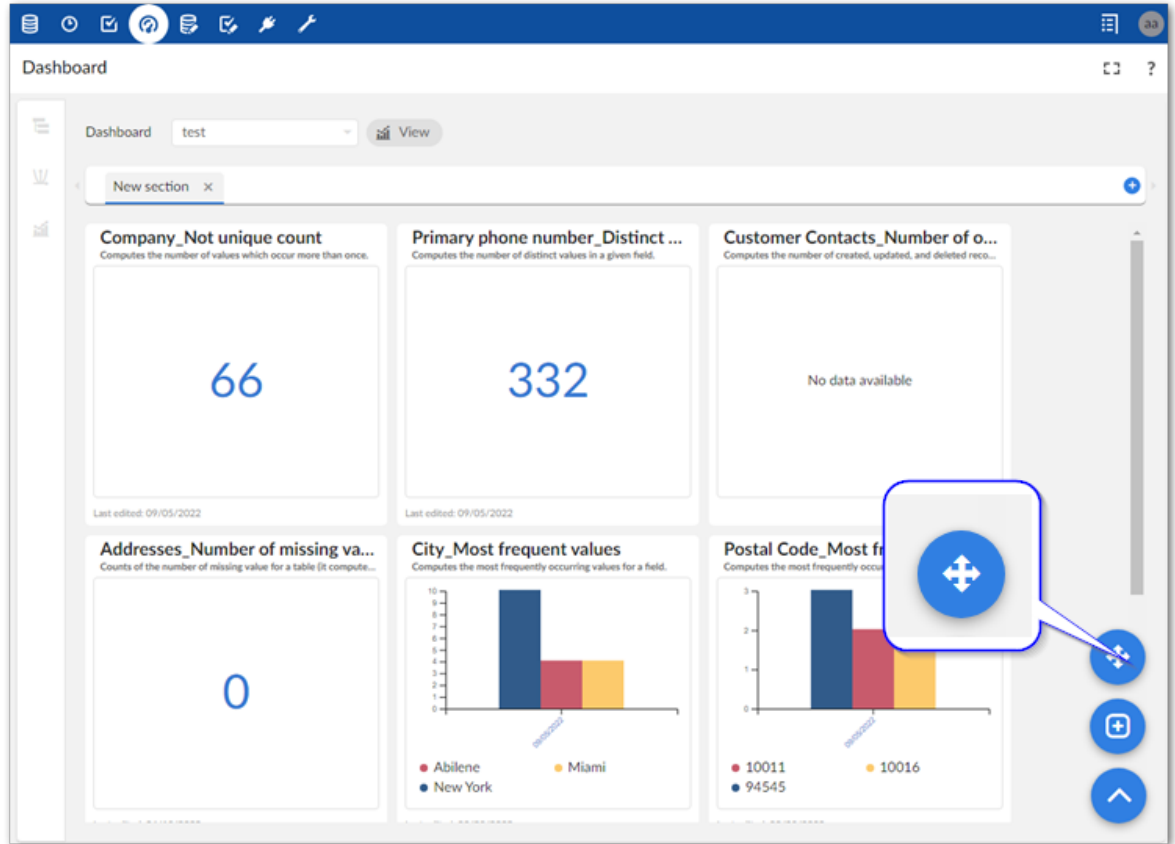
3. Select the tile you want to move and use the arrows that display to change the tile to the desired position.
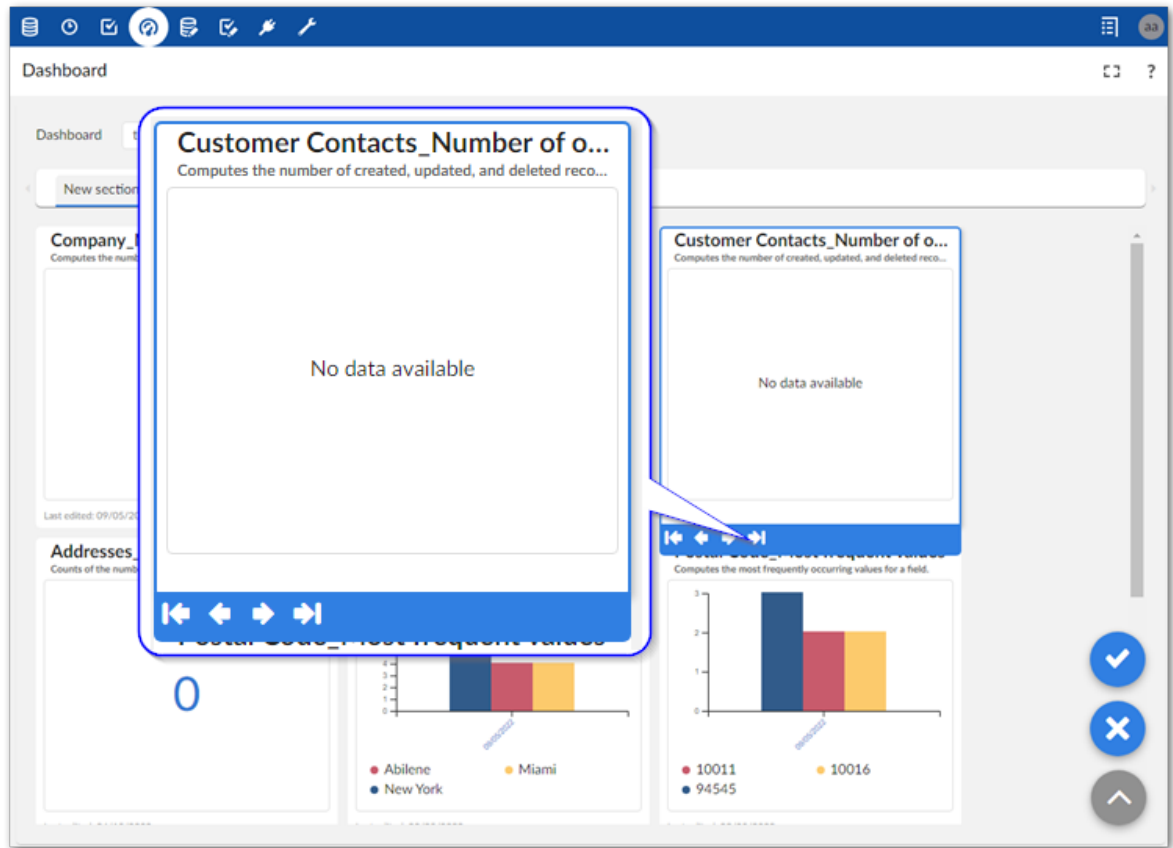
4. Save your changes by clicking the check button.
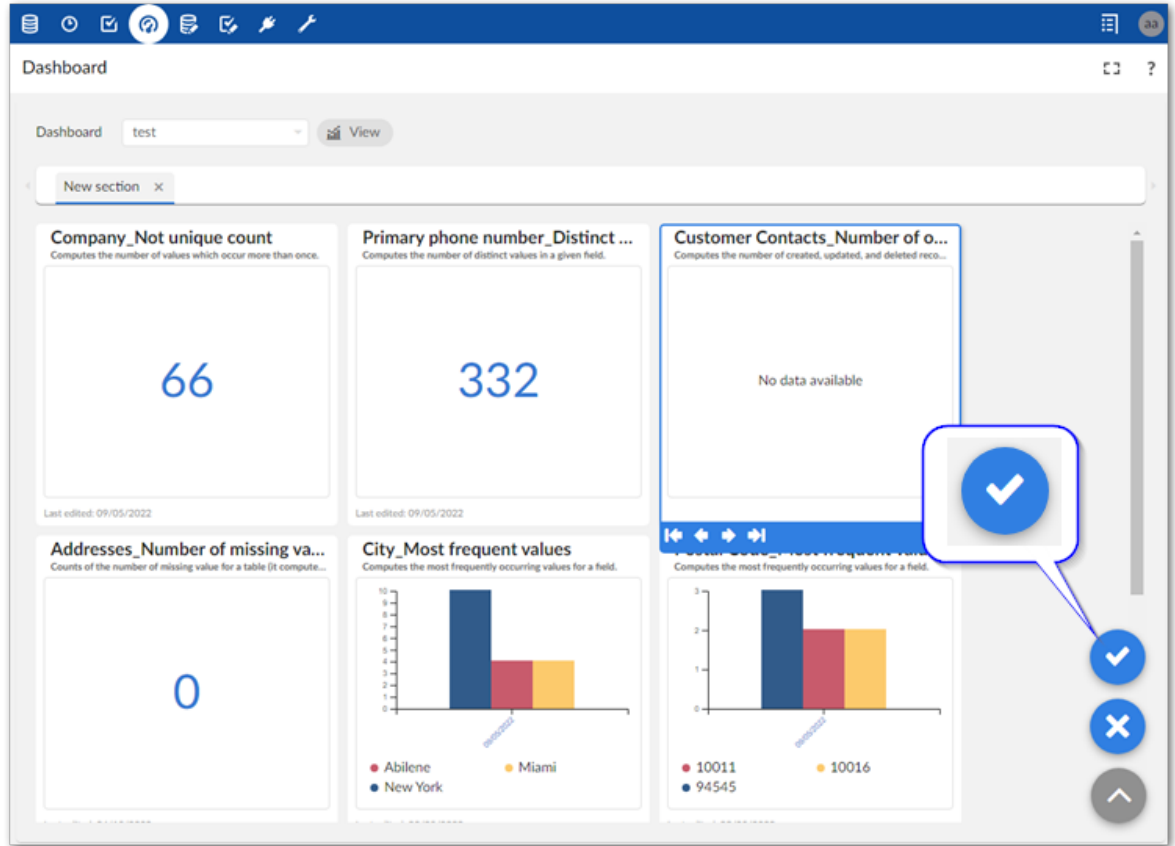
CHAPTER **11**

Accessing dashboards and manual profiling

When in the EBX® advanced perspective, you can access dashboards from the main menu bar by selecting the icon highlighted below.

> **Note**
>
> When viewing other custom perspectives, the way you access a dashboard can change. If this is the case, check with your administrator for instructions on accessing dashboards.
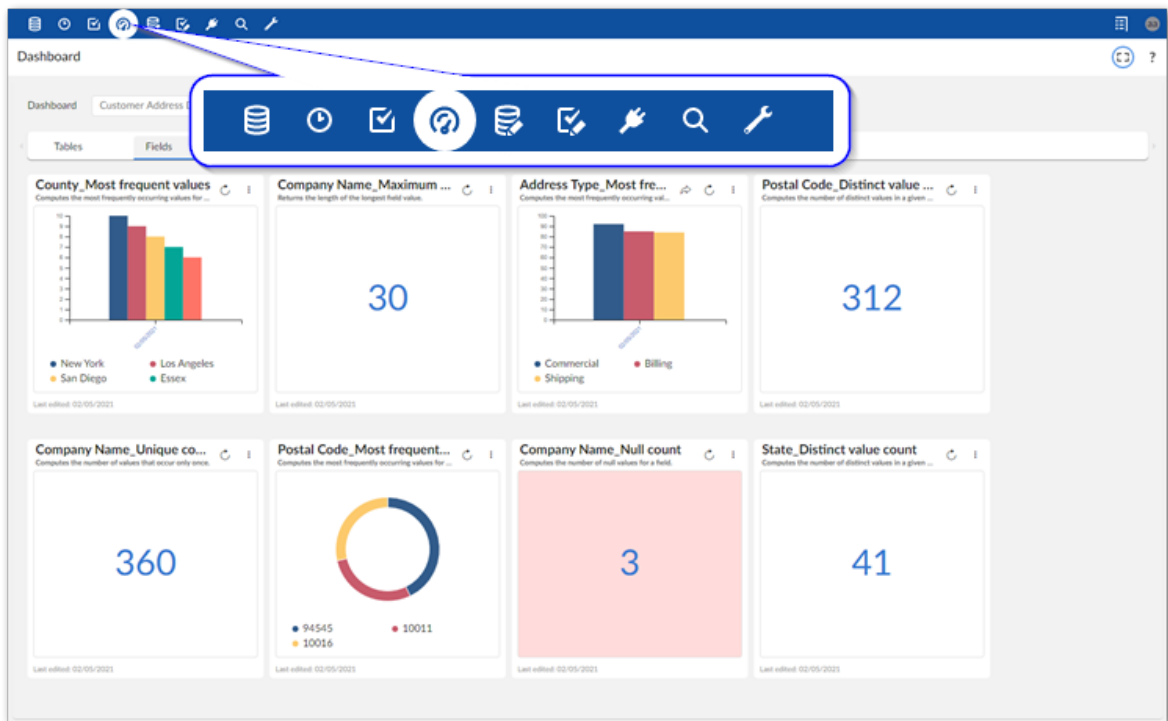
When you are viewing a dashboard, you can use the **Dashboard** menu to open other dashboards.
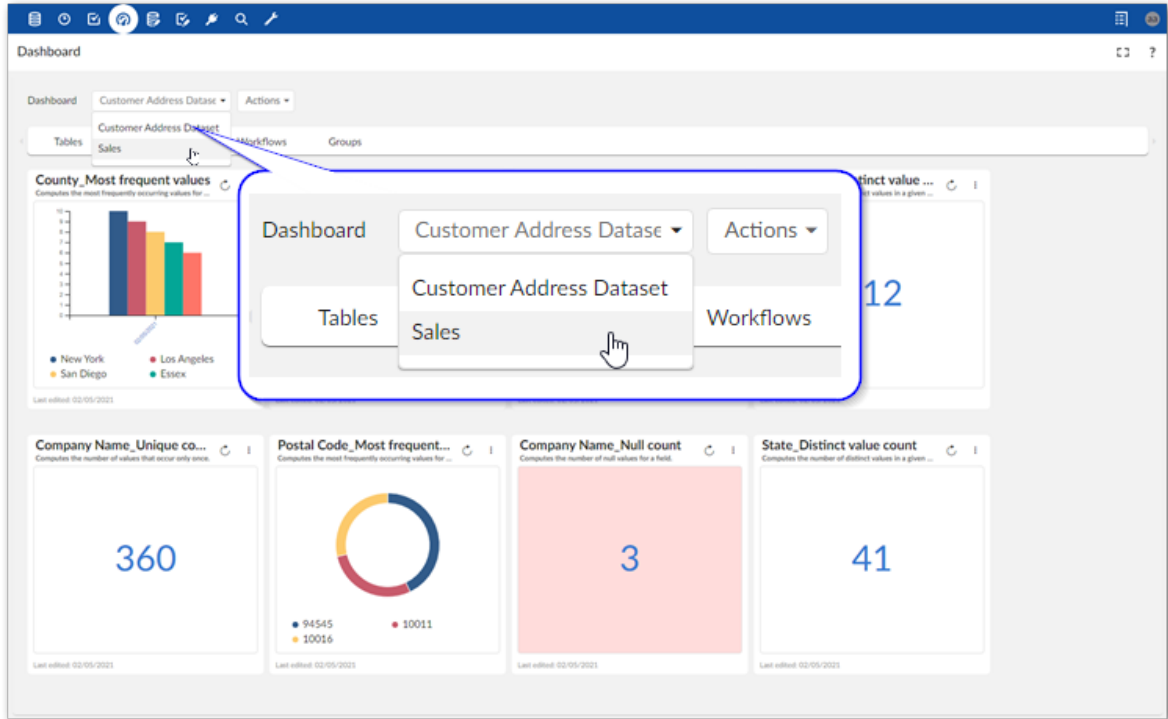
Indicators can be configured to execute on-demand, a given schedule, or a combination of thereof. As long as an indicator includes the on-demand option, you can execute that indicator using the ↻ icon.

CHAPTER **12**

Customizing display

This chapter contains the following topics:

12.1 Overview

Themes allow you to customize the display of indicator output charts. You can apply themes at the dashboard level to unify display for all indicators in a dashboard. You can also override these settings by applying themes to individual indicators. Themes are available for all profiles to use. When you delete a theme that is applied to other indicators, those indicators automatically revert to using their containing dashboard's theme. When you delete a theme applied to other dashboards, they revert to using the add-on's **Built-in** theme.

Customizable display elements in themes include:

- The position of the chart's legend.
- The color for each of the chart's output values, including grouped items.
- The tooltip's background and text color.

12.2 Creating and editing themes

The ability to create and edit themes depends on your profile's permission settings. If you are dashboard owner, or have permission to create and edit dashboards, you can work with themes. The following steps provide instructions for working with themes:

Creating and editing themes

1. Create a new theme:
    - That applies to all indicators in a dashboard:

1. When creating a new dashboard, or editing configuration settings for an existing dashboard, select the **Theme settings** tab.
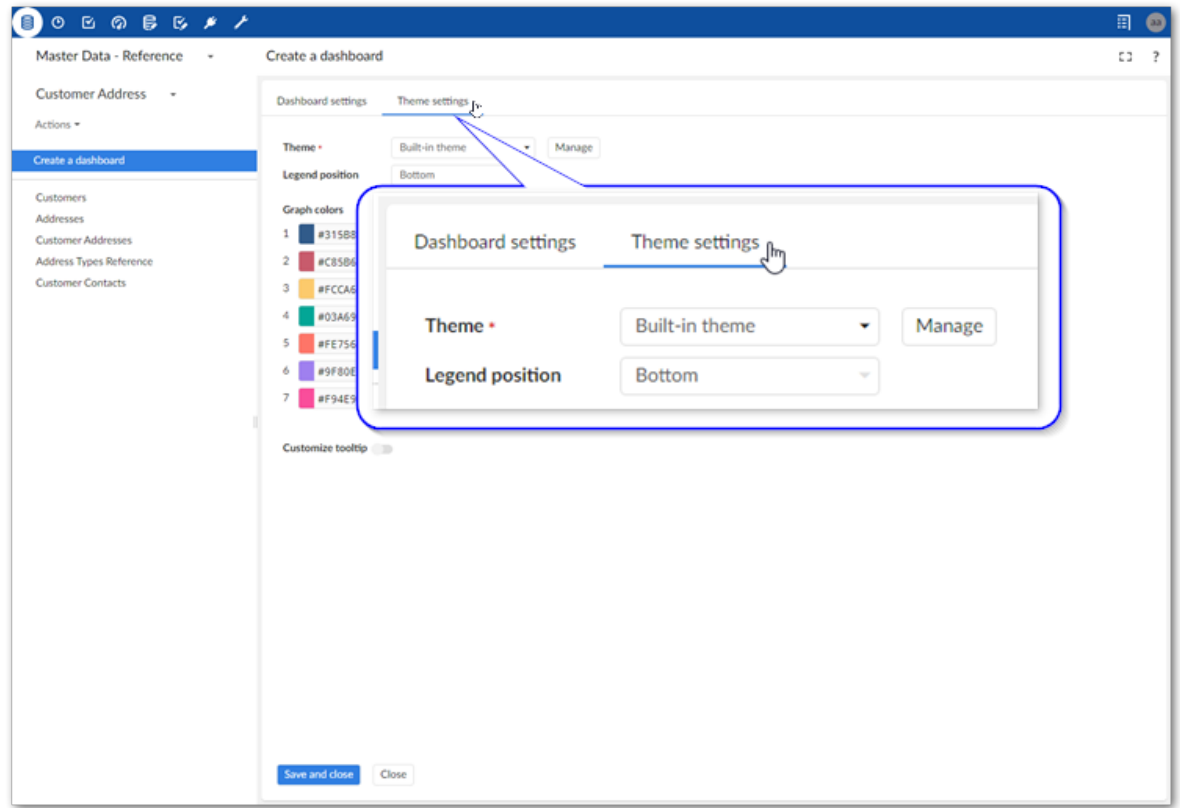
2. Select **Manage**.

3. Select **Create new theme** in the **Theme management** window.

- That applies to a singe indicator (this overrides the dashboard theme settings for this indicator):

   1. When editing an indicator, select its ⚙ icon.

2. Select the **Chart theme** tab.

3. Select **Manage**.

4. Select **Create new theme** in the **theme management** window.

2. Edit theme display settings:

- Provide a mandatory name for the theme.

- Use the **Legend position** menu to specify where you want the chart's legend to display.

- Set chart output colors using the **Graph colors** options.

- Set colors for the indicator's tooltip background, chart's tooltip background, and text by toggling this option on and picking the respective colors.

3. Save and close to return to the previous screen. Alternatively, select **Save** to continue to manage or create other themes.

Applying themes

To change the theme:

- That applies to all indicators in a dashboard:

1. From the dashboard's **Actions** menu, select **Configure theme**.
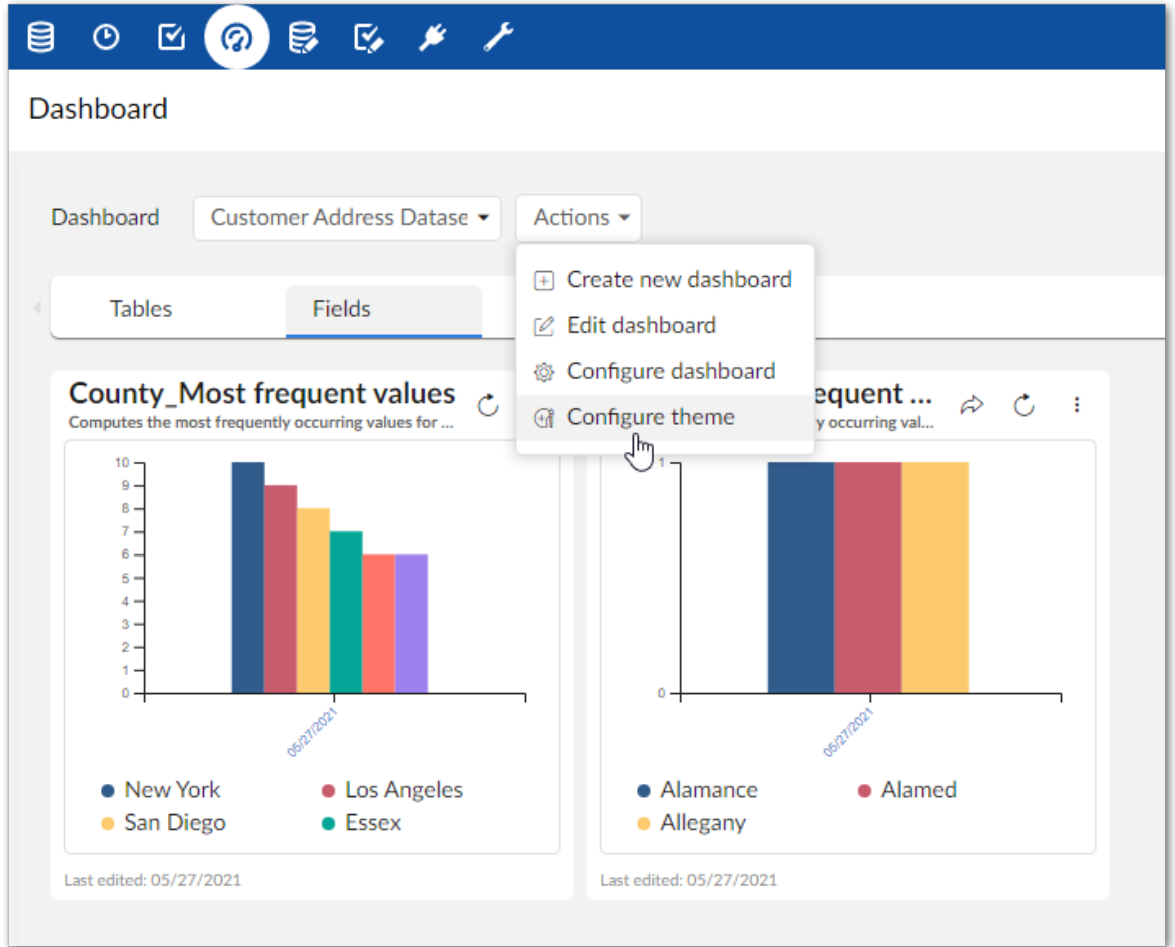
2. Use the **Theme** menu to select the desired theme.

3. Save and close.

- That applies to a single indicator (this overrides the dashboard theme settings for this indicator):

    1. When editing an indicator, select its 'gear' icon.

    2. Select the **Chart theme** tab.

    3. Use the **Theme** menu to select the desired theme.

    4. Save and close.

12.3 **Deleting themes**

When you delete a theme that is applied to other indicators, those indicators automatically revert to using their containing dashboard's theme. When you delete a theme applied to other dashboards, they revert to using the add-on's **Built-in** theme.

To delete an existing theme:

1. Access the theme management screen:

    - For dashboards:

1. When creating a new dashboard, or editing configuration settings for an existing dashboard, select the **Theme settings** tab.

2. Select **Manage**.
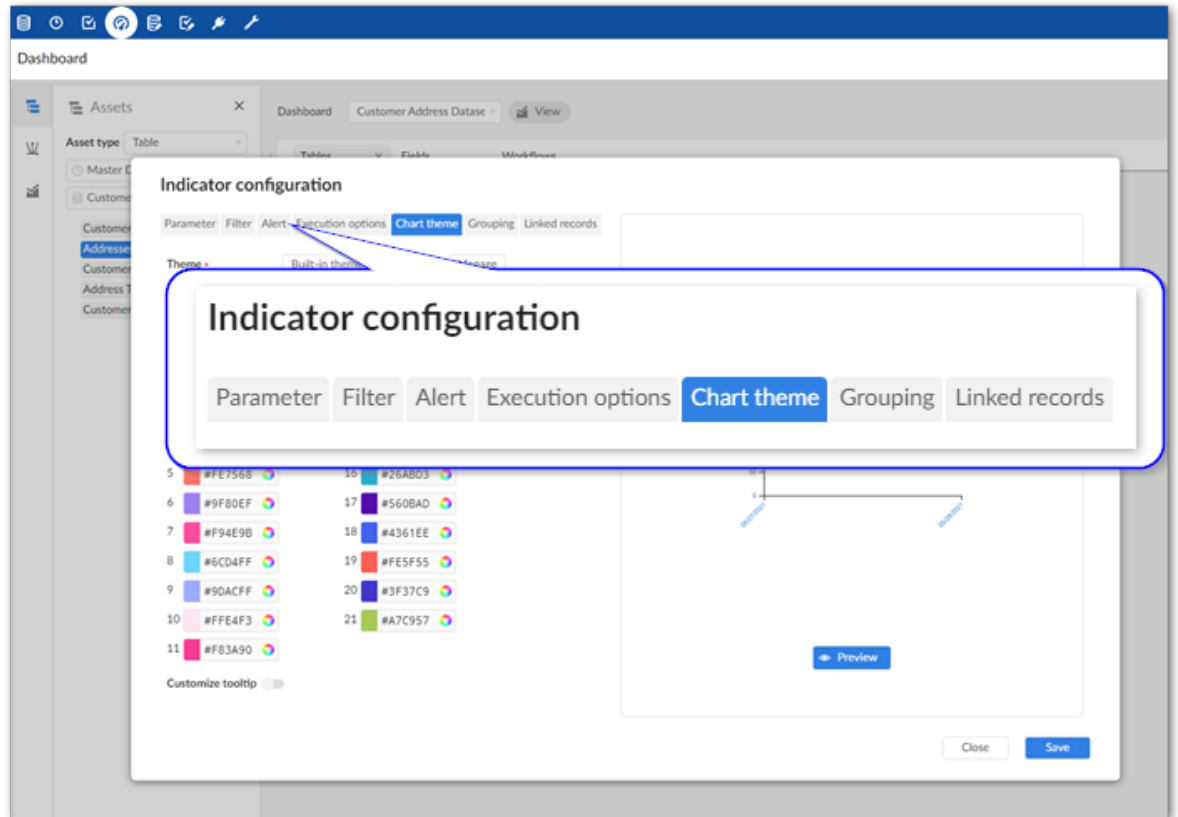
- For indicators:

  1. When editing an indicator, select its ⚙ icon.

  2. Select the **Chart theme** tab.

  3. Select **Manage**.

2. In the list of themes, hover your mouse over the desired theme and select the 'trash' icon to delete it.

CHAPTER **13**

Accessing linked records

This chapter contains the following topics:

13.1 Overview

The data asset characteristics (dimensions) measured by the add-on are tied to records in most cases. In a sense, a "link" exists between record data and the output on charts. When the option is enabled, users can access these "linked records" when viewing an indicator. This provides a handy way to access the underlying data represented by the output in an indicator's chart. Additionally, if you have sufficient permissions, you can edit linked records.

13.2 Enabling linked record access

To enable access to linked records:

1. Open an indicator in edit mode.

2. Select the indicator's 'gear' icon in the bottom-right corner.

3. Select the **Linked records** tab and toggle the **Enable** option. Optionally, select an available **Custom view** for the linked records.

13.3 Accessing and editing linked records

After enabling linked record access as described in the previous topic, two options are available to view linked records:

- View records linked with all indicator results: Select the ⤳ icon on the indicator.

- View only a subset of linked records that are associated with a specific output value: Right-click the bar, line point, or slice and select **Display a subset of linked records**.

If you have sufficient permissions, you can edit the linked records. Double-click a record to open it in edit mode, or use the **Actions** menu to perform standard actions available in EBX®. You can

make edits to multiple records, but once you close the screen displaying the linked records, the add-on automatically executes the indicator.

> **Note**
>
> The option to create a new record is not available from the **Actions** menu.

Reference Guide

UI reference

CHAPTER **14**

Dashboards

This chapter contains the following topics:

14.1 Automated profiling dashboards

Dashboards generated when running the automated **Launch data profiling** service have an overview and a level you can drill down into and see more details on individual fields. The following image and table highlight the overview mode:

The following image and table highlight the options when viewing field details:
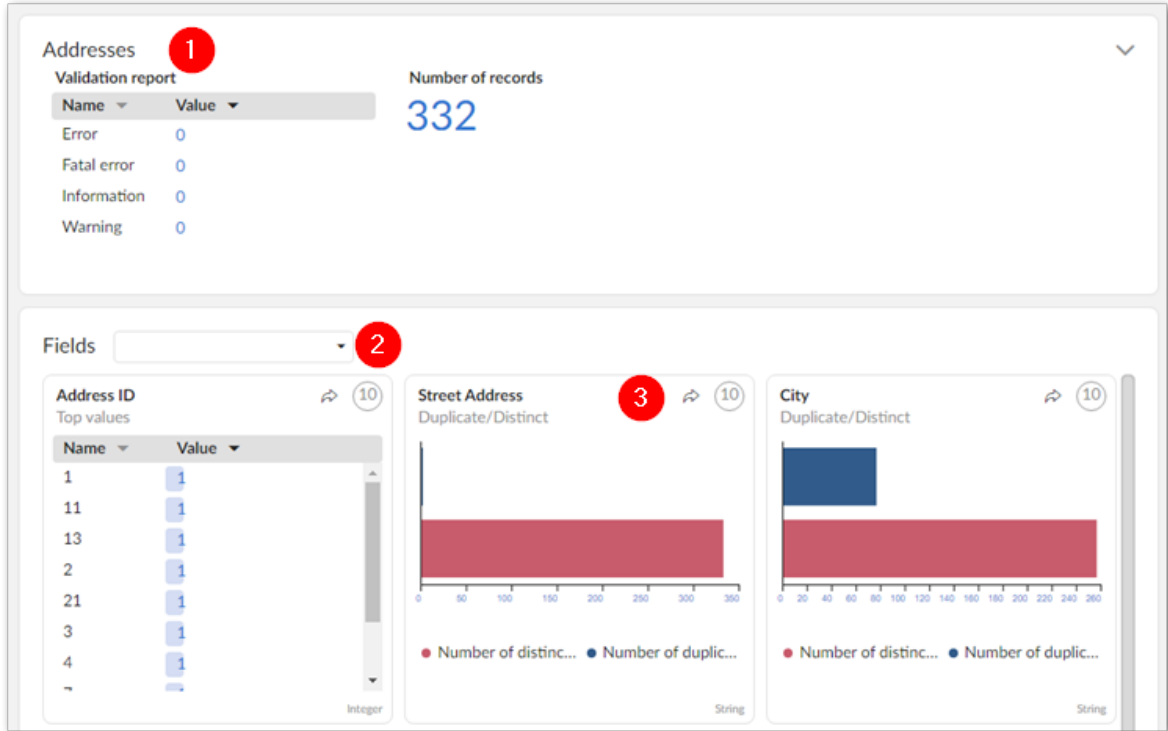
1)	Indicators that measure table data dimensions.
2)	Indicators for each of the table's fields. The indicator and dimension used at the top level depend on the field's data type. Use the **Fields** drop down to locate a field. Note you can select a field by clicking to open the menu, or type a field's name to locate it.
3)	View linked records by clicking the ⇗ icon. Click the numbered icon to drill down and view additional indicators applied to each field.

The following image shows an example dashboard after double-clicking to view additional field indicators:
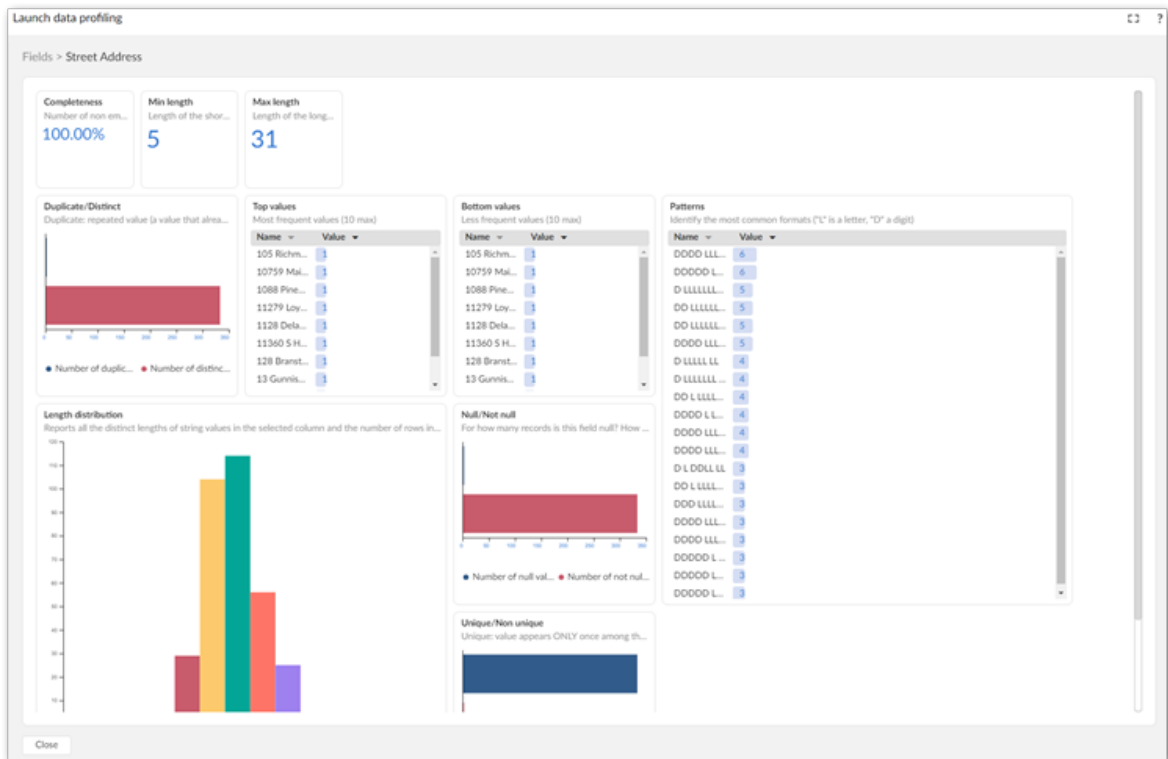
14.2 **Manually created profiling dashboards**

Dashboards have the following two modes: view and edit.

The following image and table highlight options in the view mode:
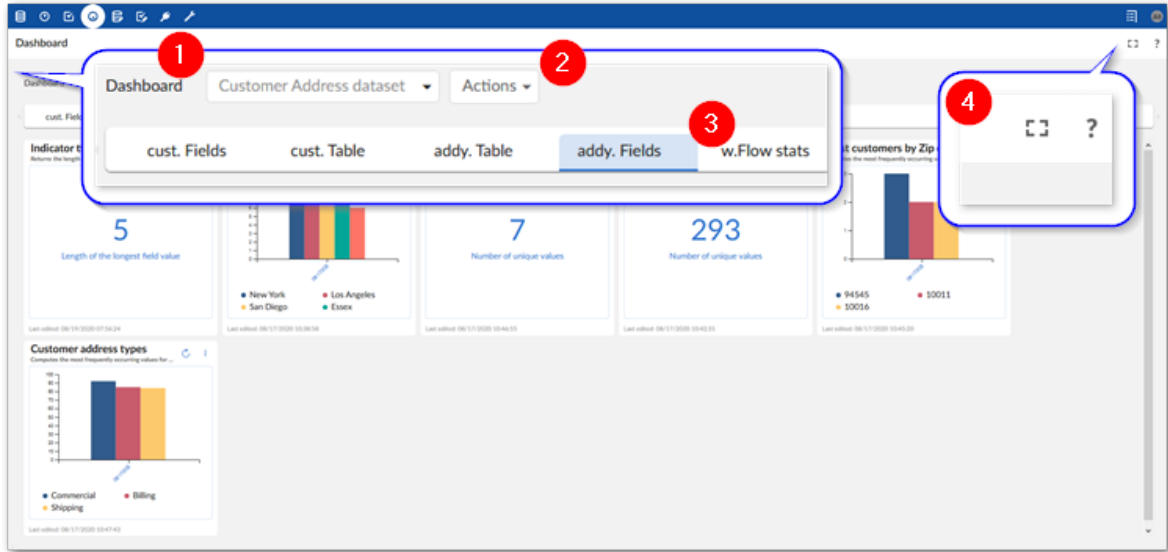
1) The Dashboard menu:	This menu:
	• Displays the name of the current dashboard and allows you to select another one to display.
	• Allows you to delete dashboards that you own by clicking the 🗑 icon.
2) The Actions menu:	This menu contains the following services and allows you to:
	• **Create a new dashboard**
	• **Edit dashboard**: Edit the currently selected dashboard by adding and removing indicators and sections.
	• **Configure dashboard**: Change configuration settings for the currently viewed dashboard. This service allows owners to set dashboard specific permissions, such as ownership and sharing. Additionally, you can access the **Theme settings** tab to manage the theme associated with this dashboard. See the description below for more details.
	• **Configure theme**: Change the theme settings that determine display settings for this dashboard. The theme set at the dashboard level applies to all sections and indicators in the dashboard. However, you can override this behavior by specifying other themes and display options for individual indicators.
3) Section tabs:	Each tab displays the section name and highlights the currently viewed section.

4) Fullscreen and help icons:	Opens the dashboard in fullscreen mode and accesses the online documentation, respectively.

The following image and table highlight options available only in the edit mode:
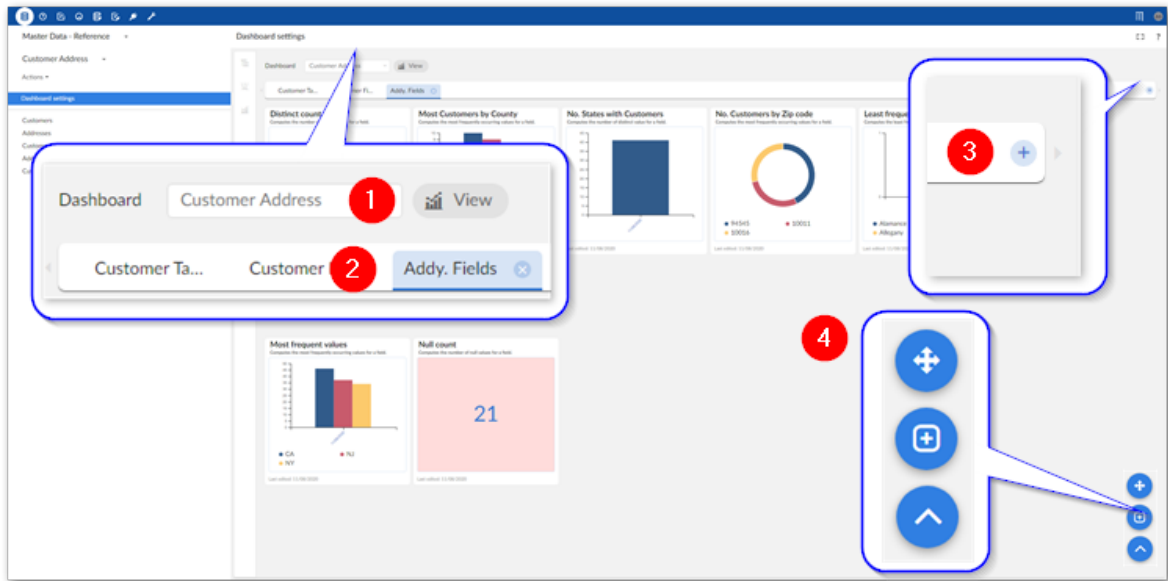
1) View icon:	Returns the dashboard to view mode.
2) Section tab options:	Double-click to change the section name, or select the 'x' icon to delete it.
3) Add section icon:	Creates a new section in this dashboard.
4) Move, Add, Save (not shown) Collapse/Expand icons:	**Move**: Allows you to change the position of indicator tiles.
	Add: Creates a new indicator in this section.
	Save (not shown): Saves your changes after you rearrange indicator tiles.
	Collapse/Expand: Collapses or expands the above icons.

CHAPTER **15**

Indicators

The following image highlights main features of indicators while a dashboard is in view mode:
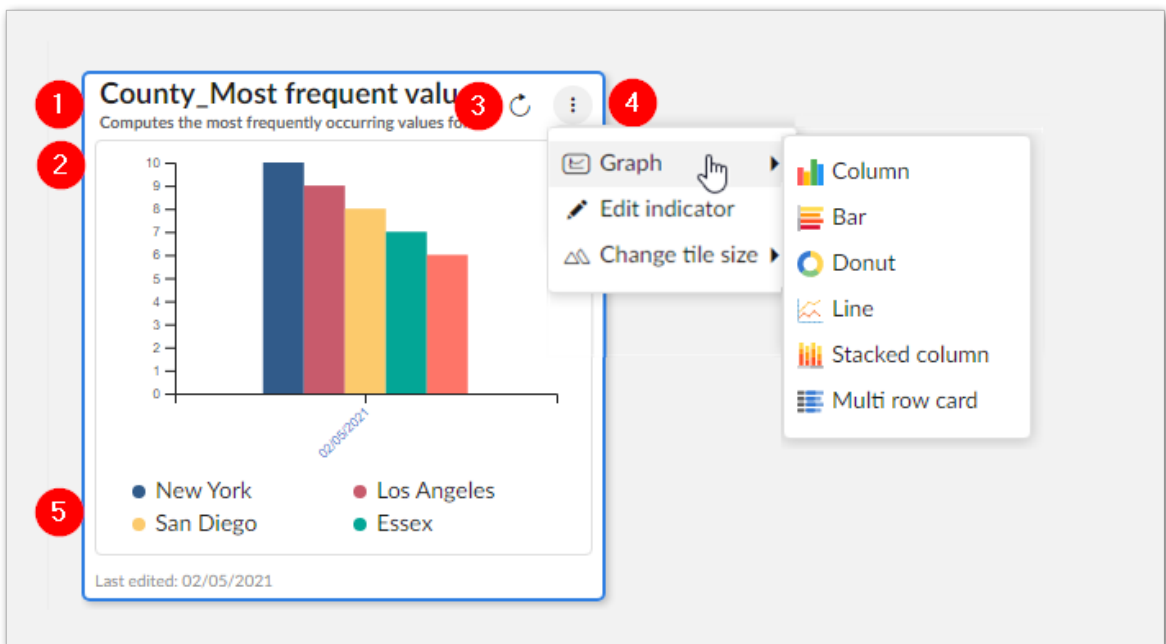
1) Title and description:	The title and description is set when the indicator is created and can be changed when in the dashboard's edit mode.
2) Visual output:	The visualization of the dimension or characteristic measured by the indicator.
3) Linked records and execute icons:	The ⇗ icon (not shown above) allows you to access linked records. Linked records are those whose data was profiled by this indicator. This option only displays when the **Linked records** option is enabled.

The execute icon displays when on-demand execution is enabled and executes the indicator when selected. You can see the last date of execution below the indicator display.

4) Indicator menu:	**Graph:** Allows you to change the indicator's display format.
	Note If you have indicators created prior to version 4.3.0 and you want them to have access to the **Multi row card** and **Bar** display options in the **Graph** menu, you must: Select **Edit indicator** and manually choose each option in the **Chart** configuration. This procedure is not necessary for indicators created using version 4.3.0 or later.
	Edit indicator: Opens the dashboard in edit mode with this indicator selected.
	Change tile size: Allows you to change the tile size. Available options are **Large** and **Small**.
5) Graph legends:	Color-coded legends that correspond to the indicator's results.
	On hover: highlights the corresponding bar, line, or slice.
	On select: hides/shows the corresponding graph element.

The following image highlights main features when an indicator is selected while the dashboard is in edit mode:
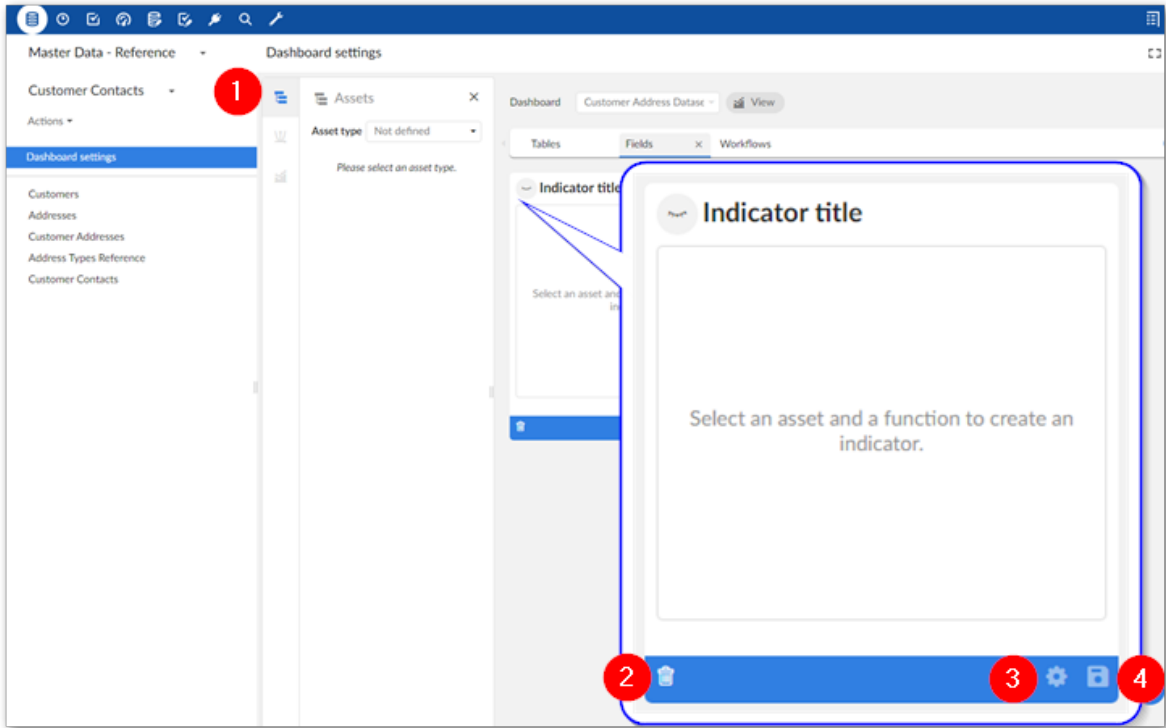
1) Configuration pane	Allows you to view this indicator's asset and function, and change the indicators chart display. Note that the indicator's asset and function cannot be changed after creation.
2)	Deletes this indicator.
3)	Opens the **Indicator configuration** window where you can adjust settings for this indicator.
4)	Saves this indicator.

Function reference

CHAPTER **16**

Dataset functions

This chapter contains the following topics:

16.1 **D06 - Dataset freshness**

Label:	Dataset freshness
Description:	Computes dataset freshness (the average of each table's freshness score). Table freshness is the average of each record's score. A record's score is calculated using the following method: subtract the indicator's last execution date from the record's last modification date. The lower the score, the fresher the data.
Input label:	N/A
Output label:	Dataset freshness (in days)

CHAPTER **17**

Table functions

This chapter contains the following topics:

17.1 **T01 - Table record count**

Label:	Table record count
Description:	Calculates the number of records in a table.
Input label:	N/A
Output label:	Number of records

17.2 **T02 - Completeness rate**

Label:	Completeness rate
Description:	Computes the completeness rate of a table.
Input label:	N/A
Output label:	Completeness rate

17.3 **T03 - Table validation report**

Label:	Table validation report
Description:	Executes the validation report on a table and saves the number of fatal errors, errors, warnings and information.
Input label:	N/A
Output labels:	Fatal error
	Error
	Warning
	Information

17.4 **T04 - Number of operations**

Label:	Number of operations
Description:	Computes the number of created, updated, and deleted records for a given table.
Input label:	N/A
Output labels:	Number of creations
	Number of updates
	Number of deletions

17.5 **T05 - Number of users by operation**

Label:	Number of users by operation
Description:	Computes the number of users that perform creations, updates, and deletions in a given table.
Input label:	N/A
Output labels:	Creation Update Delete

17.6 **T06 - Last modification date**

Label:	Last modification date
Description:	Provides the last update date of the asset.
Input label:	N/A
Output labels:	Last modification date

17.7 **T07 - Number of missing values**

Label:	Number of missing values
Description:	Counts of the number of missing values for a table (it computes the number of missing values in each field and for each record in the table).
Input label:	N/A
Output labels:	Number of missing values

17.8 **T08 - Table freshness**

Label:	Table freshness
Description:	Computes table freshness (the average of each record's freshness score). A record's score is calculated using the following method: subtract the indicator's last execution date from the record's last modification date. The lower the score, the fresher the data.
Input label:	N/A
Output labels:	Table freshness (in days)

CHAPTER **18**

Field functions

This chapter contains the following topics:

18.1 **F01 - Most frequent values**

Label:	Most frequent values
Description:	Computes the most frequently occurring values for a field.
Input label:	Maximum number of output
Output labels:	Most frequent values
	Number of records by value

18.2 **F02 - Least frequent values**

Label:	Least frequent values
Description:	Computes the least frequently occurring values for a field.
Input label:	Maximum number of output
Output labels:	Least frequent values
	Number of records by value

18.3 **F03 - Null count**

Label:	Null count
Description:	Computes the number of null values for a field.
Input label and description:	N/A
Output label:	Number of null values

18.4 **F04 - Not null count**

Label:	Not null count
Description:	Computes the number of not null values for a field.
Input label and description:	N/A
Output label:	Number of not null values

18.5 **F05 - Distinct count**

Label:	Distinct count
Description:	Computes the number of different values that occur.
Input label:	N/A
Output label:	Number of distinct values

18.6 **F06 - Unique count**

Label:	Unique count
Description:	Computes the number of values that occur only once.
Input label:	N/A
Output label:	Number of unique values

18.7 **F07 - Not unique count**

Label:	Not unique count
Description:	Computes the number of values which occur more than once.
Input label:	N/A
Output label:	Number of not unique values

18.8 **F08 - Maximum length**

Label:	Maximum length
Description:	Returns the length of the longest field value.
Input label:	Count white spaces as 1 size
Output label:	Length of the longest field value

18.9 **F09 - Minimum length**

Label:	Minimum length
Description:	Returns the length of the shortest field value.
Input label:	Count white spaces as 1 size
Output label:	Length of the shortest field value

18.10 **F10 - Average length**

Label:	Average length
Description:	Computes the average length of a field value: Sum of length of all distinct values of a field divided by the number of distinct values.
Input label:	Count white spaces as 1 size
Output label:	Average length of a fields values

18.11 **F11 - Highest value**

Label:	Highest value
Description:	Returns the highest value from a given field. It returns 'NULL' if all values are null.
Input label:	N/A
Output label:	Highest field value

18.12 **F12 - Lowest value**

Label:	Lowest value
Description:	Returns the lowest value from a given field. It returns 'NULL' if all values are null.
Input label:	N/A
Output label:	Lowest field value

18.13 **F13 - Average of values**

Label:	Average of values
Description:	Computes the sum of all field values divided by the number of non-null values. It returns 'NULL' if all values are null.
Input label:	N/A
Output label:	Field value average

18.14 **F14 - Field length statistics**

Label:	Field length statistics
Description:	Computes the highest, lowest, and average field lengths.
Input label:	Count white spaces as 1 size
Output labels:	Min length Max length Average length

18.15 **F15 - Median of a field's values**

Label:	Median of a field's values
Description:	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 sorted values. 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 sorted values. If all values are null, result is 'NULL'.
Input label:	N/A
Output labels:	Median of a field's values

18.16 **F16 - Range of a field's values**

Label:	Range of a field's values
Description:	Computes the difference between the highest value and the lowest value of a numeric series.
Input label:	N/A
Output labels:	Range of a field's values

18.17 **F18 - Field completeness rate**

Label:	Field completeness rate
Description:	Computes the completeness rate of an asset (the percentage of fulfillment of a field against all records in the table).
Input label:	N/A
Output labels:	Field completeness rate

18.18 **F20 - Patterns**

Label:	Patterns
Description:	Identifies and displays the most common formats. "L" is a letter and "D" is a digit.
Input label:	N/A
Output labels:	Format value Count

18.19 **F21 - Number value distribution**

Label:	Number value distribution
Description:	Reports all the distinct number values in the selected column and number of rows (number of counts) in the table that each value represents.
Input label:	Maximum number of output
Output labels:	Distinct number values Number of counts by number value

18.20 **F22 - String length distribution**

Label:	String length distribution
Description:	Reports all the distinct lengths of string values in the selected column and the number of rows in the table that each length represents.
Input label:	Maximum number of output
Output labels:	Distinct string length values Number of counts by string length value

18.21 **F23 - Duplicate count**

Label:	Duplicate count
Description:	Computes the number of duplicate value for a field. A duplicate value is a value that is repeated in the column.
Input label:	N/A
Output labels:	Number of duplicate values

CHAPTER **19**

Workflow functions

This chapter contains the following topics:

19.1 **W01 - Number of open workflow instances**

Label:	Number of open workflow instance
Description:	Computes the number of open workflow instances for a workflow publication.
Input label:	N/A
Output labels:	Number of open workflow instances

19.2 **W02 - Workflow instance statistics**

Label:	Workflow instance statistics
Description:	Computes the number of workflow instances in different states, such as to be executed, in progress, completed, and errors.
Input label:	N/A
Output labels:	Instances in progress Completed instances Instances with errors

19.3 **W03 - Task average processing time for a workflow publication**

Label:	Task average processing time for a workflow publication
Description:	Computes the average processing time of each task for all the instances of a workflow publication. The processing time is the difference between the started date and the completed date (interval). Uncompleted tasks are ignored and not computed. This function can monitor multiple tasks. Additionally, the computation is done on profiles, so you can configure it to monitor single users or users in a group.
Input labels:	User Calculate from the offered or allocated moment
Output labels:	Task name Average processing time

19.4 **W04 - Longest task duration**

Label:	Longest task duration
Description:	Computes the longest task duration for a workflow publication. Only manual tasks are computed. The duration is the difference between the starting date and time and the completed states.
Input labels:	User Calculate from the offered or allocated moment
Output labels:	Task name Duration of execution

19.5 **W05 - Workflow publication average processing time**

Label:	Workflow publication average processing time
Description:	Computes the average processing time for a workflow publication. All completed instances of the publication are used. The duration is the difference between the started and the completed date of all tasks.
Input labels:	Calculate from the offered or allocated moment
Output labels:	Average processing time

19.6 **W07 - Completed workflow instances since last execution**

Label:	Completed workflow instances since last execution
Description:	Provides 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.
Input labels:	N/A
Output labels:	Number of completed workflow instances

Developer Guide

CHAPTER **20**

REST overview

The TIBCO EBX® Insight Add-on (New) allows access to its services using a RESTful API. The add-on follows the OpenAPI Specification (OAS) to document its REST API. This allows you to use tools such as Swagger to generate and interact with our REST documentation. It is not our intent to document how to use these tools here. However, the following example shows one of the more basic ways to view the REST API documentation.

To generate the add-on's OAS:

1. Use a tool such as Postman to send a GET request to the following endpoint on your EBX® server: `http://<host>:<port>/ebx-addon-dpra/rest/v1`.

2. Ensure the response is formatted in JSON.

3. Save the response to a file.

4. Open a web browser and navigate to Swagger Editor: `https://editor.swagger.io/`.

5. Select *File > Import file* to import the add-on's specification.

The editor displays the formatted text on the left and HTML on the right.

Notices

CHAPTER **21**

Documentation and Support

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

This chapter contains the following topics:

1. How to Access TIBCO Documentation
2. Product-Specific Documentation
3. How to Contact TIBCO Support
4. How to Join TIBCO Community

21.1 How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product.

21.2 Product-Specific Documentation

The documentation for the TIBCO EBX® is available on the TIBCO EBX® Product Documentation page. This page contains the latest version of each document.

The documentation for the TIBCO EBX® Add-ons is available on the TIBCO EBX® Add-ons Product Documentation page. This page contains the latest version of each document.

To view the documents for Add-on Bundles that are compatible with other versions of TIBCO EBX®, use the **Bundle version** menu to select the desired release.

21.3 How to Contact TIBCO Support

Get an overview of TIBCO Support. You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to TIBCO Support website. If you do not have a user name, you can request one by clicking **Register** on the website.

21.4 **How to Join TIBCO Community**

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the TIBCO Ideas Portal. For a free registration, go to TIBCO Community.

CHAPTER **22**

Legal and Third-Party

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Release Notes

CHAPTER **23**

Version 6.2.0

This chapter contains the following topics:

23.1 New features

This release contains the following new features:

- A new permission option is available that takes into account any custom record level access rules. The record level permissions are set in the DMA. Take the example where a record level permission allows a user profile to only view active customers. If the table has 1000 customers and 300 were inactive, the indicator results for the user profile would only be based on the 700 active customers. When record level permissions are applied, the indicator results cannot be shared with other users when this permission setting is applied.

- Built-in workflow functions now support the legacy workflow mode.

- The add-on now has the option to apply a restriction policy when specifying user permissions.

- The queuing of scheduled indicator executions was improved.

- The permissions for the data profiling service were updated to follow the **Bypass EBX permission**, when this option is enabled.

23.2 Changes in Functionality

This release contains no changes in functionality.

23.3 Changes to third-party libraries

This release contains no changes to third-party libraries.

23.4 **Closed Issues**

- **[DPRA-2599]** Staging archives cannot be imported when the default encoding is not UTF-8.
- **[DPRA-2589]** Indicator executions do not apply rounding for the averaged results.

23.5 **Known Issues**

This release contains the following known issues:

- **[DPRA-2613]** Executing the T03 indicator function can cause other indicators configured on computed values to fail when the indicators are executed at the same time.
- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

CHAPTER **24**

All release notes

This chapter contains the following topics:

24.1 **Version 6.2.0**

New features

This release contains the following new features:

- A new permission option is available that takes into account any custom record level access rules. The record level permissions are set in the DMA. Take the example where a record level permission allows a user profile to only view active customers. If the table has 1000 customers and 300 were inactive, the indicator results for the user profile would only be based on the 700 active customers. When record level permissions are applied, the indicator results cannot be shared with other users when this permission setting is applied.

- Built-in workflow functions now support the legacy workflow mode.

- The add-on now has the option to apply a restriction policy when specifying user permissions.

- The queuing of scheduled indicator executions was improved.

- The permissions for the data profiling service were updated to follow the **Bypass EBX permission**, when this option is enabled.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

- **[DPRA-2599]** Staging archives cannot be imported when the default encoding is not UTF-8.

- **[DPRA-2589]** Indicator executions do not apply rounding for the averaged results.

Known Issues

This release contains the following known issues:

- **[DPRA-2613]** Executing the T03 indicator function can cause other indicators configured on computed values to fail when the indicators are executed at the same time.

- The following data types are not currently available for indicators to monitor:

  - multi-value foreign keys

  - associations

  - multi-value groups

- Validation of configuration data after importing it from an archive file is not supported.

24.2 **Version 6.1.3**

New features

This release contains no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

- **[DPRA-2503]** There is a potential for style conflicts to occur when no global resource condition is specified.

- **[DPRA-2508]** Checking permissions when running the add-on's services can significantly delay screen display.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.3 **Version 6.1.2**

New features

This release contains no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

The FasterXML Jackson Databind library was updated to version 2.15.2.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.4 **Version 6.1.1**

New features

You can now delete dashboards that you own.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DPRA-2414]** The chart indicator does not display correctly after applying the **end with** filter.
- **[DPRA-2410]** Legend and chart display is inconsistent.
- **[DPRA-2459]** The indicator scheduling is not handled properly when using the EBX® staging feature.
- **[DPRA-2474]** After creating and applying a new theme, card chart indicators display incorrectly.
- **[DPRA-2338]** The theme used for grouping does not take effect in the production environment.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.5 Version 6.1.0

Released: March 2023

New features

This release contains the following new features:

- The add-on was updated to ensure compatibility with the new TIBCO EBX® URL encoding format. See the EBX® release notes for more information.
- The add-on was updated to ensure compatibility with the new TIBCO EBX® staging feature. This feature allows you to migrate configuration settings from one environment to another. See the EBX® product documentation for more details.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

The SnakeYAML library was updated to version 2.0.

Closed Issues

[DPRA-2430] A fatal error occurs when launching profiling.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
    - multi-value foreign keys
    - associations
    - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.6 **Version 4.5.1**

Released: November 2022

New features

This release contains no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

The FasterXML jackson-databind library was updated to version 2.13.4.2.

Closed Issues

This release includes no closed issues.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
    - multi-value foreign keys
    - associations
    - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.7 **Version 4.5.0**

Released: September 2022

New features

This release contains the following new features:

- Indicator tile positions on dashboards can be changed and saved.

- Regardless of whether any dashboards were previously created, the **Create new dashboard** service is available in the advanced perspective.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.8 **Version 4.4.1**

Released: July 2022

New features

This release includes no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DPRA-2341]** The option to filter an indicator by a field hidden in the data model does not work.
- **[DPRA-2345]** The indicator takes a long time to load after clicking **Display a subset of linked records**.
- **[DPRA-2346]** An error is thrown when trying to use a filter with an indicator.
- **[DPRA-2357]** The chart does not display correctly after clicking **Display a subset of linked records**.

- **[DPRA-2359]** Data profiling does not return any results.
- **[DPRA-2362]** The line chart's legend does not display correctly.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups
- Validation of configuration data after importing it from an archive file is not supported.

24.9 **Version 4.4.0**

Released: June 2022

New features

This release includes the following new features:

- You can run data profiling from a custom TIBCO EBX® perspective.
- The data profiling dashboard now includes:
  - The ability to access an indicator's linked records.
  - A drop down menu that allows you to select, or search for a specific field.
  - The following functions for foreign key fields: Completeness and Top/Bottom values.
  - Tooltips that include a description of each indicator (access by hovering your mouse over the function name).

Changes in Functionality

The Least frequent value and Most frequent value functions are no longer supported on fields that have the Resource data type.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DPRA-2310]** An error occurs when creating a dashboard.
- **[DPRA-2069]** After changing a dashboard's theme settings, the add-on opens a different dashboard.
- **[DPRA-2110]** The indicator description displays incorrectly.
- **[DPRA-2146]** The **Asset** field in the **Indicator** table is missing the "required field" designation.
- **[DPRA-2290]** The chart legend displays incorrectly.

- **[DPRA-2292]** When using Firefox, the bar chart tooltip does not work correctly.

- **[DPRA-2293]** When using Internet Explorer, a line displays in the legend after clicking on a chart tile.

- **[DPRA-2294]** When changing a dashboard name and then cancelling, the name modifications are still kept.

- **[DPRA-2332]** The indicator displays a blank label.

- **[DPRA-2340]** When using Internet Explorer, the description tooltips do not display correctly after creating a new indicator tile.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:

  - multi-value foreign keys

  - associations

  - multi-value groups

- Validation of configuration data after importing it from an archive file is not supported.

24.10 Version 4.3.2

Released: April 2022

New features

This release includes no new features.

Changes in Functionality

Updates were made to ensure compatibility the TIBCO EBX 6.0.6 GA release.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:

  - multi-value foreign keys

  - associations

  - multi-value groups

- Validation of configuration data after importing it from an archive file is not supported.

24.11 **Version 4.3.1**

Released: March 2022

New features

This release includes no new features.

Changes in Functionality

This release includes no changes to functionality.

Changes to third-party libraries

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

• The FasterXML/jackson-databind library was updated to version 2.13.2.1.

Closed Issues

This release contains the following closed issues:

• *[DPRA-1708]* The '=' operator does not work correctly when configuring the filter on an indicator.

• *[DPRA-2138]* An error occurs when the input parameters of a custom function are changed after updating the add-on version.

• *[DPRA-2145]* An error displays when loading a dashboard that contains invalid data.

Known Issues

This release contains the following known issues:

• The following data types are not currently available for indicators to monitor:

  • multi-value foreign keys

  • associations

  • multi-value groups

• Validation of configuration data after importing it from an archive file is not supported.

24.12 **Version 4.3.0**

Released: February 2022

New features

This release includes the following new features:

• The new **Launch data profiling** service allows you to run automatic data profiling on a table. The only configuration required for this service is for an administrator to enable it for user profiles. This service generates a dashboard with pre-configured indicators for the table and its fields. The indicators applied to each field depend on the field's data type. You can drill down on each field to view additional indicators applied to it.

• This release includes the following new functions:

- F20 Patterns: Identifies and displays the most common formats. "L" is a letter and "D" is a digit.

- F21 Number value distribution: Reports all the distinct number values in the selected column and number of rows (number of counts) in the table that each value represents.

- F22 String length distribution: Reports all the distinct lengths of string values in the selected column and the number of rows in the table that each length represents.

- F23 Duplicate count: Computes the number of duplicate value for a field. A duplicate value is a value that is repeated in the column.

- New multi row card and bar charts are available. To access these options on indicators created prior to the 4.3.0 GA release, you must edit the indicator and select the new options in the **Chart** configuration. This procedure is not required for indicators created from the 4.3.0 GA.

- When history is enabled, you can now set a computational periodicity for the **Number of operations** and **Number of users by operation** indicators. You can set the periodicity from the **Additional config** tab when configuring the indicator.

Changes in Functionality

This release includes no changes to functionality.

Closed Issues

This release contains the following closed issues:

- *[DPRA-1837]* When a user changes the text color of a tooltip, this color is not applied for all tiles on the target section.

- *[DPRA-2061]* The **Theme** text box is not aligned with **Legend** text box position.

- *[DPRA-2063]* [REST API] The POST method works incorrectly

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:

  - multi-value foreign keys

  - associations

  - multi-value groups

- *[DPRA-1708]* The '=' operator does not work correctly when configuring the filter on an indicator.

24.13 **Version 4.2.0**

Released: November 2021

New features

This release includes the following new features:

- A Java API was implemented that allows you to create custom functions to register and execute on indicators. The API also allows you to execute indicators programmatically. See the Javadoc for more details.

- A REST API was implemented that allows you to execute indicators and obtain their results. See REST overview [p 92] for more details.

- You can now edit an indicator's linked records. With sufficient permissions, users can now access and make changes to an indicator's underlying data directly from indicator results.

- This release includes a new indicator function for tables: T08 Table freshness. This function computes the freshness rate for a table by averaging the freshness of the table's records.

- This release includes a new indicator function for datasets: D06 Dataset freshness. This function computes a dataset's freshness rate by averaging the freshness of it's tables.

- A new tile size was added. You can set indicators to display as small or large tiles in dashboards.

- As no functions are currently available to apply to the Group data type, this asset type no longer displays in the list of available asset types.

Changes in Functionality

This release includes no changes to functionality.

Closed Issues

This release contains the following closed issues:

- *[DPRA-1676]* When editing the name of a tile, the save and cancel options do not work if you scroll past the tile.

- *[DPRA-1552]* An error occurs when executing an indicator function on computed fields.

- *[DPRA-1339]* Linked records cannot be accessed after enabling them and immediately switching to the dashboard **View** mode.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:

  - multi-value foreign keys

  - associations

  - multi-value groups

- *[DPRA-1708]* The '=' operator does not work correctly when configuring the filter on an indicator.

24.14 **Version 4.1.0**

Released: July 2021

New features

This release includes the following new features:

- Permission configuration is now required to allow access to add-on services. See About add-on permissions [p 11] for more information.

- Themes are available to customize the display of indicator charts. Themes can be applied at the dashboard level and to individual indicators. When applied at the dashboard level, the settings

affect the display of each indicator in the dashboard. Settings applied to individual indicators override the dashboard settings. See Customizing display [p 53] for more information.

- An option is now available to view only a subset of records linked to an indicator's output.

- This release includes the following new indicators for fields:

  - F14: Computes the highest, lowest, and average field lengths.

  - F15: 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 sorted values. 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 sorted values. If all values are null, result is 'NULL'

  - F16: Computes the difference between the highest value and the lowest value of a numeric series.

  - F18: Computes the completeness rate of an asset (the percentage of fulfillment of a field against all records in the table).

- This release includes the following indicators for tables:

  - T06: Provides the last update date of the asset.

  - T07: Counts of the number of missing value for a table (it computes the number of missing value in each field and for each record in the table).

- This release includes the following indicators for workflows:

  - W03: Computes the average processing time of each task for all the instances of a workflow publication. The processing time is the difference between the started date and the completed date (interval). Uncompleted tasks are ignored and not computed. This function can monitor multiple tasks. Additionally, the computation is done on profiles, so you can configure it to monitor single users or users in a group.

  - W04: Computes the longest task duration for a workflow publication. Only manual tasks are computed. The duration is the difference between the starting date and time and the completed states.

  - W05: Computes the average processing time for a workflow publication. All completed instances of the publication are used. The duration is the difference between the started and the completed date of all tasks.

  - W07: Provides 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.

Changes in Functionality

This release includes the following updated functionality:

- Legends display an enumeration's label and not its Id.

- The input parameters were removed from the following functions: F03 and F04.

Closed Issues

This release contains the following closed issues:

- *[DPRA-1058]* An error occurs when saving an indicator configuration with an incorrect email address and after disabling the feature.
- *[DPRA-1059]* The indicator label displays incorrectly if it has a long custom tooltip.
- *[DPRA-1066]* Loading takes an unreasonable amount of time when trying to access linked records from an indicator that has no data.
- *[DPRA-1090]* Incorrect behavior occurs when trying to close a linked record that has an error.
- *[DPRA-1091]* Opening a linked record from an indicator using F03 or F04 when there is a null value foreign key causes unexpected behavior.
- *[DPRA-1095]* Dashboard display behavior is incorrect when creating multiple dashboards consecutively and navigating to another menu.
- *[DPRA-1144]* Users are returned to the wrong dashboard after viewing linked records in the newest dashboard and exiting.

Known Issues

This release contains the following known issues:

- The following data types are not currently available for indicators to monitor:
  - multi-value foreign keys
  - associations
  - multi-value groups

24.15 **Version 4.0.1**

Released: June 2021

Bug Fixes

[DPRA-1319] A documentation issue was corrected.

24.16 **Version 4.0.0**

New features

Released: March 2021

The TIBCO EBX® Insight Add-on (New) allows you to measure, monitor, and report on overall data quality. This can help you to determine whether data is fit for consumption by other business units or systems in your organization.

> **Attention**
>
> This version of the add-on includes UI enhancements and usability improvements but does not yet contain a full feature set. Additionally, a best-practice recommendation is to avoid editing configuration settings in the **Administration** panel and make changes using the add-on's built-in services.

The main components in this release of the add-on are *dashboards*, *sections*, and *indicators*. Dashbords and the sections within them allow you to categorize and organize indicators. Each indicator presents visual feedback on data. The image below shows an example dashboard:
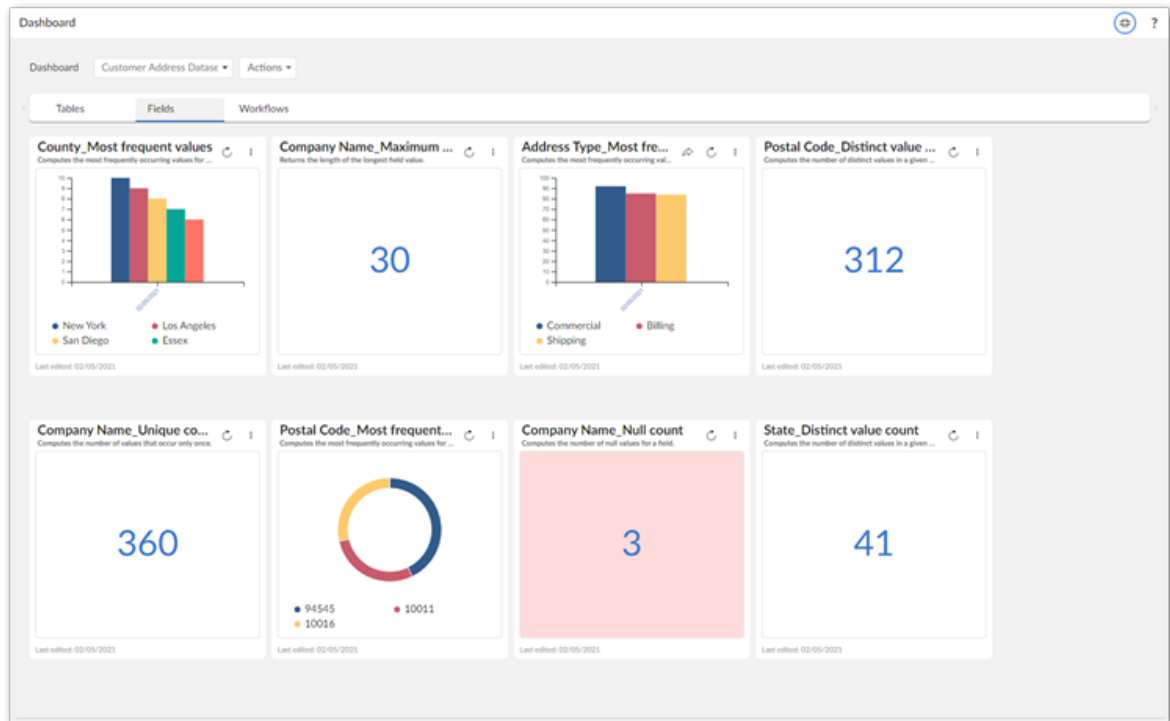
Use the links below to access additional topics:

Getting started	Creating dashboards [p 27] Adding sections [p 31] Creating indicators [p 35]
UI reference	Dashboards [p 63] Indicators [p 70]
Built-in function reference	Field functions [p 79] Table functions [p 75] Workflow functions [p 87]